Getting Evidence Moving in Schools (GEMS)

Investigation Paper

Final version

December 2020

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Terminology used in this Investigation Paper

Term	Meaning
Early career teachers	are teachers who are in their first, second or third year of teaching.
Educators	is a collective term referring to teachers, mid-level leaders and school leaders.
Evidence and research	means academic research or studies about effective teaching strategies. It includes research presented in line with academic conventions (e.g. published in academic journals) and research translated for wider audiences. In this paper, evidence and research does not include assessment or outcomes data gathered by teachers and schools, and it does not include action research conducted by educators within schools or research projects in which schools participate.
Evidence mobilisation	means the process or act of putting research findings into practice within a classroom or school. Among other things, this process is likely to involve finding relevant and rigorous evidence, understanding this evidence, adapting it to the classroom context, and monitoring its impact.
Focus area	means the particular teaching strategy, approach or theory in literacy, numeracy or general pedagogy that educators worked on through the professional learning.
Mid-level leaders	are individuals who hold specific leadership positions within a school but are not "school leaders". Mid-level leaders may include Instructional Leaders, Lead Teachers (NSW) / Leading Teachers (Victoria), Executive Team Leaders, Year Level Coordinators, Heads of Department or similar roles named by the school. These staff are likely to have a mix of leadership and classroom teaching responsibilities.
Professional learning	means educator training and support provided by the three external organisations described in section 2.5.1 of this paper. This is different from professional learning initiated within and primarily conducted by schools without involvement from external professional learning providers (although internally-designed processes are likely to assist with external professional learning).
RUS trial	means a pilot study of the Research Use in Schools survey developed by the National Foundation for Educational Research and reported in Nelson et al. (2017). The pilot study involved a sample of 509 primary and secondary school teachers from across the UK.
School leaders	are individuals appointed as Principal, Acting Principal, Deputy Principal and Assistant/Vice Principal of a school. Depending on the size of the school, these staff may or may not have classroom teaching responsibilities (e.g. in small schools, school leaders hold full-time teaching roles).
Teachers	are individuals who have classroom teaching responsibilities and are not mid-level or school leaders. They are likely to be assigned to a class within a particular year level (e.g. Year 2) or composite year level (e.g. Year 5/6).

Acronyms used in this Investigation Paper

Acronym	Meaning
CEI	Centre for Evidence and Implementation
CESE	Centre for Education Statistics and Evaluation (part of the NSW Department of Education)
E4L	Evidence for Learning (an initiative of Social Ventures Australia)
GEMS	Getting Evidence Moving in Schools
NFER	National Foundation for Educational Research (UK)
NSW	New South Wales
RUS	Research Use in Schools (survey instrument)
SENA	Schedule for Early Number Assessment
UK	United Kingdom

0.   Executive Summary

This report presents findings from a research investigation for the Getting Evidence Moving in Schools (GEMS) Project — a three-year project led by Evidence for Learning (E4L) that aims to improve both how research is used in schools and how schools' use of evidence is researched. The research explores how schools mobilise literacy and numeracy research through professional learning providers. With a focus on Australian primary schools, the research examines what factors help and hinder schools in accessing and implementing rigorous research evidence.

The Research Framework for Project GEMS was prepared by the Faculty of Education at Monash University. E4L commissioned the Centre for Evidence and Implementation (CEI) to operationalise and implement this framework to derive insights for evidence mobilisation in schools.

Background

In recent years there has been a growing commitment towards using rigorous evidence to improve student learning outcomes. For example, there are calls for education in Australia to be "evidence-informed" (Australian Productivity Commission, 2016) and "research-rich" (White et al., 2018), and a National Evidence Institute has recently been established to support this work. These calls reflect the idea that incorporating rigorous evidence will enhance the quality of teaching, which in turn is the most important in-school influence on student learning outcomes (Hanushek, 2011; Hattie, 2009).

How research evidence is used and applied in Australian school settings remains poorly understood, however. Through its setting, focus and methods, this research investigation helps bridge the gap in large-scale studies examining the complex dynamics of evidence mobilisation in Australian schools. It looks specifically at the role of professional learning providers as intermediaries in evidence mobilisation, focussing on comprehensive forms of professional learning rather than traditional, one-off or 'light touch' forms of training found to be insufficient for changing educator practice and improving student outcomes (Lord et al., 2017). In doing so, Project GEMS aims to make sense of, and collect data on, the various components involved in evidence mobilisation through external professional learning providers. It focuses on what Farley-Ripple et al. (2018) describe as the *practice of evidence use* — i.e. what educators and schools actually do and use when they are working with professional learning providers to engage with research.

Throughout this report, it should be remembered that research evidence mobilisation operates within the complex environment of schools — it is just one part of the work of educators and one (albeit a key) aspect of school improvement. Likewise, research evidence mobilisation is only one part of how professional learning providers work with educators to support school improvement, quality teaching and enhanced student outcomes.

Research investigation aims and methods

The key research question for Project GEMS is: *How is research evidence mobilised in schools that work with professional learning providers?*

The investigation has three main aims:

1. To examine the impact of research evidence mobilisation through professional learning on educators' knowledge, attitudes and practices around using evidence and evidence-informed practices.

2. To explore the influence of different layers in this mobilisation process (i.e. the research evidence, professional learning approaches, school mobilisation processes, educator characteristics and school- and system-level factors).

3. To identify ways to improve the effectiveness of the research evidence mobilisation process in light of these influences, with a view to identifying enabling conditions that can support future work in this area.

We used a **mixed-method research design** which involved sequential collection and analysis of quantitative and qualitative data, beginning with quantitative data, for the primary purpose of confirmation/hypothesis testing. Our observational research study design — literally *observing how evidence was mobilised* — allowed us to take a snapshot of schools and the way educators used evidence at a point in time across different professional learning providers. It did not allow us to examine differences across schools or attribute observations of evidence mobilisation to providers.

Twenty-four primary schools and **three professional learning providers** in New South Wales and Victoria participated in the research investigation. The three providers (Training 24/7, Teaching Sprints, and Bastow Leading Mathematics) were selected to take part in the research investigation based on factors including their duration (at least six months) and intensity. Participating schools were relatively diverse in terms of their socio-economic setting, size and student populations. Of the 205 educators who participated, approximately half were in a leadership role; of the classroom teachers, most taught within lower primary. The schools involved had opted to work with the professional learning providers, and a large number of educators had been involved with the professional learning providers 2-3 years before the research investigation began. Overall, the comprehensive nature of the professional learning and the schools' willingness to engage with providers presented conducive environments in which to mobilise evidence.

We undertook a **range of data collection activities** that mapped to the Research Framework, including online surveys with educators (n = 327), interviews with educators (n = 93), lesson/meeting observations (n = 50), interviews with all professional learning providers (n = 3), observations of professional learning sessions (n = 5), and supplementary document review. All of this data collection took place prior to changes brought about by COVID-19. Limitations of the study include that we were unable to ascertain a true 'baseline' in evidence mobilisation due to prior relationships between many of the schools and providers.

Key research insights

Insight 1: Evidence mobilisation is a deliberate and complex endeavour involving multiple stages and multiple actors

We observed that evidence mobilisation involves a series of deliberate activities to not only find evidence, but also to understand and apply it to the classroom. Broadly, educators and professional learning providers worked across a number of stages – selecting focus areas, identifying specific research to support focus areas, and understanding and using research – in order to mobilise research evidence. Figure 0.1 illustrates the main steps evident in this investigation, the activities of each actor at each stage, and the categories of enabling conditions surrounding this process.[1] These stages were not necessarily linear, occurred in multiple overlapping phases, and often involved multiple actors within schools, professional learning providers and the research community.

Figure 0.1: Interactive stages and roles involved in evidence mobilisation

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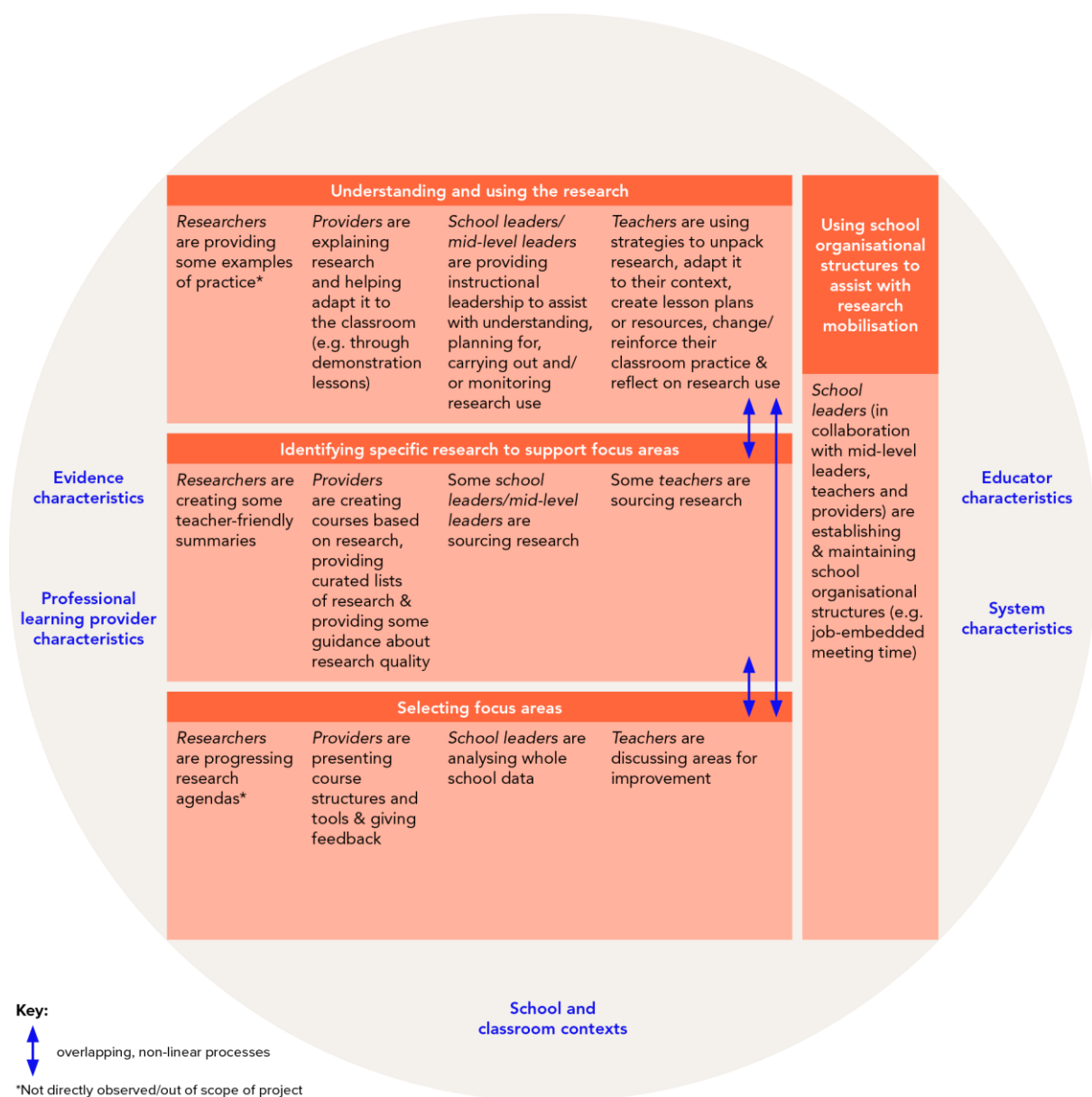
[1] This figure has been inspired by a framework of Wandersman et al. (2008).

Insight 2: Professional learning providers played various roles in supporting schools, and educators valued the support of providers

The type of professional learning support provided to schools varied by provider. Somewhat similar to continuums of professional learning explored in the UK (Nelson et al., 2019), this ranged from professional learning involving guidance or facilitation by the provider to professional learning more directly led by the provider. In more *provider-directed* approaches, evidence was primarily introduced through demonstration lessons and provider-led explanations, and lesson observations showed considerable consistency between schools. In more *provider-facilitated* approaches, school leaders/mid-level leaders usually held the role of finding and sharing evidence, and lesson observations showed a range of practices depending on the focus selected by the schools/educators.

There were also differences in the focus of the professional learning. Some providers put greater emphasis on *specific* capacity-building related to teaching strategies and resources for particular focus areas (e.g. synthetic phonics). Other providers put greater emphasis on *general* capacity-building designed to enhance the leadership and organisational structures within schools, which would in turn support various focus areas for literacy and numeracy.[2]

Regardless of the approach, within the complex context of evidence mobilisation, educators valued the support and expertise of providers in assisting them to apply evidence relevant to their focus areas. During the research investigation, educators identified numerous ways in which providers had assisted them to identify and use evidence in the classroom — for example, 87% of educators indicated the provider enabled them "a lot" to discuss best practice with colleagues in their school. They also identified external expertise as a key enabler of evidence mobilisation. At the same time, some educators identified a tension between *drawing on* external expertise where appropriate and *developing too much reliance* on external expertise.

Insight 3: Evidence mobilisation is (still) active, social and demanding for educators when professional learning providers are involved

Evidence mobilisation is thought to be an active, social and demanding process for educators (Rickinson, Perrotta and Selwyn, 2020). This means that educators are not passive recipients of research; that interactions between educators and others help to develop educators' use of evidence; and that evidence mobilisation involves complex technical and relational skills. These characteristics were evident among the educators involved in this research investigation, and the involvement of professional learning providers provided an additional dimension to how these characteristics played out.

Even with (and perhaps because of) the involvement of professional learning providers, schools and educators were highly *active* co-designers across each stage of evidence mobilisation, meaning there were few 'program inputs' separate from the schools themselves. This was evident in the significant role schools and educators played in selecting evidence and putting it into practice. Evidence mobilisation also built on what was already happening within the school (e.g. on previous and current school-wide goals), and many of the key enablers were school-based factors. In this sense, even where professional learning providers are involved, evidence mobilisation cannot be seen to *start* with the professional learning approach.

The *social* nature of evidence mobilisation was evident within schools, between providers and schools, and in some cases between schools as facilitated by providers. It was seen

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[2] The concept of specific versus general capacity-building draws on Wandersman et al. (2008) and is explained in more detail in Figure 2 (section 2.5.1).

through the collaborative sourcing of evidence, use of team-based strategies for understanding evidence and various forms of support, discussion and feedback. Providers also actively encouraged this — e.g. by supporting the use of protocols and tools to encourage focussed, evidence-informed discussions among educators.

The *demanding* nature of evidence mobilisation was also evident. Educators commented on the difficulties of adapting evidence to their context, and even for relatively small and easy changes, there was work involved in finding evidence, adapting it to the specific classroom or school, and monitoring its impact. Again, the 'heavy lifting' involved in evidence mobilisation was often being done collaboratively within schools, and between schools and providers. However, this did not necessarily relieve teacher workloads, and practical concerns around time constraints, feeling overwhelmed and needing to develop necessary resources featured prominently among the barriers to evidence mobilisation raised by teachers.

Insight 4: Evidence mobilisation was both superficial and deep, and supportive school structures and environments were a key part of deeper mobilisation

There is increasingly a focus on 'quality' use of research evidence in education, and work is underway to develop and test a framework of quality research use (Monash Q Project, 2020). We used the related concept of 'depth' to examine the extent to which evidence "meaningfully and systematically informs educational decisions" through "activities, roles, routines, and tools" (Farley-Ripple et al., 2018). Deep use of evidence has different dimensions, and can be characterised by (among other things) informed and critical interpretation of research evidence, widespread participation in evidence use, and regular use of evidence as part of organisational practice.

Through this research investigation, we identified differing levels of evidence use among schools and educators working with the professional learning providers. These levels were suggestive of both superficial and deep aspects of evidence mobilisation — i.e. across participants, there were examples of superficial and deep evidence mobilisation, and individual educators could also show examples of differing levels of evidence use in different dimensions.[3]

Table 0.1 presents a summary version of examples suggesting relatively superficial and relatively deep evidence mobilisation. Some of the most common examples are shown in bold.

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[3] Some dimensions of depth also give rise to broader questions — beyond the scope of this research investigation — around what constitutes expert use of evidence among practitioners. There is a growing body of literature recognising that expert use of evidence is likely to involve increasing levels of 'rule transcendence' or adaptation of strategies, as well as holistic incorporation of evidence-informed practices to the point that they become unconscious additions to the teachers' repertoire (Brown & Rogers, 2014; McCrea, 2018). These are important considerations, with implications for researchers noted in section 5.

Table 0.1: Examples of differing depth of evidence mobilisation

Dimension of depth	Example findings suggesting *surface-level* evidence mobilisation	Example findings suggesting *deep* evidence mobilisation
Knowledge and attitudes about evidence	Knowledge of different research types was generally low, and very few educators were able to personally apply rigorous assessments to determine the quality of evidence they were encountering	A few educators could refer to concepts involved in rigorous assessments of evidence quality
Identifying relevant, high-quality research	Educators' self-reported confidence in analysing information from research or knowing where to find relevant research contrasted with interview data and discussions around barriers and enablers	Some schools had established structures/role allocations in place around finding evidence
Understanding evidence	It was common for educators to talk in general (rather than specific) terms when asked precisely what evidence they were using	**Educators used a range of specific protocols/tools (e.g. thinking routines; summarising and presenting; annotating and discussing) for unpacking and planning around research**
Participation in evidence mobilisation	Some educators described a lack of collaboration among staff	**Many schools had established or were establishing organisational structures to support evidence mobilisation (e.g. protected meeting times and alignment with school goals)**
Using evidence (and sustaining evidence use over time)	Some educators did not demonstrate the evidence-informed practices they were focusing on (in lesson observations where it appeared there were opportunities to do so), and educators pointed to the difficulty of sustaining evidence use over time	Some educators could identify the evidence they were using in detail, explain the pedagogical concept and demonstrate it in lesson observations
Decision stage	Few educators described returning to evidence sources following full implementation or when sustaining changes (e.g. to refine or seek further clarification)	A number of schools had systems in place for reflecting on evidence use

As noted above, some of the most common examples of deep evidence use across the whole sample were those involving the use of protocols/tools for understanding research, as well as supportive school environments and organisational infrastructure helping to embed evidence mobilisation processes. In addition to the examples shown in Table 0.1, a number of the key enablers of evidence mobilisation reported by educators in this research related to these school organisational structures and the broader school environment, including support from and discussion with colleagues, and support from

school leaders and mid-level leaders. Survey responses also suggested the schools in this research investigation had a supportive school environment and were therefore environments conducive to evidence mobilisation.

Insight 5: Educators' self-reports and positive attitudes masked experienced difficulties

Examining the depth of evidence use was often only evident through triangulation of data sources and an exploration of details around evidence use. In other words, it was not just important to survey educators about whether they saw evidence as important (for example), but also to interview and observe educators regarding the specific evidence they were drawing on and how they were using it.

Overall, educators self-reported positive attitudes towards evidence, confidence in using evidence and high levels of evidence use. For example, in the pre-survey, 95% of educators believed that using information from research would help to improve student outcomes, 97% said they were able to relate information from research to their context, and 99% said they had used information from academic research to inform their practice within the previous year (and these did not have statistically significant changes over the project). In the post-survey, 97% of educators said information from research plays an important role in informing their practice, 78% of educators said they knew where to find relevant research, and 96% said they were able to use information from research to determine how they would implement new strategies.

These self-reports were sometimes inconsistent with other data (a common finding in the literature generally and on evidence use in particular: Brown and Zhang, 2017; Penuel et al., 2017; Burstein et al., 1995). For example, self-reported confidence in finding and analysing information from research contrasted with interview data and discussions around barriers and enablers. Research literacy (e.g. knowledge of different research types) was also generally low, and educators were using various proxy measures, including recommendations from the professional learning providers, to be able to assess the quality of research they were encountering. This suggests a disconnect between educators' beliefs about their ability to access evidence and the practicalities involved in identifying, synthesising and using this evidence in the school and classroom.

Insight 6: While some measurable changes in educator outcomes occurred quickly, most changes take time and are difficult to sustain

GEMS was designed to explore the components of evidence mobilisation in schools, rather than draw findings about whether providers caused a change in educators' attitudes, knowledge, skills and practice. We can, however, outline some of the overarching findings and some of the changes over the time during the period in which the providers were working with (or continuing to work with) schools.

Although most pre/post survey items did not have statistically significant changes (and some items had little room for improvement since they were high to begin with), there were some statistically significant changes over the course of the research project. Specifically, by the time of the post-survey educators were more likely to say:

- academic research influenced their *decision-making* around what area of teaching they should focus on ($p = 0.001$, $\hat{r} = 0.33$);
- they knew where to *find* relevant research ($p = 0.002$, $\hat{r} = 0.31$);
- they felt confident about *analysing* information from research ($p = 0.002$, $\hat{r} = 0.3$);
- they were able to *use* information from research to determine how they would implement new strategies ($p = 0.002$, $\hat{r} = 0.3$);

- information from research played an important role in *informing* their teaching practice ($p = 0.02$, $\hat{r} = 0.2$); and
- their school leaders encouraged them to use information from research to improve their practice ($p = 0.023$, $\hat{r} = 0.16$).[4]

In interviews, educators reported changes to their classroom practice as a result of the evidence they were using, ranging from easy to difficult and simple to extensive. They also explained how evidence reinforced existing teaching practices (e.g. when it showed them *why* a particular strategy was important).

Where educators indicated there had been a change in *student* outcomes, they were largely positive or said it was too early to tell. Very few educators or schools had aggregated assessment data to monitor and evaluate the impact of changes on student outcomes on skills relevant to the focus areas, and school leaders often mentioned how they were waiting to see impacts within standardised or validated assessment tool data or aggregated data platforms. Monitoring of impact is an area where providers and other stakeholders could potentially provide greater assistance.

Across the participating schools, sustaining change over time was difficult. There is a tension between the small incremental changes that educators see are needed for practices to become embedded, and the sometimes large changes needed for educators to improve student outcomes (particularly in schools with high levels of educational disadvantage). This tension was also evident in comments regarding pressure from external stakeholders (e.g. departments) for schools to meet multiple targets in a given year. However, system pressures to improve quickly and prioritise multiple focus areas may make it difficult to commit sufficient time to deeply embed change.[5]

Insight 7: Evidence mobilisation enablers and barriers are largely known and predictable

The enablers and barriers identified by educators in this research investigation were generally reflective of enablers and barriers in the wider literature on evidence mobilisation (Dagenais et al., 2012; Nutley et al., 2007). Key enablers for evidence mobilisation related to guidance in finding relevant, high-quality research and adapting it to the school or classroom; support from colleagues; regular, job-embedded meeting times; support from school leaders; and the external expertise of providers. Practices effective in school improvement generally (e.g. strong instructional leadership and purposeful collaboration) were also identified as enablers to evidence mobilisation. Key barriers experienced by educators included change fatigue due to system requirements/high pressure for change; high staff turnover; difficulty trialling and monitoring the impact of evidence use; and the absence of the key enablers above.

We do not know the link between educator reported enablers and barriers and superficial or deep evidence mobilisation, although it is probable barriers may influence the surface level use of evidence. Enablers or barriers that are already known can be predicted or anticipated by education stakeholders, and systematically addressed prior and during evidence mobilisation to ensure educators are supported in making changes to teaching practice and using evidence in the classroom.

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[4] Specifically, there was a statistically significant difference over time ($p = 0.023$, $\hat{r} = 0.16$) to the statement "My school leaders or mentors do not encourage me to use information from research to improve my practice", suggesting an increased level of leadership during the project.

[5] While timeframes for implementation of interventions differ, the notion that implementation takes time is well-established in the implementation science literature. It is not uncommon for implementation processes in service settings to take 2-4 years (see Forgatch et al., 2013; Albers et al., 2017).

Insight 8: Gaps exist between the evidence educators seek and the evidence available

Finding relevant, rigorous research specific to a focus area was a key barrier raised by educators. This may partly relate to other identified barriers (e.g. lack of access to research, and workload issues). However, there was also often a mismatch between the level of specificity that educators required to implement evidence in the classroom and the level of specificity available in the research they were accessing. For example, educators were aware of evidence supporting modelled writing, but to implement this with their students, they were searching for research specifically about *"the punctuation aspects of modelled writing"*.

This mismatch may be partly due to the lack of implementation details in the research itself. It also may be that the level of specificity educators are seeking does not exist yet across all focus areas (e.g. writing strategies) or can only exist up to a point (since there will always be some work involved in adapting evidence to meet students' needs, and it is unlikely that empirical trials will/could be carried out on the full range of granular techniques used by teachers).

Implications of this research investigation

Implications for schools

These findings mean it is important for schools to recognise the collaborative aspects of mobilising evidence. The investigation suggests schools should:

- **Work towards deep, embedded evidence mobilisation:** Schools should be wary of superficial evidence mobilisation, become familiar with the dimensions of deep evidence mobilisation and recognise that this requires deliberate effort and resources.

- **Support organisational structures:** As part of deep evidence mobilisation, it is important for schools to develop or maintain embedded organisational structures for mobilising evidence (e.g. protected meeting times; opportunities for lesson observations; and alignment with school goals).

- **Recognise the collaborative nature of evidence mobilisation, and the critical role of the school:** Evidence mobilisation should not be seen as the responsibility of individual staff or something that can be outsourced to external providers. If evidence mobilisation is currently occurring at an individual level, there may be benefits in shifting to a more collective, systematic approach. There also may be benefits in upskilling specific school staff in key concepts in research literacy, and methods for identifying relevant, high-quality evidence.

- **Consider how evidence mobilisation relates to professional learning and building quality teaching:** Many schools have an overall approach to enhancing teaching quality via professional learning. Schools who work with, or wish to work with, external professional learning providers should recognise there are different ways of approaching evidence mobilisation (from provider-led to provider-facilitated to school self-improvement) and consider which elements or mixture of elements may align with their school context. They should also look for professional learning that supports the dimensions of deep evidence mobilisation.

Implications for professional learning providers

Although this research investigation did not evaluate the effectiveness of professional learning provision, it has implications for what professional learning providers could keep doing, extend or add to their repertoire of evidence mobilisation approaches. These include:

- **Consider the approach:** As a first step, professional learning providers should consider how they work across the *stages* of evidence mobilisation (i.e. how/whether they assist educators to identify focus areas; identify research to support focus areas; and/or understand and use evidence). They should also consider what *approach* to evidence mobilisation they are taking (from provider-led to provider-facilitated to school self-improvement), and what this may mean in the context of schools they support.

- **Support organisational structures in schools conducive to evidence mobilisation:** Providers should recognise the central role of schools and educators in evidence mobilisation. They could be explicit about what organisational structures are needed to support changes in teaching practice or reinforce effective teaching practice (as relevant to their professional learning). Where possible, they could also support schools in establishing enabling conditions for evidence mobilisation.

- **Work towards deep, embedded evidence mobilisation:** Providers should be wary of superficial evidence mobilisation and work to ensure evidence selection and use extends beyond positive attitudes to research use, even in their own program. They could provide schools with greater assistance in monitoring how focus areas for professional learning are associated with student outcomes (e.g. by assisting with processes for aggregating formative student assessment data). Providers could also offer longer-term check-ins with schools to follow-up on how evidence is being used in practice, and perhaps assist schools with longer-term monitoring of progress and summative student achievement data.

Implications for departmental and other stakeholders

Various intermediaries and stakeholders (including education departments) can play a role in addressing the challenge faced by educators in sourcing and using relevant, rigorous research. They should:

- **Define "evidence" and work towards deep evidence mobilisation:** Departments and statutory authorities frequently require or encourage educators and schools to use "evidence-based" or "evidence-informed" teaching strategies, and they should continue to do so. Greater clarification would exist, however, if departments consistently distinguished between "research evidence" (which educators should use to, e.g., understand which interventions are more likely to improve student learning) and "student data" (i.e. the collection of supporting student or school-level data which educators should use alongside research evidence to identify student needs and monitor progress). Consistent and nuanced use of terminology could help stakeholders to develop a shared understanding of 'evidence-informed teaching'. Departmental and other stakeholders should also use concepts related to deep use of evidence to explicitly define, describe and share what this looks like at the school level, at the teacher level and within professional learning.

- **Prioritise competing aims:** Stakeholders should recognise that embedding organisational structures and changing teaching practice can take significant time (e.g. years not weeks or months) and consumes finite school and educator bandwidth for change. Educators in this study also saw small changes as more likely

to be embedded. To this end, stakeholders should consider whether multiple, ambitious goals are likely to embed in schools in short timeframes, and limit the number of changes required by educators and schools at any given time, especially when there are other major disruptions or priorities.

- **Support rigorous research:** Schools and educators need rigorous evidence to support specific focus areas for improving teaching practices and student learning. Departments should (in consultation with educators and researchers) identify gaps in research of effective teaching strategies, support rigorous research in these areas, and help schools to find this research when they need it.

Implications for researchers

While we acknowledge the current research has limitations related to the design and exploratory nature of our investigation, there are several implications for future research in evidence mobilisation. These include:

- **Include a larger sample of mid-level school leaders:** While the relatively small number of mid-level leaders in this sample limited the extent to which we could examine their role, other research has found that mid-level leaders (particularly in large schools and secondary schools) can have a significant influence on enabling factors for evidence mobilisation and evidence selection and use across the school and in the classroom.

- **Look more specifically at years of experience:** In this investigation, we focused mostly on role rather than years of experience. There is a large body of research establishing that *early career* teachers, with appropriate supports, improve in effectiveness; and growing evidence (in contradiction to earlier studies) that teachers can continue to increase in effectiveness throughout their teaching careers. It would therefore be interesting to explore interactions between levels of experience and evidence mobilisation.

- **Involve schools that have had less prior involvement with providers and evidence use:** Although the schools in the sample were relatively diverse, they self-selected into the professional learning, were seen to have school environments supportive of evidence mobilisation, and in many cases had worked with the providers for years before this investigation.

- **Explore a narrow range of focus areas:** Even within the investigation's focus on primary school literacy and numeracy teaching strategies, the wide range of focus areas used by educators in this investigation, and the time required to establish what these were, presented challenges for data collection and complicated the analysis process. A focus on a narrower range of focus areas could yield even deeper insights into evidence selection and use in schools.

- **Consider interim outcomes at the school leadership level:** At least two of the providers considered school leadership outcomes an express aim of their professional learning, and some school leaders and mid-level leaders commented on changes in their school leadership. Explicitly measuring interim outcomes at the school leader level may provide further insights into evidence mobilisation processes.

- **Use mixed methods to explore potential differences between self-reported practice and actual practice:** Given the differences found in this research between self-reported confidence and measures of teacher knowledge in relation to using evidence, relying on educator self-reports in relation to evidence use is likely to be

insufficient for establishing evidence use in practice. As recommended elsewhere (Brown and Zhang, 2017), it is therefore worth exploring teacher use of evidence in multiple ways (as in this research investigation).

- **Use innovative methods to explore teachers' mental models and development of expert evidence use:** Measuring authentic evidence use presents inherent difficulties for researchers particularly if teachers who have developed expertise in a specific practice have incorporated evidence "in an automatic rather than conscious way" (Brown & Rogers, 2014). This exploration of expert use of evidence could build on innovative methods such as the adapted levels of use scale (Brown & Rogers, 2014) and video elicitation interviews (Pyle et al., 2020).

- **Study evidence mobilisation over longer time periods and in relation to student outcomes:** Studying the gradual development of teacher expertise in any particular area, and the ways in which evidence use can be sustained and associated with student outcomes, would require longer-term studies with monitoring of teacher and student outcomes at different time points. These longer-term studies could build upon the findings of this exploratory research investigation. Sustainability studies could also draw on lessons and frameworks from implementation science (e.g. Chambers, Glasgow & Stange, 2013).

1.   Introduction

In recent years there has been a growing commitment towards using rigorous evidence to improve student learning outcomes. However, how evidence is used and applied in Australian school settings remains poorly understood.

The Getting Evidence Moving in Schools (GEMS) Project is a three-year project led by Evidence for Learning that aims to improve both how research is used in schools and how schools' use of evidence is researched. Core to the project is a research investigation that explores how schools mobilise literacy and numeracy research through professional learning providers. With a focus on Australian primary schools, the research examines what factors help and hinder schools in accessing and implementing rigorous research evidence.

The Research Framework for Project GEMS was prepared by the Faculty of Education at Monash University.[6] Evidence for Learning commissioned the Centre for Evidence and Implementation (CEI) to operationalise this framework, including by carrying out the fieldwork and analysing collected data. Twenty-four[7] primary schools and three professional learning providers in NSW and Victoria participated in the research investigation.

This Investigation Paper presents the findings from data collection involving these schools and providers. Following a feedback cycle, it will be supplemented with an addendum explaining how the providers responded to and acted on the findings of the paper.

This chapter outlines what this research adds to the existing evidence base, and sets out key introductory information about the research investigation. Context for the wider Project GEMS — including project funding, partners and additional project components — is provided in Appendix A.

1.1.   What this research adds to the existing evidence base

This research investigation contributes to existing literature on evidence mobilisation in schools in terms of its setting, focus and methods. Overall, it helps bridge the gap in "large-scale studies to better understand the dynamics of Australian schools' experiences of research and use of research evidence" (Prendergast & Rickinson, 2019).

Specifically, this investigation looks at the role of professional learning providers as intermediaries in evidence mobilisation. It picks up on work by the Education Endowment Foundation in the UK, including Nelson et al.'s (2019) study of a five-year campaign using a combination of evidence guidance reports, practice-focused intermediaries and program support to improve primary school students' literacy outcomes. There are key differences between Nelson et al.'s (2019) work and the current investigation. Our study is not part of a campaign and we are not evaluating the effectiveness of professional learning providers. We do, however, have more of a focus on the internal workings of schools, which will bring to light *what, how* and *when* evidence is mobilised to support teaching practice. In particular, we highlight what Farley-Ripple et al. (2018, p. 236) describe as the under-researched "*practice of* evidence use" — that is, the roles, routines and tools used within schools when educators are mobilising evidence. This will prove a useful adjunct to current knowledge and inform the design of larger-scale studies.

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[6] A revised version of this Research Framework has since been published: see Rickinson, Perrotta & Selwyn (2020).

[7] Two of these schools worked with two of the professional learning providers.

From a research perspective, this investigation has a focus on both quantitative and qualitative data so we may hear from educators themselves about how they seek, use and apply evidence in the classroom. It is, to our knowledge, the first use of the 'Research Use in Schools' survey in an Australian setting. Also, as an *investigation* that aims to improve how schools' use of evidence is researched, it provides detailed, practical insights and highlights considerations for future empirical research.

A review of the underpinning literature for Project GEMS is provided in the Research Framework prepared by Monash University.

1.2.   How to read this research report

This research investigation was designed using the following four key principles. These should be kept in mind while reading and interpreting the findings of this report:

1. *Research not evaluation* — this investigation examines the mobilisation of research evidence in schools. It does not evaluate the effectiveness of professional learning programs or teaching practices and does not allow us to draw findings about causation.

2. *Impact, influence and improvement* — this investigation seeks to formatively[8] investigate questions of impact (what works in terms of educator practices), influence (how impacts come about) and improvement (what next). This investigation of impact mostly takes the form of exploring what impact educators think the program has made to their practice and students.

3. *Educators' knowledge, attitudes, skills and practices* — this investigation focuses on research evidence mobilisation through professional learning provision with primary school teachers, mid-level leaders and school leaders. The GEMS research therefore focuses primarily on *educators'* knowledge, attitudes, skills and practices around using evidence.[9] Formative student outcomes, although part of the program logic and discussed in section 0, are not the primary focus of this investigation, and further research would be needed to measure student-level impacts.

4. *Evidence use related to primary school literacy and numeracy* — this investigation focuses on research evidence mobilisation to improve literacy and numeracy outcomes[10] because these are core components of the curriculum supported by a relatively large amount of academic research.

It should also be remembered throughout this report that research evidence mobilisation operates within the complex environment of schools and is only one part of the work of educators and one aspect of school improvement. Similarly, schools create organisational structures for purposes beyond evidence mobilisation — e.g. they may establish collaborative staff forums for internal expertise and general information sharing, as well as research evidence mobilisation. Likewise, research evidence mobilisation is only one part

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[8] This evaluation term essentially means the research investigation was undertaken while program and mobilisation activities in some schools were still being formed.

[9] This is also not an investigation into *leadership-specific* knowledge, attitudes, skills and practices (e.g. school leader outcomes are not part of the program logic), although leadership was an explicit focus of two of the professional learning providers.

[10] Some general pedagogical approaches were also used by schools for the purpose of improving literacy and numeracy (see section 3.2.1.

of how professional learning providers work with educators to support school improvement, quality teaching and enhanced student outcomes.[11]

1.3. Structure of this paper

The remainder of this paper is structured as described below.

Chapter 2 summarises the methods used in the investigation and describes the characteristics of participating schools and professional learning providers.

Chapter 3 sets out the findings of the investigation, mapped to elements of the Research Framework.

Chapter 4 sets out insights from the findings and describes implications for schools, professional learning providers, and departmental and other stakeholders.

Chapter 5 sets out the limitations of the research and research design.

The appendices set out the project context and background, as well as additional figures and interview schedules for teachers, school leaders and professional learning providers.

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[11] The broader aims of the professional learning involved in this investigation are described in Appendix B.

2.   Methods

This chapter sets out the methods used for the research investigation, including its research questions, overarching design, setting and participants, and an overview of data collection. It also includes details of the ethics approvals obtained. Detailed descriptions of data collection measures and procedures, and data analysis methods, are set out in Appendix C.

2.1.   Research question and aims

The key research question for Project GEMS is: *How is research evidence mobilised in schools that work with professional learning providers?*

The investigation has three main aims:

1. To examine the impact of research evidence mobilisation through professional learning on educators' knowledge, attitudes and practices around using evidence and evidence-informed practices.

2. To explore the influence of different layers in this mobilisation process (i.e. the research evidence, professional learning approaches, school mobilisation processes, educator characteristics and school- and system-level factors).

3. To identify ways to improve the effectiveness of the research evidence mobilisation process in light of these influences, with a view to identifying enabling conditions that can support future work in this area.

This research investigation does not:

a) evaluate the effectiveness of the three professional learning providers or their models of professional learning;

b) evaluate the effectiveness of teaching or leadership within the participating schools;

c) assess the evidence used by schools or providers;

d) consider evidence used by providers in forming their models of professional learning (i.e. it considers literacy and numeracy evidence used and shared with schools, but not evidence [e.g. adult learning pedagogies] used to design the provision of professional learning more generally);

e) provide schools with direct feedback regarding their use of evidence;

f) disclose or expose confidential or commercially sensitive information or proprietary knowledge of the professional learning providers;

g) investigate teacher-led research (e.g. participatory action research) as a form of research evidence.[12]

Regarding points (a) and (b), Project GEMS does not draw findings about causation. Claiming that an input has led to a particular outcome requires an experimental or quasi-experimental design that involves a comparison group (i.e. a group with similar characteristics who do not receive the program). Project GEMS was not designed in this way.

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[12] For further discussion of the interaction between teacher-led research and academic research, see Nelson et al. (2017), p. 32.

## 2.2.	The GEMS Research Framework

The program logic for Project GEMS is shown in Figure 1. This program logic can be summarised as:

- External professional learning is designed to improve the use of effective literacy and numeracy teaching strategies in Australian primary schools.

- Professional learning providers incorporate research evidence on specific literacy and numeracy topics into the design of their professional learning.

- This professional learning is delivered in/with schools and the schools implement various mobilisation strategies to diffuse the lessons from this professional learning to all their educators.

- Certain conditions within and characteristics of the research evidence itself, the education system, schools and classrooms and educators will support these changes.

- In time and in relation to literacy and numeracy, this will foster educators' positive attitudes towards and confidence in using research and research-informed teaching strategies; growth in educators' knowledge of these strategies, as well as their general research literacy; and changes to educators' practices that are based on current, rigorous research; and this in turn will produce growth in student outcomes.

The research questions described in section 2.1 above are replicated below the program logic.

Figure 1: Project GEMS program logic[13]
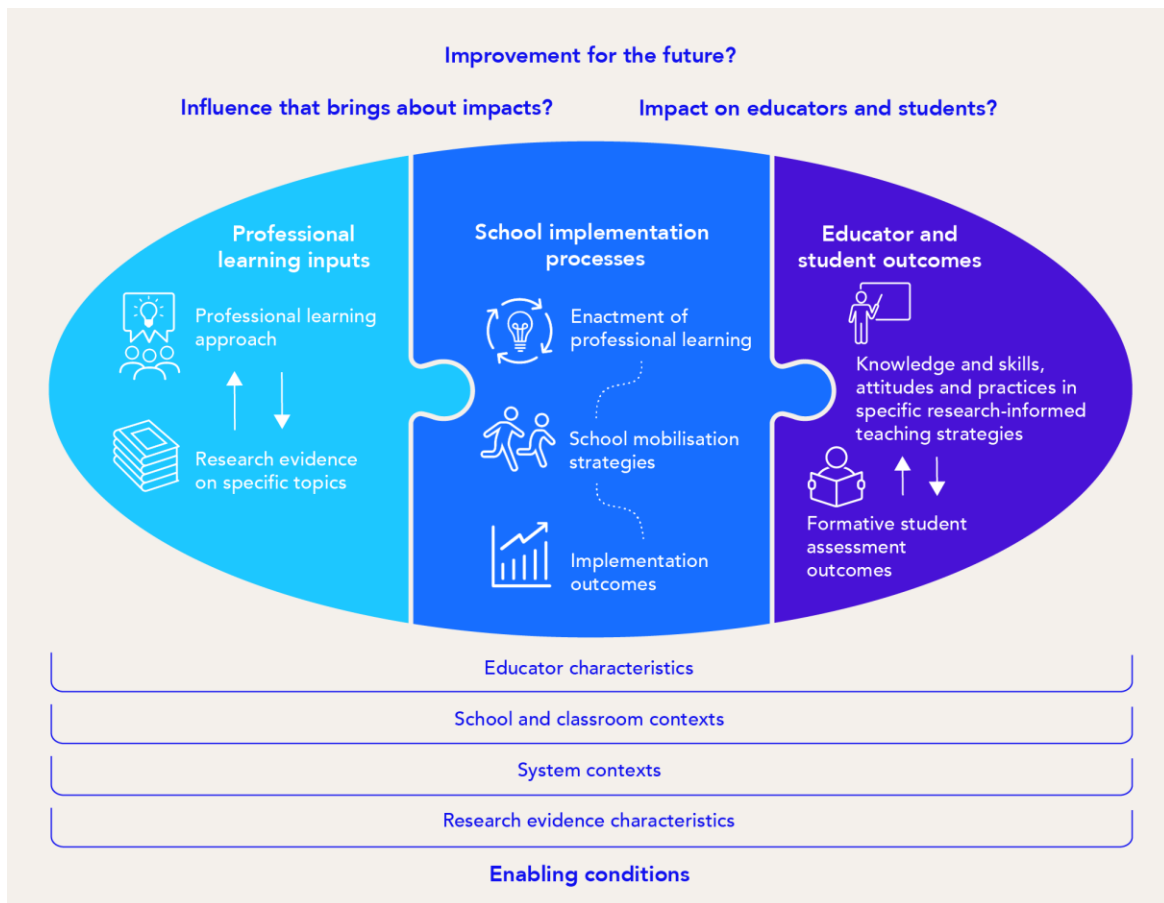
It is important to note that research evidence mobilisation operates within the complex environment of schools and school improvement work. Research evidence mobilisation is only one part of a school's overall approach to professional learning and their work to build teacher expertise. For example, a school may use research evidence on reading as well as student data and in-house expertise to improve how reading is taught. Likewise, supporting research evidence mobilisation is only one reason why schools implement various organisational structures. For example, a school may establish collaborative staff forums to share internal expertise and information as well as specific research evidence.

2.3. Research design

We used a mixed-method research design. Following the taxonomy developed by Palinkas et al. (2011), we adopted a 'QUAN → qual' *structure* which enables sequential collection and analysis of quantitative and qualitative data, beginning with quantitative data, for the primary purpose of confirmation/hypothesis testing. The intended *function* of this research design is 'convergence'. This means that both qualitative and quantitative methods answer the same question, but can be triangulated or compared to determine if they meet the same conclusion. The *process* involved for this research is to 'connect', whereby datasets build upon one another to expand, transform or elaborate the depth of findings.

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[13] This figure is the updated version of the GEMS program logic, as published in Rickinson, Perrotta & Selwyn (2020). It incorporates terminology and small design changes from an earlier version on which the research investigation was based. Additional details regarding the mobilisation levels have also been provided in the updated Research Framework, and the literature that informed the program logic is described there.

2.4.   Ethical approval

Approval to undertake the project in schools was obtained from the School Policy and Information Management branch of the New South Wales Department of Education (SERAP reference no. 2019155) and the Victorian Department of Education and Training (RISEC reference 2019_004004).

2.5.   Participants in the research investigation

2.5.1.   Professional learning providers

Summary of providers

The investigation included three professional learning providers — Teaching Sprints, Training 24/7 and Bastow Leading Mathematics. These providers were selected to take part in the research investigation because they offered comprehensive professional learning approaches, which differed from traditional, one-off or 'light touch' forms of training (such as one-off seminars and e-newsletters) found to be insufficient for changing educator practice and improving student outcomes (Lord et al., 2017). Specifically, they were selected based on the following guiding criteria:

- **duration:** starts early in the school year and supports educators (whether face-to-face or online) over a sustained period (at least six months) during the school year;

- **intensity:** includes approximately 8-10 days of training and support for educators;

- **focus:** focusses on improving classroom practice and aligns with specific teaching standards of practice (e.g. AITSL Professional Standards and relevant curriculum documents);

- **content:** focusses, or allows a focus, on literacy and numeracy;

- **use of data:** responsive to real-time information about the needs of the participating educators and their students (i.e. current assessment data); and

- **implementation:** requires some commitment and provides some support for educators enrolled in the professional learning (and their schools) to implement the lessons from the professional learning in their school context. In this respect, at least some of the providers made it a pre-requisite that school leaders were enrolled or involved in the professional learning.

Summary information about the three providers is presented in Table 1.

Table 1: Professional learning providers involved in Project GEMS

Characteristic	Teaching Sprints	Training 24/7	Bastow Leading Mathematics
Delivered by	Agile Schools	Training 24/7	EdPartnerships (in association with the Bastow Institute of Educational Leadership)
Location	NSW	NSW	Victoria
Opt-in?	Yes	Yes	Yes

Characteristic	Teaching Sprints	Training 24/7	Bastow Leading Mathematics
Length of program (time of direct enrolment)	Varies by school, but process is divided into 'Sprint cycles'	Varies by school	6-9 months
Content focus	Various (schools/teams select highly specific focus areas for each Sprint depending on their focus area)	Literacy (particularly synthetic phonics and associated teaching practices)	Numeracy leadership (aiming to build the team's capability in leading schoolwide pedagogical and cultural change)
Other key information	• Teaching Sprints were previously called "Learning Sprints"	• Training 24/7 is directly linked to sister company "Get Reading Right", which provides synthetic phonics resources to teachers. Some teachers referred to Training 24/7 as "Get Reading Right", despite them technically being different, but related, entities • Provider was engaged by schools in various capacities, including as consultants[14] • For the semester studied, participants worked in teams on a project-based component additional to their usual engagement with the provider. This was designed to extend educators who had been working with the provider for a long time.	• Leading Mathematics is part of Bastow's 'Numeracy Suite' of professional learning • Each school team directly enrolled with the provider comprises three participants – a school leader, a (mid-level) numeracy leader, and a teacher[15]

As noted in Table 1, the content focus of the three providers varied. Figure 2 presents these on a continuum from more intervention-specific approaches to general capacity-building approaches.[16]

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[14] As most educators did not distinguish between these capacities, in this paper the term "Training 24/7" refers to all the capacities in which the provider worked with participating schools.

[15] Participants are described in line with the terminology used in this paper.

[16] Figure 2 draws on Wandersman et al. (2008), who distinguish between intervention-specific capacity-building in relation to a particular program or practice (e.g. training in how to carry out a strategy), and general capacity-building designed to enhance organisational infrastructure, skills or motivation (which can occur independently of an intervention or in conjunction with specific capacity-building).

Figure 2: Professional learning components on a continuum from intervention-specific to general capacity-building
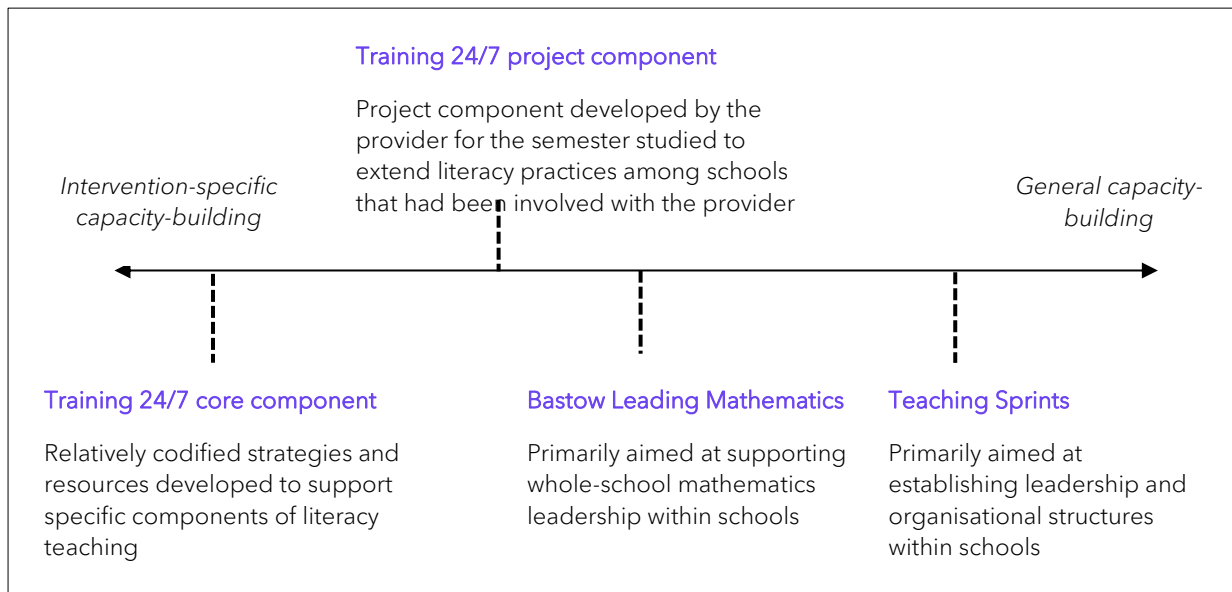
More detailed descriptions of the professional learning are presented in Appendix B, and details regarding the providers' approaches to evidence mobilisation (as relevant to this investigation) are presented throughout chapters 3 and 4.

2.5.2. Schools

Total participants

A total of 24 government primary[17] schools participated in the research investigation — 17 in NSW and seven in Victoria. Two of the NSW schools were 'dual enrolment' schools, meaning that they were engaged with two of the professional learning providers (Training 24/7 and Teaching Sprints).

Recruitment

Schools were recruited to this research investigation through Evidence for Learning, CESE and Bastow working with the professional learning providers. To support participation in the research investigation, schools' costs for participating in the professional learning were subsidised.

This sample of schools was non-random, and it could be expected that schools that participated in Project GEMS differ in certain characteristics from those who did not.

It should also be noted that recruited schools differed in the following ways from those envisaged in the original Research Framework:

- *Schools' length of involvement with the professional learning provider:* Most of the NSW schools had been involved with the professional learning providers for some time before commencement of the study. The median length of involvement of schools (as reported by educators) was three years for Training 24/7 and two years for Teaching Sprints. Some participants were involved for seven years for Training 24/7 and three years for Teaching Sprints.

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[17] One school in Victoria was Prep-12.

- *Direct and indirect enrolment in the program:* While it was originally intended that within each school participants would be a mixture of staff directly enrolled in the professional learning, and staff not directly enrolled in the professional learning, this distinction was only practical in Victorian schools where there was a clear distinction between those attending the Bastow Leading Mathematics training and those not doing so. In NSW, schools often had a long history of involvement with the providers and engaged with the providers at a whole school level. Accordingly, any references in this paper to staff 'directly enrolled' or 'not directly enrolled' in the professional learning apply mainly to Victorian schools.

- *Schools involved with other providers:* In a post-survey question, 59% of educators in this research investigation said they had been involved in other professional learning with an external provider during the year of this investigation. Many of these external providers are individuals or organisations who deliver professional learning in literacy (e.g. SMART Spelling and Spelling Mastery, Jann Farmer-Hailey) or numeracy (e.g. Carol Spencer, Di Siemon, Peter Sullivan, Anita Chin, Maths Association of Victoria). Although not specifically explored in this investigation, the knowledge, skills or practices explored in this other professional learning could have influenced or impacted on the participants working with the three professional learning providers described above.

School characteristics

Schools participating in the investigation were relatively diverse in terms of their socio-economic setting, size and linguistically diverse student populations. There were schools within each quartile of the Index of Community Socio-Educational Advantage (ICSEA) percentile (i.e. ranging from the lowest to highest socio-economic backgrounds to the highest); overall, most schools were either in the lower middle quartile (9/24) or upper middle quartile (9/24) of the ICSEA percentile. Schools ranged in size from approximately 80 to 1510 students, with a mean of approximately 570 students. Schools' percentage of students with a language background other than English ranged from approximately 5-95%, with a mean of 42%.

In other aspects, the schools were similar. All schools were located in either Major Cities (n = 19) or Inner Regional areas (n = 5). Most schools had relatively few Indigenous students (ranging from approximately 0-10% of the student population, with a mean of 2.5%), which in most cases was below the relevant state average for Indigenous enrolments.[18]

Between providers, on average participating schools in **Training 24/7** tended to be more disadvantaged, larger, and have higher proportions of students with a language background other than English. Schools in **Bastow Leading Mathematics** tended to be smaller and have less diverse student populations, and were mostly in the upper middle ICSEA percentile quartile. Schools in **Teaching Sprints** were from all quartiles of disadvantage (although most were in the upper quartile), and were close to the sample average in terms of size and diversity of the student population. Within each provider there was variation in each of these categories, however.

School characteristics are summarised in Table 2 and ICSEA percentile comparisons are shown in Table 3.

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[18] Victorian schools participating in Project GEMS had a mean of 2.1% Indigenous enrolments, while NSW schools had a mean of 2.6%. State comparisons were calculated from data published on the MySchool website, current as at 2019.

Table 2: School characteristics from My School data[19]

Characteristic	All participating schools	Schools in Teaching Sprints	Schools in Training 24/7	Schools in Bastow Leading Maths
Students / Student background				
School Index of Community Socio-Educational Advantage (ICSEA) value	*Mean = 1033* *Range = 935-1180*	*Mean = 1046* *Range = 930-1180*	*Mean = 992* *Range = 965-1065*	*Mean = 1049* *Range = 995-1135*
Indigenous students	*Mean % full-time equivalent (FTE) enrolments = 2.5%* *Range = 0-10%*	*Mean % FTE enrolments = 3%* *Range = 0-10%*	*Mean % FTE enrolments = 2%* *Range = 0-5%*	*Mean % FTE enrolments = 2%* *Range = 0-5%*
Students with a language background other than English	*Mean % FTE enrolments = 42%* *Range = 5--95%*	*Mean % FTE enrolments = 41.5%* *Range = 10-95%*	*Mean % FTE enrolments = 71%* *Range = 20-95%*	*Mean % FTE enrolments = 18%* *Range = 5-50%*
School size				
Total student enrolments	*Mean = 569* *Range = 80-1510*	*Mean = 596* *Range = 200-1250*	*Mean = 714* *Range = 80-1510*	*Mean = 396* *Range = 130-685*
Full-time equivalent teaching staff	*Mean = 33* *Range = 5-85*	*Mean = 34* *Range = 10-65*	*Mean = 42* *Range = 5-85*	*Mean = 25* *Range = 15-40*
Location				
Major Cities	*n = 19*[20]	*n = 9*	*n = 8*	*n = 4*
Inner Regional	*n = 5*	*n = 1*	*n = 1*	*n = 3*

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[19] In this table, range is reported in approximate figures (rounded to the nearest 5 or 10 depending on the category) to avoid identification of individual schools. All characteristics are sourced from the My School website using data current as at 2019.

[20] The two dual enrolment schools (in Teaching Sprints and Training 24/7) are counted once only in the "All participating schools" column for location.

Table 3: Relative socio-economic characteristics of participating schools based on ICSEA quartiles

Provider	Number of schools			
	Lower quartile (<25%)	Lower-middle quartile (25-49%)	Upper-middle quartile (50-75%)	Upper quartile (>75%)
Teaching Sprints	1	1	2	4
Training 24/7	0	5	2	0
Dual Enrolments	0	2	0	0
Bastow Leading Mathematics	0	1	5	1

2.5.3. Educators in the participating schools

Total participants

A total of 205 educators participated in the research investigation,[21] comprising 73 educators in Training 24/7; 58 educators in Teaching Sprints; 34 educators in both Training 24/7 and Teaching Sprints; and 40 in Bastow Leading Mathematics. Each school had between four and 19 participants.

Role, experience and grades taught

Participants were almost evenly divided between teachers (52%) and those with a leadership role, whether as mid-level leaders (15%) or school leaders (33%).[22]

Overall, participants were relatively experienced (Figure 3). Nearly half (48%) of the teachers had at least seven years of school experience. School leaders' levels of experience ranged from two to 49 years, but in general school leaders were very experienced (mean = 17.4 years; median = 15 years).

Most teachers taught within lower primary: 36% taught kindergarten students, 34% taught Year 1, 20% taught Year 2 and 11% taught Year 3. Few (15% in total) taught students in upper primary (Years 4-7).[23] As would be expected, teachers tended to be responsible for one or two year levels, whereas mid-level leaders and school leaders tended to be responsible for multiple year levels.

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[21] Of the 205 educators, 57 completed both surveys and an interview; 42 completed both surveys only; 32 completed both surveys, an interview and an observation; and the remaining 74 participated in various mixes of the surveys, interviews and observations.

[22] Role data was not available for 13% of participants (e.g. survey respondents who did not answer this question and/or selected "Other" and did not specify their response).

[23] Percentages total more than 100% as some teachers taught multiple year levels. Figures include survey respondents only.

Figure 3: Distribution of years of experience of teachers, mid-level leaders and school leaders participating in the investigation
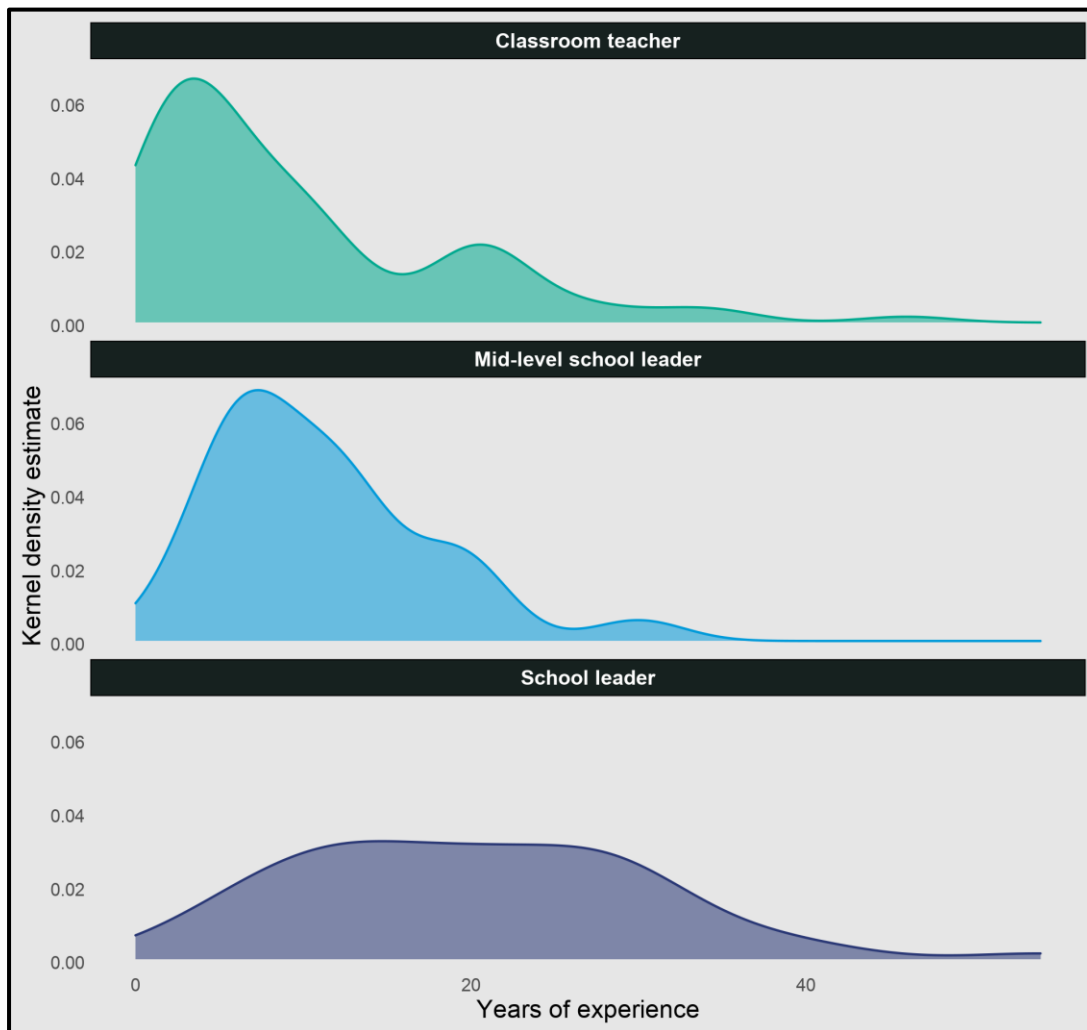
2.6. Data collection overview

We undertook a range of data collection activities that mapped to the Research Framework (Table 4). These included online surveys with educators (n = 327), interviews with educators (n = 93), lesson/meeting observations (n = 50), interviews with all professional learning providers (n = 3), observations of professional learning sessions (n = 5), and supplementary document review. Detailed methodological information about data collection and analysis is set out in Appendix C.

All data collection took place prior to changes brought about by COVID-19.

Table 4: Data collection components mapped to the Research Framework

Research focus / level on diagram		Data collection components							
		Schools					Providers		
		Online surveys		School visits		Documents etc			
		Pre-survey	Post-survey	Observations	Interviews		Observations	Interviews	Artefacts
Program input	Professional learning approach						■		■
						■			■
Mobilisation input	Enactment of professional learning approach	■	■		■			■	
	Implementation outcomes	■	■	■	■				
	School mobilisation strategies	■	■	■	■				
Outcomes	Educator outcomes	■	■	■					
	Student outcomes				■	■			
Barriers and enablers of evidence use	Research evidence characteristics	■	■		■			■	■
	System contexts	■	■		■			■	
	School and classroom contexts	■	■		■			■	
	Educator characteristics	■	■		■			■	

3.   Findings

This chapter sets out the findings of the research investigation, mapped to elements of the Research Framework. The first section explores mobilisation influences to provide context in terms of how educators engaged with the professional learning providers. The sections that follow are linked to the research aims as follows:

- one section on how evidence was selected and put into practice explores the influence of different layers in the mobilisation process (aim 2);

- one section addressing outcomes examine the impact of research mobilisation (aim 1);

- two sections on enablers and barriers in mobilising research evidence explore the influence of different layers in the mobilisation process (aim 2). They also indirectly address ways to improve the effectiveness of evidence mobilisation (aim 3); and

- the final section on educators' recommendations for providers identifies ways to improve the effectiveness of evidence mobilisation (aim 3).

3.1.   How educators engaged with the professional learning approaches

This section explores mobilisation influences by describing the uptake of features of the professional learning across each provider. It focuses specifically on involvement as reported by educators. More specific details regarding the professional learning models are provided in section 2.5.1 and Appendix B.

> **Section summary:** Educators engaged with each of the professional learning providers in multiple ways (e.g. by using specific protocols and routines created by the provider, attending offsite sessions, watching demonstration lessons, accessing online modules, and contacting the provider with questions).

Teaching Sprints

Educators engaged with Teaching Sprints in multiple ways (Appendix D Figure D.1). For teachers, the most common form of engagement was through direct involvement in a Sprint rather than through attending off-site sessions or contacting the provider with questions (which tended to come from school leaders). School leaders indicated they were making use of all possible means of engagement, including the Sprints tools mentioned in section 3.2.3. Within a school, Sprints were usually led by school leaders or mid-level leaders.

Training 24/7

Educators engaged with Training 24/7 in multiple ways (Appendix D Figure D.2). Participants involved in Training 24/7 had nearly all attended in-school sessions with the provider, watched demonstration lessons and had access to online modules. Most of the respondents were also involved in the project-based component of Training 24/7 described in Appendix B. Fewer respondents had attended off-site sessions, and a higher proportion of school leaders compared with teachers had contacted the provider with questions.

Bastow Leading Mathematics

Unlike the other programs, participation in Bastow Leading Mathematics showed a clearer division between school representatives directly enrolled in the course (who were part of

their school's Bastow Leading Mathematics team and were in some cases observed during the school visit days), and other educators in the school (who could be made aware of the ideas from the course through the Bastow Leading Mathematics team). Although relatively few educators indicated they had discussed, trialled or implemented ideas from Bastow Leading Mathematics, this is in line with expectations for an early stage of engagement with the provider.[24] Different forms of participation in Bastow Leading Mathematics are shown in Appendix D (Figure D.3).

3.2.   How research evidence was selected and implemented

This section details findings about mobilisation processes in terms of the selection of focus areas; processes used in identifying specific research to support these focus areas; and strategies used for understanding and using research. Presenting mobilisation processes in this order does not suggest that each school or provider followed these steps in a linear way (although some did).

Section summary:

Selecting focus areas

To understand which evidence was being mobilised, it was first necessary to identify the focus areas selected by schools/educators. In general, educators reported a relatively high number of focus areas. Within the semester studied, teachers indicated they had up to 15 focus areas (with a mean of 5.4 focus areas); mid-level leaders focussed on up to 14 focus areas (mean of 4.7); and school leaders focussed on up to nine focus areas (mean of 4.0). Some of these focus areas were literacy-specific (e.g. guided reading), some were numeracy-specific (e.g. number talks) and many were general pedagogical approaches or theories that could be applied in relation to literacy or numeracy (e.g. use of learning intentions and success criteria).

When selecting what area of teaching they (or their team) should focus on, educators indicated they were most strongly influenced by whether an approach was backed by academic research and was likely to meet student needs. The order of these two influences changed between the pre- and post-survey, and the increased emphasis given to academic research in the post-survey was a statistically significant change.

Identifying specific research to support focus areas

Both providers and schools played a role in identifying the research relevant to the focus areas. This evidence for focus areas was most commonly accessed in the form of written excerpts of articles/books, followed by verbal explanations from the professional learning provider. In some schools, there were highly structured processes (e.g. specific roles created) for finding evidence; in other schools, this process was more ad hoc. There was uncertainty about who was actually finding and sharing evidence for focus areas – while educators reported that evidence was usually found and shared by school leaders/mid-level leaders, very few school leaders (or teachers) said they personally sourced the evidence. This contrasted with self-reported confidence in locating

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[24] Participating schools were mostly in the completion/early post-completion phase of Leading Mathematics, which coincided with Terms 3 and 4 of the school calendar. For example, schools anecdotally suggested that implementing strategies and ideas from Leading Maths would be more effective and sustainable in the coming school year(s), as it represented an opportunity to make change to broader school plans (such as Annual Implementation Plans or school-wide mathematics strategies) without competing against established plans being executed during the same school year as their professional learning participation. In other words, schools felt the opportunity to start afresh in the upcoming school year (rather than during Term 4) as opportune and conducive to effective implementation.

evidence, with the majority (78%) of educators in the post-survey agreeing or strongly agreeing they knew where to find relevant research to inform their teaching practice.

Educators showed differing degrees of familiarity with specific evidence sources, and many spoke generally (rather than specifically) about the evidence they were using. Similar to findings in a UK trial (Nelson et al., 2017), educators' ability to match research purposes with research methods suggested that educators' current levels of research literacy are low. Instead, educators were using various proxy measures for establishing the quality of research (e.g. trust in the source) rather than directly assessing the quality of research they were encountering.

Understanding and using research

Mobilisation processes extended beyond the initial stages of identifying focus areas and identifying the research to be used. Educators described discussion and planning around research including how the evidence could apply in the classroom and sharing of resources developed for the focus area. Where possible, educators sought feedback on evidence-informed teaching and reflected on changes. Few teachers had opportunities to practice a skill before going into the classroom, although a number of teachers described team teaching and demonstration lessons as opportunities to see how others were carrying out a practice.

3.2.1. Selecting focus areas

This section explores the number and types of focus areas for educators, and how these were selected. For the purposes of this paper, a focus area is the particular teaching strategy, approach or theory in literacy, numeracy or general pedagogy that schools/educators worked on as part of the professional learning — for example, guided reading or number talks.[25] Identifying focus areas is necessary to understand which evidence was being mobilised and to gain further context around delivery of the professional learning programs.

How focus areas were selected

The two strongest influences on educators' motivations to select a particular focus area were the approach was **backed by academic research** and was **likely to meet student needs** (Table 5 and Figure 4). The order of these two influences changed between the pre- and post-survey, and the increased emphasis given to academic research in the post-survey was a statistically significant change ($p = 0.001$, $\hat{r} = 0.33$). These influences were followed by whether the approach aligned with professional experience, fit with existing practices or was likely to be welcomed by students (ranked similarly at both time points). Focus areas were rarely selected because they were inexpensive, easy to implement or likely to be welcomed by parents.

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[25] Focus areas do not imply there is a deficit — as one provider explained: *"The beginning assumption is that we'll find out what's wrong, what the gap is, and attending to that. What we notice is that almost the default positioning. That's where people want to start. Whereas [we start] … with strengths. Schools often find that it's an affirmation of the work that they've been doing over the past two or three years. The things that are strong are because those are the things that they've been working on. That success can then find its way into other areas that they decide they want to work on."*

Table 5: Five strongest influences on choice of the focus area[26]

Pre-survey		Post-survey	
Rank	Influence	Rank	Influence
1	Likely to meet the needs of students	1	Backed by academic research
2	Backed by academic research	2	Likely to meet the needs of students
3	Aligned with professional experience	3	Aligned with professional experience
4	Fit with existing practices	4	Fit with existing practices
5	Likely to be welcomed by students	5	Likely to be welcomed by students

Figure 4: Influences on choice of the focus area[27]

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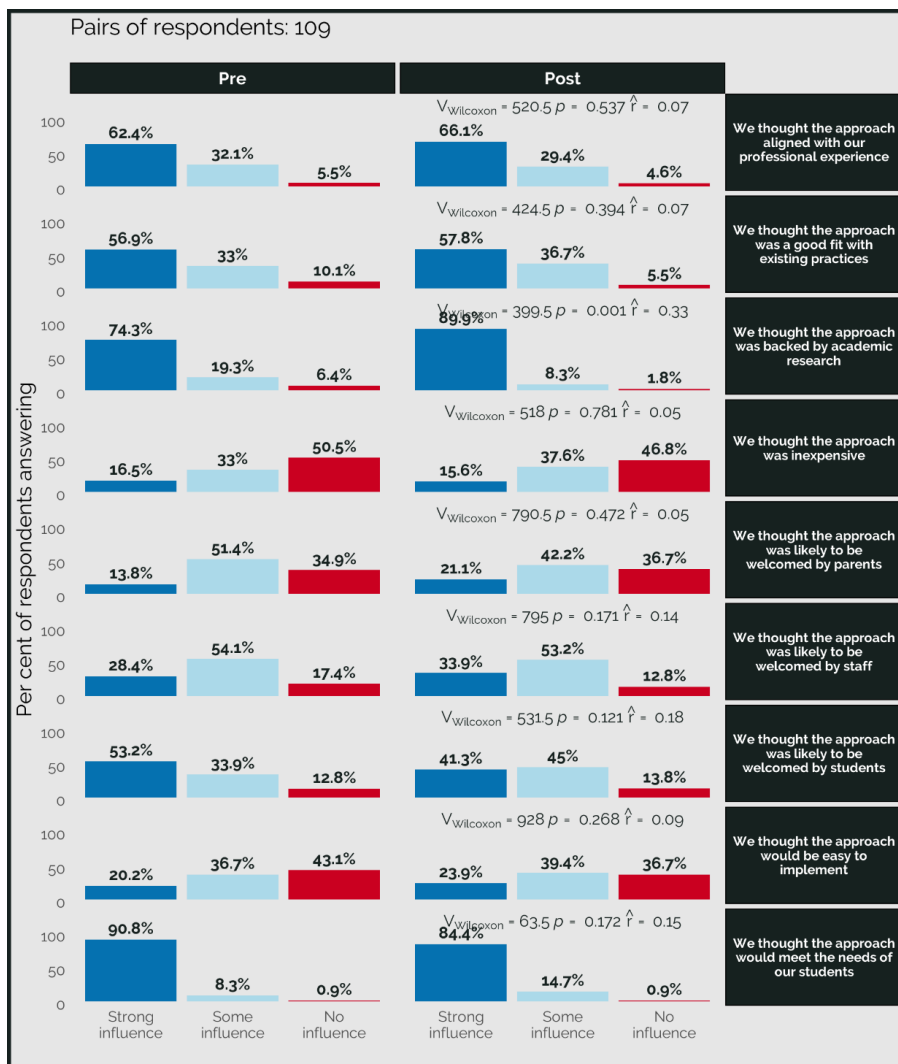
[26] Based on the percentage of responses to "Strong influence" (see Figure 4).
[27] Question: *Please rate the level of influence that each of the following factors had on the decision to adopt your approach for teaching [FOCUS]? (Please select one option per row)*

In-school processes for selecting focus areas

The process for selecting focus areas occurred in a range of ways and sometimes over long time periods, and generally at the team or school (rather than the individual teacher) level.

The selection process sometimes involved **school leaders analysing whole school data** in relation to student needs. For example, one school leader in Teaching Sprints explained how writing (in general) became a long-term focus:

> *We looked at NAPLAN data, we looked at our school-based data and there was a common pattern. Over the last two years here, we're looking at our growth, our value add, and writing was something that we were seeing, particularly [Years] 3 to 5 growth was something that wasn't as high as our other areas. So, that's the reason for staying with writing.*

In some cases, this meant that schools had already identified their broad focus area (e.g. mathematics or phonics) before beginning their professional learning (and indeed that was a reason why they sought out the professional learning provider).

At other schools, selection of focus areas involved a combination of **discussions among groups of teachers and school leaders**. For example, one school leader in Teaching Sprints explained:

> *We went together as a year as well with the … other three classes, and had chats. [We] bring whatever evidence we have, and then together, we'll … decide what [our focus] is.*

Other processes were more **teacher-led** and based on teacher observations, perceptions or professional experience:

> *[We decided our focus area through] discussion with the rest of the team, what everyone felt was the downfall in that department, which would have been fractions and decimals. And then, we talked further about we're actually struggling with. … We did look at the kids and then we spoke openly to each other, saying how do you feel when you teach it. (Year 3 teacher)*

Where particular year groups of teachers had a focus, there was not necessarily a plan for how or whether that teaching strategy would be used by other teachers as students progressed to higher year levels.

Provider involvement in selecting focus areas

The process of selecting focus areas also occurred with differing levels of support or input from providers. Some involved a more school-led approach with guidance or facilitation by the provider, whereas others were more directed by the provider.[28]

- *Using tools from the provider:* Some of the Teaching Sprints tools are designed to assist schools with selecting specific focus areas that align with broader school goals. Consistent with Teaching Sprints, some described their focus area in terms of cascading levels of specificity (e.g. they had a whole-school focus on writing; a particular focus on grammar; and a specific Year 5 focus on teaching connectives).

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[28] This was often deliberate — e.g. one described their facilitative approach: *"The schools themselves are making choices about where they want to put their attention. They're doing it on the basis of the evidence that they've captured from their own schools. It's a very strongly context-driven approach to change and strengthening what they do."*

- *Seeking feedback or specific assistance from the provider:* Some identified the focus areas partly through feedback from the provider on how their teaching strategies could improve. For example, an Assistant Principal explained:

  > I actually give [the provider] access to our English drive so he can actually see our programs … [I say], 'Please go and have a look. We'd love your input so we can move forward.'

  Similarly, when one group of teachers had been focussed on retrieval practice and students had not showed as much growth as expected in a history unit, educators sought feedback from the provider. A mid-level leader explained how they then identified spaced practice as a more specific focus:

  > [The provider] just said, "… Possibly the reason why [students did not perform well on the assessment is] that you had massed [and not also spaced] practice. So, you didn't touch base back on the earlier stuff that you taught … Next time you should have … done some work on that."

- *Being guided by the structure/content of the program as well as tools from the provider:* Bastow Leading Mathematics encouraged educators to use a pedagogical cross-walk survey they had designed to (among other things) assist schools to assess their strengths and needs in relation to evidence explored during the course. For example, one teacher explained how a focus of the Bastow Leading Mathematics course (identifying and acting upon the characteristics of good mathematics learners) aligned with a need in their school:

  > We've really noticed … through collecting the data … what the students value as a mathematician and … what the teachers value as a mathematician are two very different things. … Something that we want to work on is aligning what we see as valuable to a mathematician (like perseverance, taking risks, applying their knowledge) and … getting the kids to see that they're worthwhile activities as well. … I think the plan for us really is to build on what we're already doing with our open-ended problem solving, celebrating there's more ways for getting to problems.

- *Being guided by program resources:* One school leader explained that, in addition to looking at NAPLAN data and using classroom observations to identify areas of need, the school focus was partly driven by the need to use program resources:

  > Earlier in the year [the school leadership team] had a look at what teachers, the nine participants, were actually doing on it. You could see that a few of us had done quite a few [modules]. A few of us really weren't getting value for money. Then I asked [the principal's] permission to start up a group. I went and individually approached each teacher and said, "This is what's happening." … I said, "They're not getting used enough. Let's find a way we can make sure you utilise them and have those conversations." I started a group up. … I asked the teachers, "Which is the [module] you'd like to focus on?" Because we were doing writing with [the provider] we thought that would be a good one to start with. We looked at writing. I think we did two modules of writing and set a reasonable timeframe for teachers to do it by. … Then we had those conversations on what we got from it, what can we utilise in the classroom, what have you tried, what didn't work. If you weren't going to try something, why not? We answered all those sorts of questions and had good discussions.

- *Direct input from the provider:* Some educators described an approach largely led by the provider. For example, when asked whether and how the school executive team were involved in choosing focus areas, one school leader explained:

> *No … it's mainly been with external providers. So, when external providers come in, [they've sent us] … down this track and then we've made it … part of … what we do in the school. So, they've come in, said, we recommend these 'cause the myriad of resources and research out there is phenomenal and [it's been important to select] specific ones that are relevant to our school in our context and where our teachers [are] at …. When they've come they've said, … we're looking at this type of thing and then our assistant principals have said, all right, I want to do this with my stage, … and then they've gone down that path and … the assistant principals have managed that with the support of the deputy principals providing whatever resources that they needed.*

Number of focus areas

In general, educators reported having a **relatively high number of focus areas** (Figure 5) as part of their professional learning. Teachers indicated they had up to 15 focus areas within the semester studied, with a mean of 5.4 focus areas. Mid-level leaders (for whom the sample size was smaller) focussed on up to 14 focus areas, with a mean of 4.7. School leaders focussed on up to nine focus areas for the semester studied, with a mean of four focus areas. Overall, there was a slight increase in the number of focus areas during the research project (e.g. teachers had a mean of 4.6 for last semester versus 5.4 for the semester studied).[29]

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[29] The number of focus areas in previous years were greater than the semester studied (mean = 6.6, 8.7 and 6.4 for teachers, mid-level school leaders and school leaders respectively). This most likely reflects the longer time period (i.e. responses could have been drawn from any stage in an educator's career). The propensity for recall bias is also elevated when selecting options from previous time periods.

Figure 5: Number of focus areas[30]
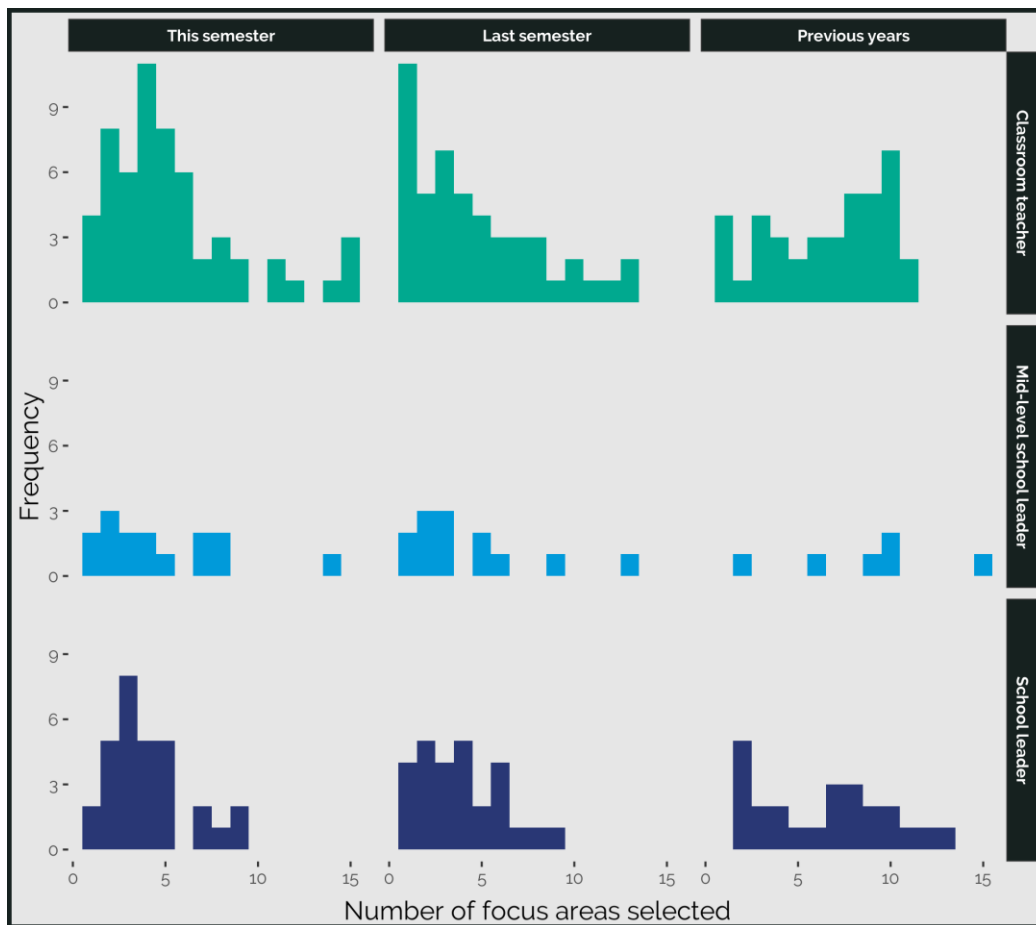
These figures represent relatively high numbers of focus areas for individual educators, particularly given educators were likely to have additional areas of focus beyond literacy and numeracy (e.g. in student wellbeing or schoolwide positive behaviours). The data collected for the research does not definitively explain the reasons for these relatively high numbers of focus areas, but they could be interpreted to suggest:

- superficial selection of focus areas;

- specific focus areas being the focus for short burst of time (e.g. one semester may have two or three Sprints and therefore two or three focus areas);

- educators changing their focus (e.g. when trying to decide the best approach);

- early career teachers becoming aware of a number of new topics at once;

- focus areas somewhat overlapping or being complementary; and/or

[30] Question: *What has your professional learning focus been this semester / last semester / in previous years (if applicable)? Select all that apply. Tick multiple columns to show an ongoing focus. Leave the row blank if you have not had this focus. If you are a school leader: Please indicate whole-school focus areas you have lead/overseen.* Note: (1) "Previous years" does not include schools in Bastow Leading Mathematics, as these schools generally started with the provider in the year of the research project. It also does not include responses from teachers in their first year of teaching. It is therefore difficult to interpret whether there has been an increase or decrease in focus areas from previous years. (2) Dual enrolment schools are excluded from this figure. (3) "Other: Please specify" responses are excluded from this figure.

- embedding or sustaining of previous focus areas (so that a teacher is focussed not only on the new focus area, but on ones from the previous semester or previous years).

For the semester studied, teachers generally selected more focus areas than school leaders, suggesting not all of their focus areas were the subject of a whole-school focus, or that school leaders were not aware of all of the focus areas occurring within their schools.

The high numbers of focus areas could also have explained some educators' difficulty articulating specific areas or describing how multiple focus areas fit together. Although educators were specifically asked to name their focus area or areas early in each interview, it was common for multiple current focus areas to emerge over the course of the interview. For example, two kindergarten teachers described multiple focus areas and how they related to each other:

> *(Interviewer) Specifically this semester, can you describe what you've been focused on through [the provider]?*
>
> *(Teacher 1) We've been doing a lot of retrieval practice. So, a lot of cognitive science, a lot of … retrievable practice, based practice. … The Rosenshine Principles we've been looking at that as well.*
>
> *(Interviewer) So the Principles generally, not one particular Principle at the moment?*
>
> *(Teacher 1) Yeah. …*
>
> *(Teacher 2) We do … a lot of daily review. We do that all the time. In our morning routine, also in our phonics. … We've only touched on [Anita Archer regarding lesson structure] a little bit. But … a lot of [Anita Archer's work] links very well with … Rosenshine.*
>
> *(Teacher 1) Small Steps and things like that.*
>
> *(Teacher 2) And, we do … Small Steps, we do that all the time. Just developing on from that.*

However, there were also instances where educators identified targeted approaches. For example, one Instructional Leader provided a list of every specific focus area at each year level in the school for each term, how these mapped against the curriculum, how new focus areas followed from previous focus areas, and which specific research sources were used to support this.

Types of focus areas

Across the three professional learning providers, educators were working on a range of focus areas during the semester studied. As shown in Table 6, some of these were literacy-specific, some were numeracy-specific and many were general pedagogical approaches or theories that could be applied in relation to literacy or numeracy.[31]

Table 6: Literacy-specific, numeracy-specific and general pedagogical focus areas[32]

Literacy-specific	Numeracy-specific	General pedagogical approaches
- Guided reading - Modelled reading - Ways of teaching subordinate conjunctions - Synthetic phonics - Ways of teaching vocabulary - Other: - Ways of teaching writing (including modelled writing, writing for a purpose, and extending ideas in writing) - Ways of teaching grammar and punctuation - Spelling / Spelling talks (Reading) comprehension	- Identifying and acting upon characteristics of good mathematics learners - Number talks - Open-ended tasks (as specifically applied in maths classes) - Partitioning and renaming numbers - Ways of teaching place value - Incorporating Understanding, Fluency, Problem-solving and Reasoning proficiencies - Other: Additive strategies	- Cognitive load - Formative and/or summative assessment approaches - Feedback approaches - Growth mindset - Use of learning intentions and success criteria - Lesson structure - Morning routine - Pre-activation strategies - Questioning approaches - Retrieval practice / Spaced practice - Rosenshine Principles - Other: - Metacognition and self-regulation - Teaching strategies for gifted and talented students - Project-based learning

These focus areas are diverse. Some of the general pedagogical approaches are educational theories that impact on ways of teaching (e.g. cognitive load and growth mindset), whereas others are strategies in themselves (e.g. spaced practice). They also vary in their specificity – for example, pre-activation strategies are more targeted than approaches to formative and summative assessment.

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[31] One school leader explained why they had selected a general pedagogical focus area rather than a literacy-specific one: *"We felt that cognitive load was an area which would give us bang for our buck not only in the literacy but in all of our curriculum areas, because it was about cognition."*

[32] This list is not comprehensive, and may use umbrella terms for more specific focus areas (i.e. these were sometimes described in greater specificity in interviews). The list of focus areas was developed for the post-survey in line with themes arising from the interviews.

As shown in Figure 6, participants in Training 24/7 were spread across 15 focus areas in total (including five literacy-specific focus areas and ten general pedagogical focus areas). Some of these focus areas overlap or strongly complement each other — for example, the Rosenshine Principles incorporate chapters on questioning, lesson structure and daily review/spaced practice.

The uptake of some focus areas changed over time. For example, 68% of educators identified learning intentions as a focus in previous years, compared with 19% of educators in the semester studied. This could be interpreted in multiple ways – for example, it may be because educators found sustainability difficult or because they felt they had mastered a strategy and were ready to move on.

Although Training 24/7 (and sister company Get Reading Right) were well known for their work in synthetic phonics, only 42% of participants indicated this was a focus during the semester studied, and fewer educators focussed on synthetic phonics in the year studied compared with previous years (when 70% of educators focussed on it). As discussed, most of these participants were involved with Training 24/7 (or its equivalents) for a number of years. Interviews with the provider and educators suggest this shift away from synthetic phonics as the focus was mainly because participants felt they had already mastered synthetic phonics teaching strategies, and were ready to draw on additional, complementary strategies (including through the project-based component).

A sudden increase in focus on the Rosenshine Principles (86% for the semester studied); spaced practice (68%), cognitive load (60%) and lesson structure (53%) suggests these focus areas were encouraged by the provider rather than first identified by the schools. This is consistent with the program description and interviews with educators and the provider, as well as section 3.2.2 regarding who usually sourced the evidence.

Figure 6: Focus areas for participants in Training 24/7
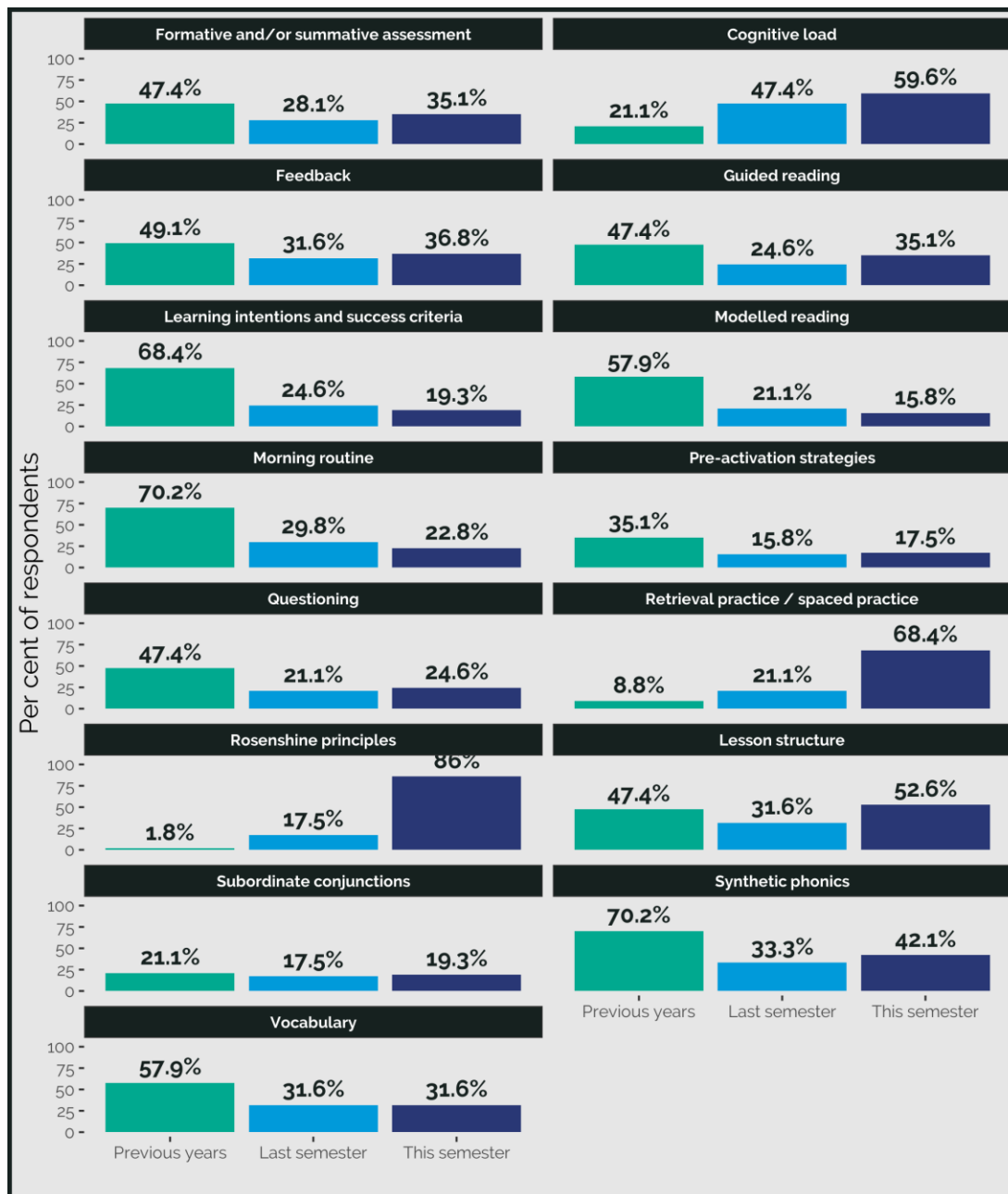
Teaching Sprints

Participants in Teaching Sprints identified 14 focus areas altogether (although two of these were identified by less than 3% of participants: Figure 7). These included four literacy-specific, three numeracy-specific and seven general pedagogical focus areas. The most common areas for the semester studied were feedback (27% of respondents), use of learning intentions and success criteria (24%), questioning (24%), and number talks (24%).[33] However, no single focus area was shared by more than 30% of participants. The constant focus on some areas between "Last semester" and "This semester" (e.g. for

[33] As noted in footnote 32, the *specific* focus area, particularly for Teaching Sprints schools, was likely to be more narrow than is captured in these categories.

partitioning and renaming numbers, guided reading, and use of learning intentions and success criteria) may suggest a continued focus on more specific aspects of these areas.

Figure 7: Focus areas for participants in Teaching Sprints
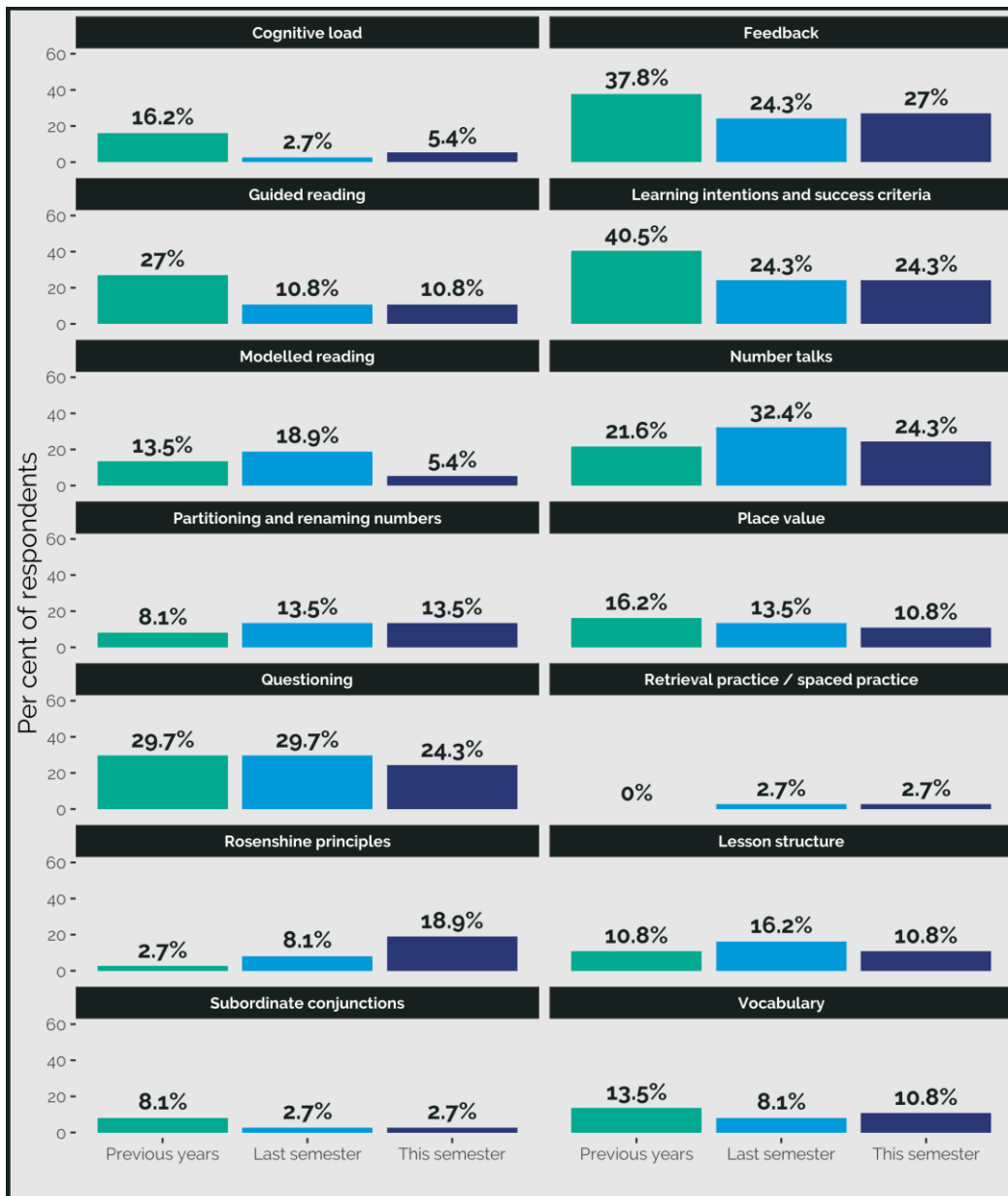
Bastow Leading Mathematics

Nine focus areas were identified by educators in Bastow Leading Mathematics, including four numeracy-specific strategies and five general pedagogical strategies (Figure 8). The most commonly selected focus areas in the semester studied — identifying and acting upon characteristics of good maths learners, and incorporating the Understanding, Fluency, Problem-Solving and Reasoning proficiencies (from the Victorian Curriculum for Mathematics) — are core to the Bastow Leading Mathematics course. These had also increased from the previous semester, perhaps supporting the finding earlier in this section about focus areas being guided by the structure of the program.

Figure 8: Focus areas for participants in Bastow Leading Mathematics
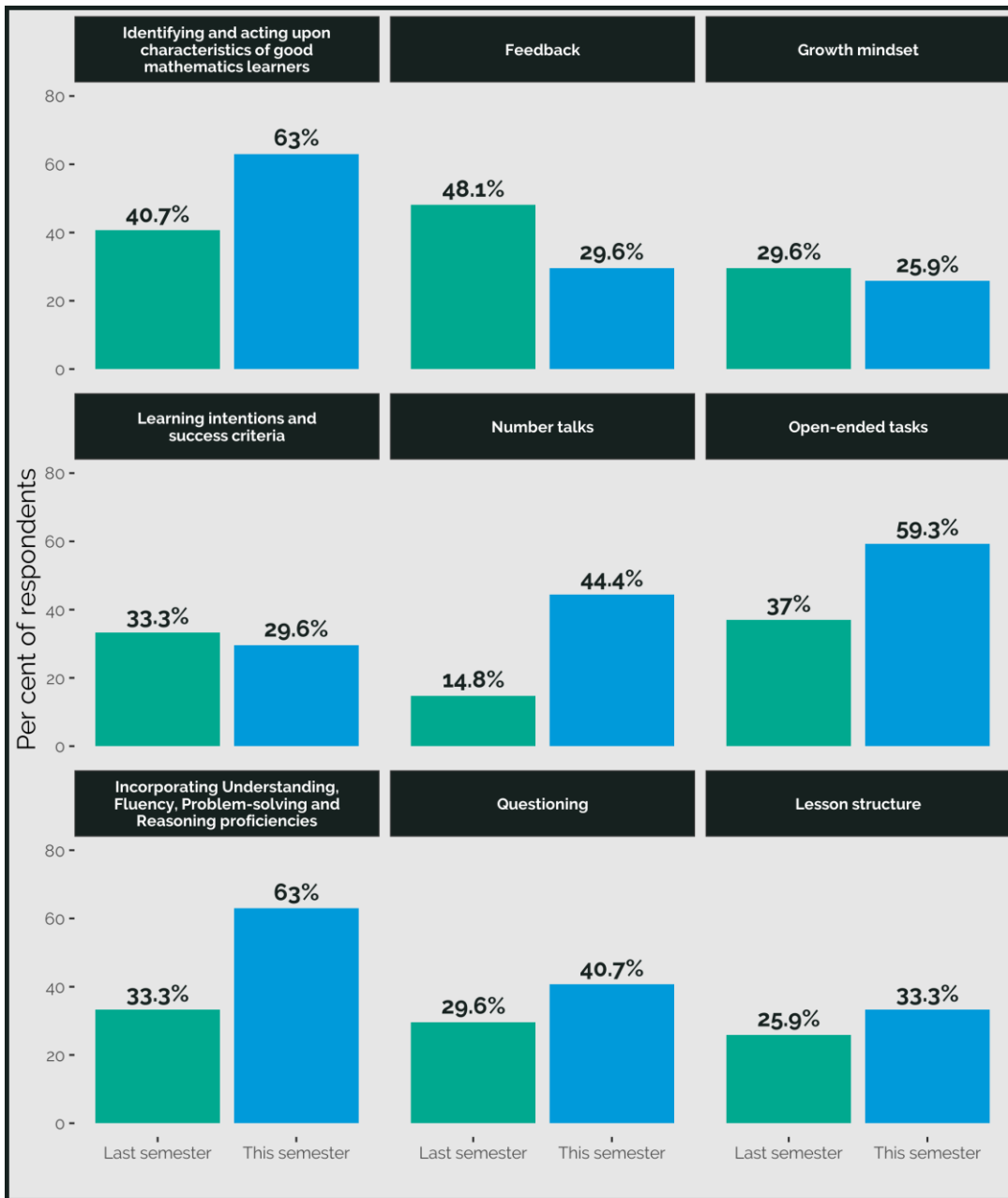
3.2.2. Identifying specific research to support focus areas

Format of evidence

Evidence was most commonly accessed in the form of **written excerpts of articles/books**, followed by **verbal explanations from the provider** (Figure 9). There were no clear distinctions between providers in terms of the format used to convey research (Figure 10) — i.e. all formats of evidence were used by educators within each provider.[34] Although written excerpts were the most common form, the emphasis on verbal explanations also reflects a preference among some educators for watching modules or listening to podcasts rather than reading written sources. Also, while whole articles/books and online modules were relatively popular, interviewees noted the importance of having short articles rather than whole books.[35]

Figure 9: Research formats[36]

Total number of respondents in sample: 137

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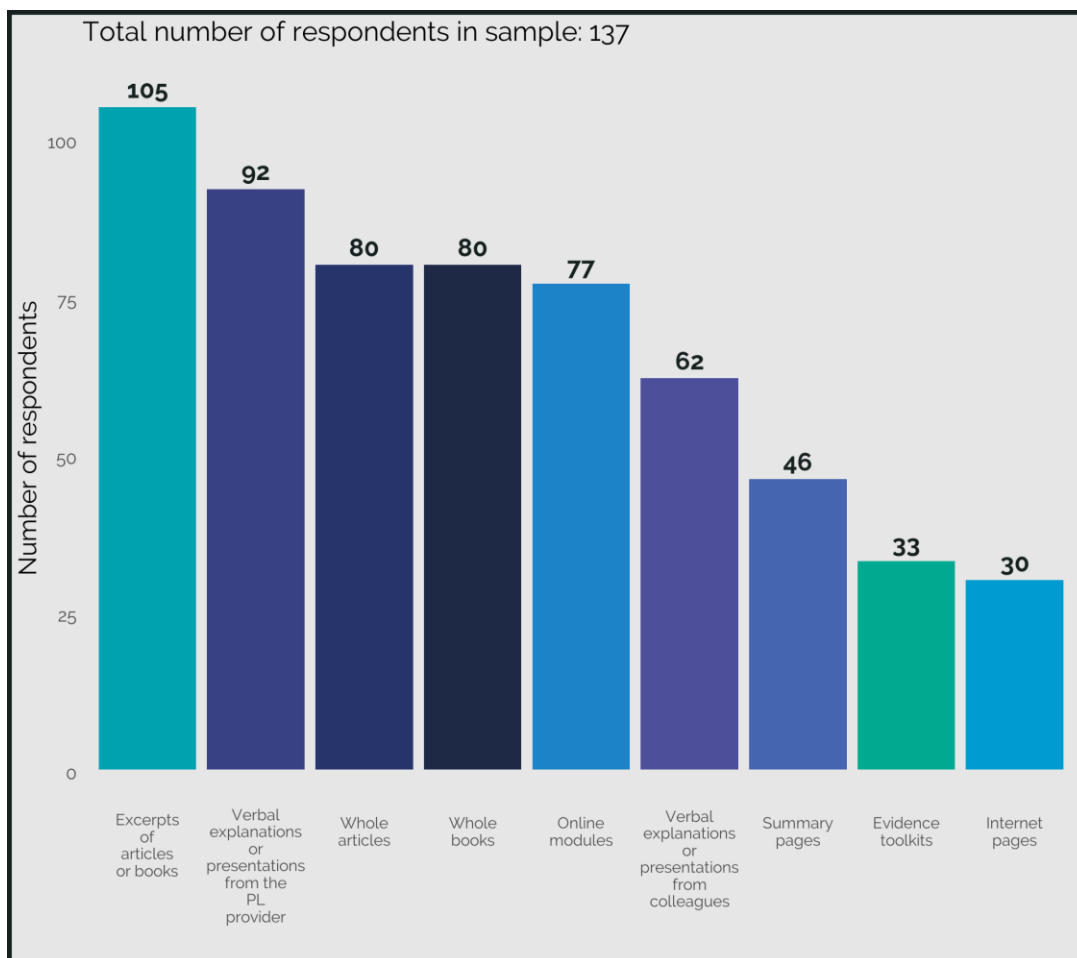
[34] Videos used in Leading Mathematics sessions are discussed in section 3.2.3.
[35] Specific examples of formats included: Sherrington (2019), Seidenberg (2017) and Wiliam & Leahy (2015) (books/excerpts of books); Bragg et al. (2015) and CESE (2018) (whole articles/excerpts of articles); DET (2018) (toolkit); and SLRC (c. 2014) and IAE (c. 2019) (summary pages).
[36] Question: *In what format/s have you accessed this research? (Please select all that apply).*

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Figure 10: Research formats (by provider)
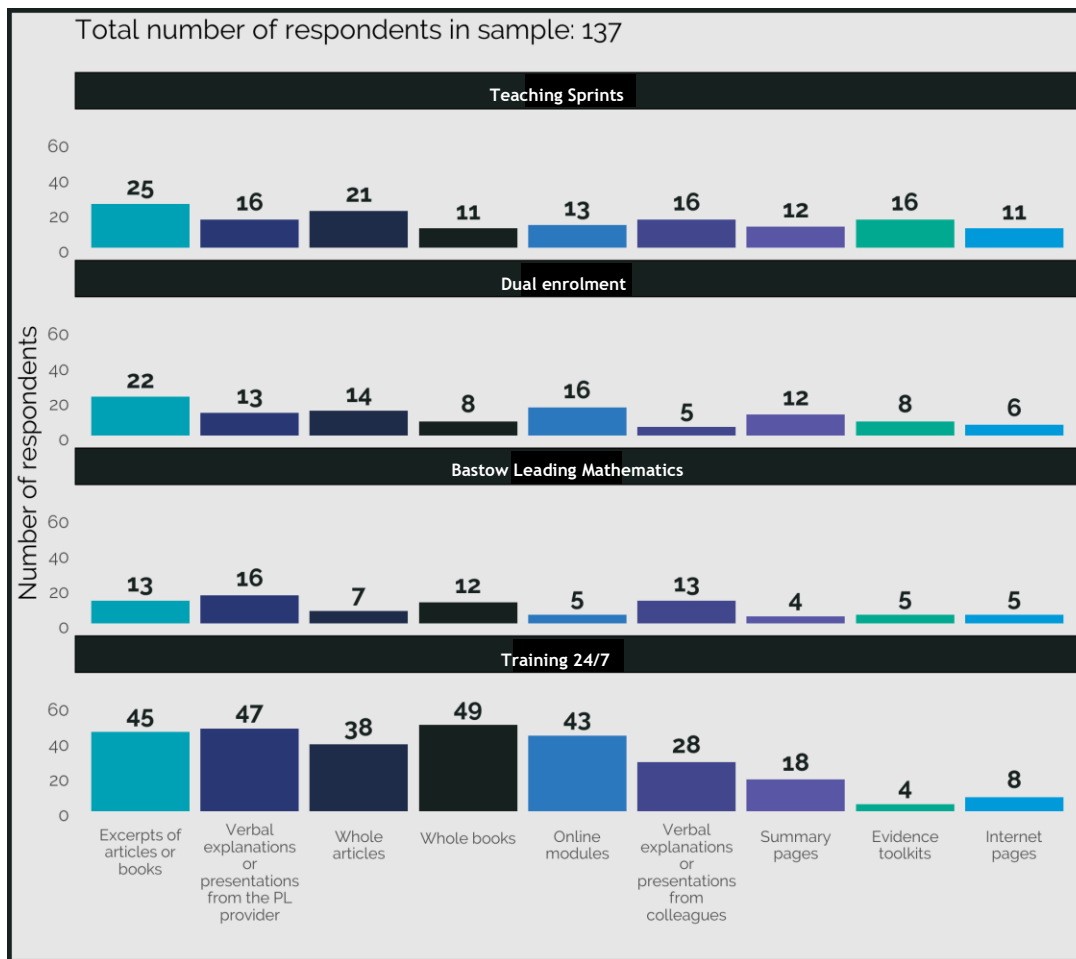
Who usually sourced the evidence for focus areas (and how they did it)

The question of who usually sourced the evidence for focus areas elicited somewhat contradictory responses. On one hand, educators indicated that evidence for focus areas was usually found and shared by school leaders/mid-level leaders (n = 83),[37] followed by professional learning providers (n = 34). However, **very few school leaders (or teachers) said they personally sourced the evidence** (n = 10), suggesting that educators assume that (other) school/mid-level leaders are performing this function (when this may or may not be the case). This is discussed further below.

When broken down by provider (Appendix B), the **act of sourcing evidence reflected the provider models** — for Teaching Sprints, this was usually carried out by the school; for Bastow Leading Mathematics, this was shared but mostly came from the school; and for Training 24/7 there was closer to an even distribution between evidence being sourced by the provider and the school.[38]

The way in which providers supplied or directed participants to evidence also differed. For Teaching Sprints, this appeared to be mainly through the curated website of resources

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[37] This question did not ask respondents to distinguish between school leaders and mid-level school leaders (i.e. evidence sourced by a "school leader" could have been sourced by a Principal, Assistant Principal etc or mid-level leader).

[38] The provider explained: *"We tried to give [participating schools] all the same types of research so that they had a shared expertise and then they could network a little bit more using that shared expertise … They weren't always going back and explaining the minutiae because everyone had an assumed expertise."*

("*It's almost like a one stop shop for us*" [school leader]); and exposure to articles during in-person sessions. For Bastow Leading Mathematics, participants had access to a list of selected sources provided in course materials, as well as "*a big Dropbox with a ton of resources [including] all different reading[s]*". For Training 24/7, various descriptions were given, ranging from "*each given a little goodie bag with lots of books to take away and read*" to being given a USB with articles or having articles directly uploaded to the school server and having access to the online modules.[39]

Further insights emerge, particularly in relation to what is happening within schools, when this is broken down by role (Table 7). **School leaders identified evidence as being found and shared by other school leaders/mid-level leaders, although few school leaders themselves claimed to find it.** Mid-level leaders were more likely than school leaders to report they personally sourced the evidence, but they also said it mainly came from other school leaders/mid-level leaders. This suggests either certain school leaders are carrying out the majority of this work, or school leaders are generally less aware of who is actually finding the evidence (and perhaps is evidence of more 'superficial' use of evidence). It also may be that evidence may be sourced by either the professional learning provider or the mid-level school leader, and is then distributed through the school by the school leader or mid-level leader.

Table 7: Who usually the sourced the evidence for your professional learning focus? (Presented by role)

Role of respondent	Survey response
School leaders say evidence is usually found/shared by …	• **Another school leader or mid-level leader in their school (n = 28)** • The professional learning provider they work with (n = 10) • Themselves (n = 1) • A teacher in their school (n = 1)
Mid-level leaders say evidence is usually found/shared by …	• **Another school leader or mid-level leader in their school (n = 10)** • The professional learning provider they work with (n = 8) • Themselves (n = 5)
Classroom teachers say evidence is usually found/shared by …	• **Another school leader or mid-level leader in their school (n = 45)** • The professional learning provider they work with (n = 16) • Themselves (n = 4) • A teacher in their school (n = 2)

These results contrast with self-reported confidence in locating evidence. In the post-survey, the majority (78%) agreed or strongly agreed they knew where to find relevant research to inform their teaching practice (Appendix B). There was also a statistically significant increase in knowing where to find relevant research over time ($p = 0.002$, $\hat{r} =$

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[39] Other ways included: having access through the Instructional Leader network; having exposure during sessions; and asking the provider directly for recommendations (*"With [the provider] being here, you can always ask: 'I want to know some more about this. Where can I find it?'"*). Some participants also noted a shift between how the program is normally conducted, and the project-based component. For example, one school leader explained: *"[Usually] they go, 'This is the evidence for it.' We don't go and unpack it ourselves, but [with the project-based component] we've really been pushed to go and unpack it for ourselves."*

0.31). This difference may suggest an overestimation of confidence, or highlight the gap between educator attitudes and practice – i.e. the act of "usually finding" the evidence may be different from having the knowledge or confidence about where to find evidence.

Where school leaders, mid-level leaders or teachers found evidence for their focus area, they described using a variety of their **own methods**. One Year 1 teacher explained: *"You do tend to start finding your go to places when you're looking for things."* In addition to following-up on recommendations or directions from the provider, these methods included:

- referring to previous work: *"I tend to keep hardcopies of articles, so … I'll look back through to what I've used in the past and what's been effective"*;

- using social media and other online sources: *"[I came across the evidence] just from self, Twitter, blogs and podcasts"* (school leader);

- using community sources (e.g. talking with staff at a local equity resource library); and

- using a combination of sources including peer-reviewed journals:

   I would usually look in the Australian maths teachers' journals. There's an APM and AMT [The Australian Mathematics Teacher]. Those were really good resources. Enrich is another research-based website. … It was really just big Google search sometimes and then making sure I chose good sources of information and sources that I knew I could trust. … Another key thing, is to find stuff that's relevant, readable, but also practical. I found that especially the maths teaching journals were quite good for that stuff.
   (School leader with 10 years of experience)

Where educators found the evidence, they often said they were prompted to do so because the evidence they had been provided had been **too general** or they were seeking **examples** of how it could be applied in the classroom. For example, one mid-level leader explained:

   They have given us some professional readings. However, we found that they're not as specific to what we needed. Lots of people [focus] on guided reading. Lots of people [focus] on modelled reading but because we broke it in to specifically, we've had to find a lot of our own research and our own articles. They have tried to find from their resources but most of the time we just email [the provider] and say we found these and they just sort of approve it because ours is so specific and a lot of the stuff on the [provider's] site is very broad.

A teacher with nearly 15 years of experience described in detail the process of seeking more specific evidence for guided writing:

   From there we decided that [Rosenshine] was something we wanted to focus on, but that in itself didn't give us enough information about what to do. So we found a second piece of research that was purely on writing … [and] that let us focus the research more into what we wanted to do. And, from that we found some great techniques that we wanted to use where guided writing practice allowed us to focus on individual groups of students. And, for us, it was really important that [we] focused on ways to support children that may be struggling but also extend our children that are working beyond. … That research was really great to give us some ideas, but we still felt like we needed a little bit more about what's the best way to implement that. So we then found a third piece of research that was more talking about guided practice in the way that we wanted to use it, and it gave us some case studies and

some examples of what teachers had done to implement it successfully. … Then we felt like we had enough knowledge to go forward … and change our planning.

In some schools, the division of work in finding evidence was **highly structured**. For example, following discussions with the provider, one school had appointed a teacher to a 'Research Lead' role *"because often, what you find is, if that doesn't happen, it's not embedded and it's very stop/start, a bit over here, a bit over there"*. Among other things, this person's role is to review research before it is placed in the school's shared drive, and they spend a few hours per week on this. At another school, an Instructional Leader responsible for implementing one of the professional learning models in their school developed a structured system for finding numeracy research:

> *As we've gone through the year, the grade teams have identified what they wanted to focus on, and then I was able to find more targeted research. Because when we've been going to the professional development, the research that we've been given lends itself well to literacy because it was quite broad. I could see teachers really being able to pick a broad literacy concept and then applying it. Whereas with numeracy, because it's so varied and differentiated, and sometimes content-specific, it was more manageable to work in grade blocks. … Sometimes there'll be a couple of grades choosing to work on similar general things, so that won't take me as long to find the research. But generally speaking, in that week before the research, I would probably spend a whole day or two wading through the research and trying to find the best ones.*

Some educators discussed a more **ad hoc** approach — *"we'll flick each other an email if we come across an article or something like that"*. Others used a **combination of approaches**:

> *Sometimes we do sit there finding out information, if there's something that we're not sure about, we'll all sit on our computers trying to … find evidence or find research on particular things or even just [find out] what something means. … [But] the majority of the time [the research is] provided for us. (Year 4 teacher)*

> *We chop and change [in terms of who finds the research]… Our assistant principal found the initial piece … and then the second piece was found by another member of our team. … The Sprint before though, two other people were involved in finding [research] … [For] the last … meeting to start off a new Sprint … [our assistant principal] brought a book that someone in the Sprints world had passed onto her. So we knew that everything in there was going to be really valuable. The Sprints website has a really valuable archive of research that we often use. There's [also] a few key researchers that [a mid-level leader] has passed onto us. So it's really people that have had access or work with different networks come back and share"* (Teacher with nearly 15 years of experience)

In any case, one of the key reasons given for having specific people within a school find the research was **to save time** given the length of time taken to find research. One Year 4 teacher explained:

> *Generally our IL [Instructional Leader] has research papers ready for us to read through so we're not actively going and looking. I think last year we tried that a bit [in a different program] … but it was taking so much time that then this year we've been changing it to the Sprints, the IL's have work research there already for us to go though.*

Regardless of who "usually" sourced the evidence, there appears to have been a perceived flow-on effect from working with providers to **encourage individuals to seek out further evidence** for themselves (see section 3.3.2).

Educators' familiarity with evidence sources

There were differing degrees of familiarity with actual evidence sources. When asked specifically about which research or evidence they had become aware of, it was common for interviewees to talk in general terms about evidence sources. For example, educators mentioned:

> The proficiency reading we had, I don't have it with me, so I can't remember what it was called …

> I feel like I have [read about retrieval] in the past, but not of recent times. But [the provider has] offered some readings to help further my understanding.

By contrast, some teachers mentioned a number of specific sources. For example, one early career teacher said:

> I have just read 'The Principals in Action.' That one was fantastic. It's straight to the point. It's quick and I believe that my morals aligned pretty straight forward with that. 'The Reading Mind' I read as well. And, 'Language at the Speed of Sight', that's the one that I'm on now and I think I did read 'The Truth about Teaching' too. It's been over the past couple of months I have been reading them. … Just knowing about the history of how language has developed and how writing has developed [is] very interesting.

Some interviewees brought specific examples of research with them to the interviews.

In recognition of the fact that schools and educators engaged with multiple providers over time, they did not necessarily distinguish between evidence sourced for the current professional learning focus and evidence they had already known (i.e. they had integrated new evidence within their existing knowledge).

It should also be noted that, in general, educators described referring to evidence sources at the beginning of the stages of evidence mobilisation rather than at throughout the stages of evidence mobilisation (e.g. to address emerging difficulties or to refresh their understanding at a later date).

Discerning between high-quality and low-quality research

Assessing the rigour or quality of research evidence requires multiple skills, including a knowledge of research methods and statistics. Among the educators in this investigation, knowledge of different research types was generally low, and educators were using various proxy measures to be able to assess the quality of research they were encountering.

Research literacy

Similar to the RUS trial reported in Nelson et al. (2017), responses to a survey question requiring educators to match research purposes with research methods suggested that educators' current levels of research literacy are low. Responses are shown in Figure 11. Across all sub-questions, a range of alternative answers were selected, suggesting a high degree of uncertainty among respondents. Educators were most sure in identifying that systematic reviews are the best method for providing an overview of the evidence base (52% correct, compared with 50% correct in the RUS trial). Approximately 35% of educators correctly identified that interviews and/or questionnaires were most suitable for determining how an intervention works in practice (compared with 42% correct in the RUS trial). Only 20% correctly identified randomised controlled trials as the most appropriate method for determining the impact of an intervention (slightly lower than 28% correct for RUS trial). For this same question, 14% of educators thought that interviews and/or questionnaires were the best method for measuring impact. This may align with the high

degree of reliance on teacher observation data discussed in section 3.3.1, and the emphasis on professional experience.

Figure 11: Matching reasons for carrying out research with the most appropriate research methods[40]

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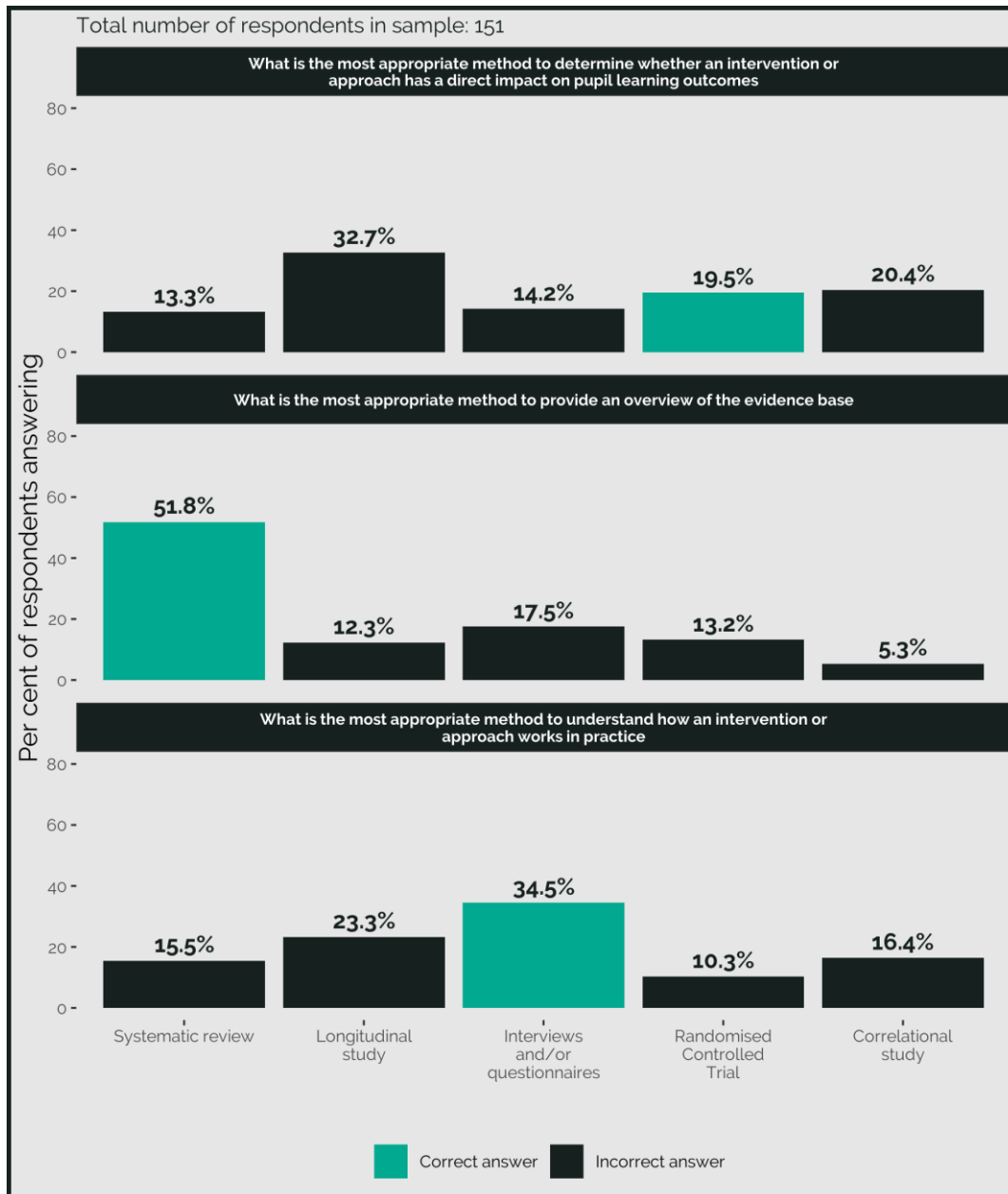
[40] Note: The NFER survey used "Literature review" rather than "Systematic review".

Methods used for distinguishing high-quality from low-quality research

Few educators personally assessed evidence quality. When asked in interviews how they knew evidence was high quality or rigorous, educators generally responded with a few 'proxy measures'. One of the most common proxy measures was **trust in the source of the evidence**, whether this was the professional learning provider, school leader or colleague who had supplied the research or the site/source the participant had used to find the research.[41] For example, one classroom teacher with almost 20 years of experience explained:

> *I'm trusting our [providers]. I'm trusting that they're passionate, they advocate for it, they're driving it, and I'm trusting that this research is what they believe in and it's something that I can take onboard and, I guess, use.*

Similarly, one teacher in a Teaching Sprint said: *"I'm assuming 'cause our IL [Instructional Leader] got it for us that it would be [of high quality]."* A Year 5 teacher extended this to both the professional learning provider and school leaders:

> *I know that [in] the Sprints process, the idea is to choose robust research that has been produced again and again, not just an obscure paper from somewhere that someone found, and I know that my boss is very into the research, and always gets us the best quality research.*

One school leader reflected how evidence had challenged teacher practice, but not been itself challenged:

> *I suppose [the evidence has] extended and challenged our perceptions and our thoughts, but to comment on … it's validity, I suppose I don't know. I suppose I've just taken [their] word for it, because it's been presented to us as a piece of educational research, but I suppose I haven't … looked at it as objectively to see whether or not it is rigorous. I've probably just accepted that it is, and knowing that it's challenged the way that we have taught or thought has been the main priority that we've given it.*

Another common proxy measure was whether the research or researcher was **cross-referenced** in other research or frequently cited within education circles (including on Twitter). For example, one mid-level leader explained: *"It's high quality for sure … because it's often referenced by others. … It makes connections and links with prior things that I have been reading."*

Another teacher explained how they made use of cross-referencing and frequent citations:

> *[U]sually first thing I would do as uni has taught me is to look at the back of the book and look at the references that they have used. So, that's something that I would do. But also you start to know the names that keep appearing and then you might go and find their book or their text about what ever it is you're reading about. The same names keep coming up so I think you have a good idea of who the people are in the literature that you are discussing.*

In a similar vein, one school leader saw evidence as high quality if it was **current**.

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[41] Sites named as examples of sources of trust-worthy and current evidence included websites administered by CESE (within the NSW Department of Education), as well as the education department websites for Victoria and South Australia.

Some educators assessed the rigour of research by whether it **accorded with their own views** or experiences.[42] For example, one school leader explained in relation to synthetic phonics that:

> *When you look at the research and you look at what people are saying, it makes sense. … That's what I believe based on my experiences. Good quality teaching practice is explicit and it's modelled and it's that slow release strategy across the week. … I believe that that's best practice and that would be my perception of the synthetic phonics that we're running in this school. … It's exactly what children need.*

Some also considered rigour in terms of whether an approach presented in research **worked in practice** in their context — that is, they adapted and tested the external validity of research findings. For example, one school leader explained:

> *I think we try and provide a range of evidence, and then try prototypes of things to see what has impact. We do collect a lot of data to see what's having and impact and what doesn't have impact. We do a lot of pre and post. Not all research evidence will work in every context, and we're aware of that, but we want our teachers to have that toolbox to draw from based on their experience, their expertise, their passion, and then also what works in our context. Rigour in the sense that it's right, it's not just, "This is the solution, we're all doing the same thing." Rigour is around, "Here's a suite of options, let's see what's going to work for us."*

Some educators took steps to **independently verify the sources** of information to the extent they could. For example, one school leader in NSW stated:

> *Part of it is upon me … [The providers] just don't mention Marzano or Beck or Hattie and leave it there. They actually say, "Go and research it. Look into it yourself." … It's whether the teachers have the time to do that. I try and take it upon myself. If I don't, someone may.*

A school leader at another NSW school similarly explained:

> *[The provider] refers to research and if you go and get it, it's exactly what it says. So, we do that sometimes. We go and look. And, she'll tell us the books to read or she'll tell us where she found it from and we'll go and get it and read it and it's true and it's there. But it's the time to be able to go and read all the things she reads. They gave us four books last term. To read all four of those books while you're an on-class teacher takes time. It's good for them to give the condensed version but as long as they're referencing someone and then you can go back and read it for yourself, I think that's helpful.*

However, very few educators were themselves able to apply **rigorous assessments** to determine the internal validity of research. A small number of participants mentioned peer review – e.g. one teacher in Victoria explained that because they had previously studied psychology, they tended to look for peer-reviewed research in journals. Across the whole sample, fewer than five educators referred to the concepts of systematic reviews and meta-analyses, mentioned the concept of an 'evidence hierarchy', or discussed factors affecting the internal validity of studies. One mid-level leader, who had no formal training in research and had learnt about evidence through his school, said:

> *There was one [paper] looking at inquiry learning and I was suggested to read an article and they said it was all about pedagogy and why it works, but then when I read*

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[42] This makes sense given combining academic research with professional experience was how most educators defined evidence-informed teaching: see section 3.3.2.

into it, it was all a survey from principals. There was no data from the classroom. I don't know what the parameters were for the research but it was just survey questions.

He explained that a meta-analysis *"analyses all the research"* and therefore:

makes our job easier [because] … we don't have to go through searching through all the research, they do the hard work for us and then we can go and look at it and say [an intervention] is high and how it is ranking.

One of the providers recognised this use of proxy measures as a fast way to address the issue:

Building research capacity at the school level where they might be able to analyse trustworthiness, and the level of robustness, is quite difficult. I think, as a first step for schools, it's actually a good heuristic to help them identify trusted partners as the quickest way to get them moving, to get out of going to Google … [or] reading a pamphlet [that claims to be research-based but is] really just selling a product. We say the quickest thing is to help [schools] find the trusted, not-for-profit partners or government … We do try to help them understand the difference between a study, and moving towards what does the field suggest overall.

3.2.3.   Understanding and using the research

Mobilisation processes extended beyond the initial stages of identifying focus areas and identifying the research to be used. This section describes how educators were usually introduced to selected research and used strategies to understand, plan around, and carry out evidence-informed practices. Outcomes in terms of changes to educator attitudes, knowledge and skills/practice are discussed in section 3.3.

Introduction or exposure to the research

In line with the format of evidence outlined in section 3.2.1, many participants were introduced to research through hearing professional learning providers' explanations of research (at school or at a conference), watching demonstration lessons during a school visit, watching online modules or, in a smaller number of cases, seeing videos or case studies exemplifying the practice.

Where reading was involved, educators either described setting pre-reading, reading during meetings, or reading over certain time periods (*"In exec meetings … everyone takes turns … [and] we have [a] two week turnaround of a new reading"* — school leader).

Strategies to understand the research[43]

It was common for educators to use specific strategies for unpacking and planning around research (as encouraged by the professional learning providers or consistent with the professional learning models). In terms of understanding research, educators were asked to (e.g.):

- Use thinking routines: *Those articles, we gave them prompts to have a think about it: 'Come back with three things that you found interesting, three things that resonated, three things that you found confusing and three things that you think could be applicable and how that would be applicable in the classroom'.* (School leader, Teaching Sprints)

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[43] As detailed in section 3.3.2, in the post-survey, the majority of educators agreed (68%) or strongly agreed (18%) they felt confident about *analysing* information from research (Appendix B). There was also a statistically significant increase in confidence about analysing research over time (p = 0.002, $\hat{r}$ = 0.3).

- **Summarise and present:** *We all split up into groups and each of us had one of them that we had to summarise and then make it into a poster.* (Year 4 teacher, Teaching Sprints)

- **Annotate and discuss:** *We had the CESE paper about cognitive load theory and everyone had to read it and then annotate it, and then bring in your annotations and talk about it at our staff meetings.* (Mid-level leader, Training 24/7)

- **Apply to their own experiences:** *When we discuss it, we actually talk about how … and where it has impacted on us. Sometimes it's like, "I didn't even know I was [using a particular strategy]. That's the reason why." We usually then get examples of, "… this explains why we do that and this is the evidence why, this is the research why we do what we're doing."* (Mid-level leader, Training 24/7)

- **Share opinions:** *I've got a whole bag full of books there, but we usually have a reading, then we'll discuss, "We've read chapters 1 to 3. What do you think?" We'll have three members just let us know their thoughts and then we discuss it.* (Mid-level leader, Training 24/7)

- **Observe and discuss:** *When they're looking at case studies and film clips, you can actually see actual scenarios of where this was actually happening, and when teachers were actually trialling some of these different approaches. … Being able to sit there and analyse what you're seeing in front of you … gives you that chance then to have some really rich discussions about, 'My gosh, I didn't realise that', or 'How can we put that into our classes?' Or, 'What would that work, and how would it fit in?'* (Mid-level leader, Bastow Leading Mathematics)

- **Observe, practise and reflect:** *I suppose we're also given time to practise those skills a bit and see them in action as well. Some of the presenters will actually do those activities … like [for] number talks … They'll do those in front of you so you can actually see how it works. … The gaps between the workshops really help you to actually go back to your classroom and have a chance to implement things and go back and have a discussion and reflect on what you've done.* (Teacher, Bastow Leading Mathematics)

Strategies to plan for using the research

In terms of planning for teaching activities, this involved discussing or planning **how the evidence could apply** in the classroom — e.g. by **creating lesson or unit plans or proformas together**. For example, one school leader explained the process of first understanding and then planning around the research by **brainstorming teaching activities**:

> *The idea was to go and read [an article called 'Talk for Writing'] and then to come to the prepare phase of our Sprint with points that resonated, points of interest, applications within the classroom, then teaching and learning activities that we could brainstorm around that article that we possibly have done or could enhance.*

A Year 1 teacher also commented about **aligning evidence with the syllabus**:

> *Probably the hardest thing [was] that we had to go back to the syllabus, because the research papers aren't age specific necessarily, or don't align with the New South Wales math syllabus. So, we were leading our kids off in a different direction, and then went, "Well actually, they don't really need to learn this yet. They don't need to know what a blank number line was." So, are we trying to push this so much that they need to be able to demonstrate that, because that was what we'd seen in the research paper, whereas the new one, it's okay if they've got some of the numbers.*

Planning also involved **sharing resources** developed for the focus.

Adapting research or practices to the school needs was seen as a critical part of this process. As one provider noted:

> *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.*

Strategies for carrying out new or adjusted practices

Feedback on teaching or planning and reflection on changes were also part of the mobilisation strategies used. Few educators mentioned having opportunities to practise a skill before going into the classroom, although a number of teachers described **team teaching** and **demonstration lessons** as opportunities to see how others were carrying out the practice. For example, an early career teacher 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.*

Depending on the school or team, there were also opportunities for teachers to be **observed** (either through in-person lesson observations or video recordings) or to be **coached**. This sometimes involved active cultural change in schools to encourage teacher openness to observations:

> *We almost had to, before we started modelled reading, teach our teachers to understand that it wasn't personal. We're not personally saying that you're not doing something right — we're not watching you; we're watching the kids and how the kids react. (School leader)*

Some teachers also mentioned how they asked **clarifying questions** of school leaders or mid-level leaders. For example, the same early career teacher explained:

> *I will go to [a school leader] and say I don't understand this or I'm not sure what it would look like in a classroom, can you come and show me. So, I think that's really big too, to show that initiative to say, yes, you may have read it but do you understand what it's actually asking you to do.*

There were also strategies for follow-up and **reflection** (e.g. by analysing student work samples during or after changes were implemented). For example, one participant in Training 24/7 explained:

> *Across Kindergarten … 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?'*

3.2.4. *Using school organisational structures to assist research evidence mobilisation*

In addition to the above strategies, broader processes related to how research use was supported within schools. These included:

- having a schoolwide focus on evidence-informed teaching, and having alignment between focus areas and whole-school goals;
- having a team to drive the process of evidence mobilisation;

- having regular, job-embedded meeting time;

- having spaced learning and time to plan and process research; and

- promoting staff accountability and buy-in.

Although these structures and processes were not always school-wide (e.g. feedback was sometimes only available within pockets in a school), they were generally driven by school leaders[44] with support/facilitation/direction from the professional learning providers. They were commonly identified by educators as enablers for evidence mobilisation (when present) and barriers to evidence mobilisation (when absent), and are further described in sections 3.4.2 and 3.4.3.

3.3. Outcomes

This section describes findings regarding educators' knowledge and skills, attitudes and practice in relation to evidence mobilisation, and presents formative student outcomes (where available). It draws on a range of quantitative and qualitative data, including paired pre- and post-survey responses, semi-structured interviews and classroom observations.

3.3.1. *Educators' previous attitudes, knowledge, skills and practice*

Section summary: Self-reported educator attitudes were supportive of evidence use at the start of the research investigation: in the pre-survey, nearly all (95%) educators believed that using information from research would help to improve student outcomes, and the majority (76%) thought research conducted elsewhere had potential relevance for their school. Self-reported evidence use was also high in survey responses, although interview data revealed greater variation. In the pre-survey, 99% of educators said they had used information from academic research to inform their practice within the previous year. In interviews, educators reported prior experiences with research ranging from no previous engagement to engagement in various forms of research (e.g. through Professional Learning Communities). Some said they had engaged with research before working with the provider, but in more superficial ways.

Establishing changes in educator outcomes first involves gaining an understanding of educators' prior use of research.

Prior attitudes

Self-reported educator attitudes were supportive of evidence use. In the pre-survey,[45] **nearly all (95%) educators believed that using information from research would help to improve student outcomes**; and the majority (76%) thought research conducted elsewhere had potential relevance for their school. This was a somewhat more positive response than in the RUS trial, where 81% of educators believed using information from research would help improve student outcomes, and 66% saw external research as having potential relevance (Nelson et al., 2017).[46]

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[44] It was beyond the scope of this research investigation to ask school leaders specifically how evidence mobilisation had influenced their school leadership practices, and therefore we did not explore in depth the extent to which these structures had been established/developed/altered/drawn up on to support evidence mobilisation.

[45] There was no statistically significant difference when these questions were repeated in the post-survey.

[46] This is based on the combined responses of those who strongly disagreed or disagreed with the statements: "I do not believe that using information from research will help to improve pupil outcomes"; and "Information from research conducted elsewhere is of limited value to our school".

Prior experiences

Self-reports also indicated high levels of research use: in the pre-survey,[47] **nearly all (99%) educators said they had used information from academic research to inform their practice** within the previous year. This was a higher response than in the RUS trial, where 82% of educators indicated ways they had used information from research (Nelson et al., 2017). Similarly, 97% of educators in the pre-survey either agreed (72%) or strongly agreed (25%) that they were able to relate information from research to their context. This compared with 77% of educators in the RUS trial (61% of whom agreed and 16% of whom strongly agreed with the statement: Nelson et al., 2017).

In interviews, educators said they had a range of experiences in relation to evidence use prior to their involvement with the provider (which could have been up to seven years beforehand).[48]

Some said they were **not previously engaged** with research at all, or at least since they had studied at university. For example, one school leader explained:

> *[Using evidence] wasn't really a strong point or even something even thought about. So, pre-[Sprints], if I was trying to change teacher practice, I wouldn't have even thought about using evidence ... I would have thought have using consultants, dem lessons, but I wouldn't have thought of looking up research, as such. It wasn't until we started doing the Sprints [nearly three years ago] and they started to bring out that one of the steps is to look into research … [that] I started to use it. … There was a way of [using research]; it was a little bit more accessible than before. [Previously] it seemed to me like research was readings that people did — when you were at uni, you did readings. And you never had time to do anything like that when you're teaching.*

Some said they had engaged with research before working with the provider, but in more **superficial** ways. They described how this had primarily occurred at an individual (rather than collective) level, and/or in an ad hoc (rather than planned) way. For example, one teacher with 10 years of experience said that before Sprints started at their school four years previously:

> *[Evidence] was incorporated a little bit into our professional learning … You would have some teachers going off for professional development days, but then that information would have to come back to the school and be relayed. That wasn't always as successful, because they're not seeing it firsthand. We looked at research, but it was never in the depth that we're looking at it now … There might be an article that the principal would send out and say, "This is an interesting read," … [but] it was more of an optional extra. … Now it's actually embedded and it's guiding our practice, whereas before it was just something that was brought to our attention … [and] we didn't have that collegial discussion about it.*

Another school leader explained that, in the previous year and prior to being involved with Sprints, their school had been involved with another external program that involved relatively superficial evidence use:

> *The only research in [that program] was what we would ask people once we've narrowed it down to go off and see what they could find. … And then they would*

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[47] There was no statistically significant difference when these questions were repeated in the post-survey.
[48] Some educators described their experiences at other schools (prior to arriving at their current school). These experiences are not included here in the interests of clarity, however it should be noted that educators' experiences have been formed through multiple influences from a range of settings.

bring that back and then we would … share what we'd found. … It could be a little bit dodgy, because [the research] was just what was out there on the internet.

These approaches were perceived to have limited success. For example, one early career teacher (whose school had recently turned its attention to numeracy after a *"huge focus on literacy"*) explained challenges prior to Bastow Leading Mathematics:

We ran [internal professional development] with staff about mathematical mindsets. It was very base level because we hadn't done any professional development ourselves [and relied on] our own researching of it. That was a bit of a flop and it didn't really engage anyone … We put up some posters around the school and that was about as far as it got.

Some had **previously engaged** in various forms of research. This was most commonly through initiatives of education departments (e.g. through Professional Learning Communities or High Impact Teaching Strategies [HITS] in Victoria), or through other providers or programs. For example, one school leader described how their previous involvement with a university-based mathematics program had led them to not *"jump on to the … next big hoo-ha"* that was not evidence-based. Where there was previous engagement with research, it was most commonly driven by school leaders. For example, one school leader described how their executive team had already used research:

[The Principal] would purchase a text for the exec staff, we would read it, unpack it, and then if we thought it was a valuable resource for staff, we would purchase it for staff and share it in stage teams and unpack it and look at the research that way.

Some educators with extensive experience also described how in previous decades they had actively been involved in implementing research (some of which was current at the time but has since been questioned).

3.3.2. Educators' current attitudes, knowledge, skills and practice

The general summary above of previous attitudes, knowledge, skills and practice can broadly be contrasted with educators' attitudes, knowledge, skills and practice demonstrated through the school visits and post-survey. As explained in section 2.1, these changes cannot be causally attributed to providers (or to specific providers) as the research investigation was not designed as an evaluation. However, they can demonstrate changes over time during the period in which the providers were working with (or continued working with) schools.

> Section summary:
>
> *Attitudes*
>
> In the post-survey nearly all (97%) educators agreed or strongly agreed that information from research played an important role in informing their teaching practice, which represented a statistically significant increase over time ($p = 0.02$, $\hat{r} = 0.2$).
>
> Educators most commonly associated 'evidence-informed teaching' with combining academic research evidence with professional experience (64% in the pre-survey; 69% in the post-survey); using student performance data to track progress and plan ahead (71% in the pre-survey; 56% in the post-survey); and reading and applying information from academic research or working with researchers (38% in the pre-survey; 63% in the post-survey). Educators' increased focus on the last of these in the post-survey represented a statistically significant change ($p = 0.0058$). In other words, during the research project, the meaning given by educators to "evidence-informed teaching" shifted more towards accepted meanings of the term.

Knowledge

Educators were asked survey questions to test aspects of their content knowledge relevant to their focus areas. Given the diversity of focus areas selected, these questions needed to differ between provider and in some cases between schools and sample sizes for particular questions and schools were small. We have therefore included a case study of results for educators engaged with one provider. Based on five questions used in studies elsewhere, these educators performed better overall on phonemic knowledge, phonemic skill, and pedagogical knowledge compared with a sample of Prep teachers in Victoria, and slightly better than a sample of UK teachers on the relative focus recommended for phonics versus reading comprehension.

Beyond these content knowledge assessments, some educators demonstrated their knowledge of evidence-informed teaching strategies by explaining a concept in the abstract, recalling explanations or analogies from the provider, or explaining what the research meant in the context of their classrooms.

Skills and practice

In general terms, an educator's ability to name the research or research source in an interview was not necessarily connected with the educator's ability to explain the research concept in an interview or demonstrate the teaching strategy in the classroom during a lesson observation.

When asked how evidence mobilisation had affected their practice, educators described changes to classroom practice ranging from simple, easy changes to extensive, difficult changes. Some also described reinforcement of existing practices.

In the pre- and post-surveys, educators indicated they were using research to inform their practice and to decide how they would implement new approaches. There were also some statistically significant changes in how educators self-reported that they used research – for example, more said they knew where to find relevant research, felt confident about analysing information from research, were able to use information from research to determine how they would implement new strategies. However, these self-reported skills in finding and using evidence contrasted with findings reported elsewhere (e.g. on barriers to evidence mobilisation).

Attitudes

Educator attitudes towards using research

In the post-survey nearly all (97%) educators agreed (56%) or strongly agreed (42%) that information from research played an important role in informing their teaching practice, which represented a statistically significant increase over time ($p = 0.02$, $\hat{r} = 0.2$).

In interviews, some educators said they *"love"* using research evidence (teacher with 18 years of experience); some were supportive of using research but recognised barriers to using it; and some saw use of evidence as *"something additional to what we're already doing … another viewpoint"* (school leader). Some educators said their staff were becoming more open to the use of evidence, or were starting to see evidence as part of the improvement process. For example, a school leader commented:

> *It has been a good shift in the expectations of what quality teachers do. The expectation is to engage in the research … [Teachers are] seeing that now, they understand that, and you need be evidence-informed to improve your practice.*

Similarly, another school leader explained:

As K-2, we were having a discussion about writing and what we should be doing in writing, and it was just automatically brought up, "Well, maybe we should research what works and what doesn't work." Once upon a time, it would have just been, "We'll discuss our own personal knowledge or experiences." Now it was, "Well, maybe we should look up some research somewhere. Where are we going to find some research to show what we think is right or isn't right?" It was just nice that that's now part of the thought process, instead of it just being, "Well, I've always done it like that and it seems to work for me, so it must be okay."

One school leader also explained what this shift looked like in terms of how educators defined and sought out research:

Prior to [involvement with the provider], the evidence … would have been Pinterest. Websites like that, Teachers Pay Teachers, which is not evidence, but that's probably what they thought was evidence because that's what other teachers use. Now, we are seeing a shift. It's still not where I would like it to be, but we are seeing a shift in that a number of teachers now are seeking out books and journal articles to read on their own, to be self-evident learners.

Educator definitions of 'evidence-informed teaching'

As is widely acknowledged (e.g. Poet et al., 2015), 'evidence-informed teaching' has different meanings for different people. For the purposes of the RUS, 'evidence-informed teaching' is defined to include:

- combining academic research evidence with professional experience;

- reading and applying information from academic research or working with researchers; and

- using an online evidence platform/database and applying the learning.[49]

Figure 12 sets out the meanings given by educators in this research investigation. Overall, educators most commonly associated 'evidence-informed teaching' with:

- combining academic research evidence with professional experience (64% in the pre-survey; 69% in the post-survey);

- using student performance data to track progress and plan ahead (71% in the pre-survey; 56% in the post-survey); and

- reading and applying information from academic research or working with researchers (38% in the pre-survey; 63% in the post-survey).

A number of points are worth noting here:

- There were important similarities and differences between the RUS definition and the meaning given by educators in this research investigation.[50] Of the three definitions used in the RUS, one (combining academic research with professional experience) was selected by a majority of educators at both time points; one (reading and applying information from research) was selected by a majority of educators in the post-survey only; and one (using an online evidence

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[49] The RUS uses an intentionally narrow definition to ensure the concept is measurable (Poet et al., 2015). For example, action research (41% in the pre-survey; 34% in the post-survey) is widely accepted as a form of evidence, but is not included within the RUS definition, which focuses on external sources of evidence.
[50] We took this into account in the interviews, making sure "evidence" was defined in terms of academic research to ensure data was collected on questions relevant to the research aims.

platform/database) was selected by fewer than 10% of respondents in both the pre- and post-surveys even though it contained the word "evidence".

- Educators' increased emphasis on reading and applying information from academic research as a form of evidence-informed teaching represented a statistically significant change over time (p = 0.0058). In other words, during the research project, the meanings given by educators to "evidence-informed teaching" shifted more towards the RUS definition.

- The relatively high emphasis among educators that **student performance data** is a source of evidence in both the pre-survey (71%) and post-survey (56%) is likely to reflect how the term "evidence" is used within education settings, and the (appropriate) push for educators to draw on student data when deciding which focus to adopt and monitoring student outcomes. In the RUS trial, student performance data (65% of respondents in that survey) was also the most common response (Nelson et al., 2017).

- Most educators were able to distinguish between *evidence* itself, and *enablers* for evidence use. For example, although evidence was often sourced through providers and educators identified external expertise was a key enabler for evidence mobilisation (section 3.4.2), the majority of educators were able to distinguish between "evidence-informed teaching" and "learning from external consultants, trainers of advisors".[51] Similarly, although support from colleagues was seen as a key enabler for evidence mobilisation (section 3.4.2), educators generally did not see "learning from colleagues" as itself constituting "evidence-informed teaching".

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[51] 26% of respondents equated "evidence-informed teaching" with "learning from external consultants, trainers of advisors" (i.e. 26% of respondents did not distinguish between these).

Figure 12: Meaning of 'evidence-informed teaching'[52]

Note: p-values show the results of Fisher's exact test of independence between pre and post survey responses
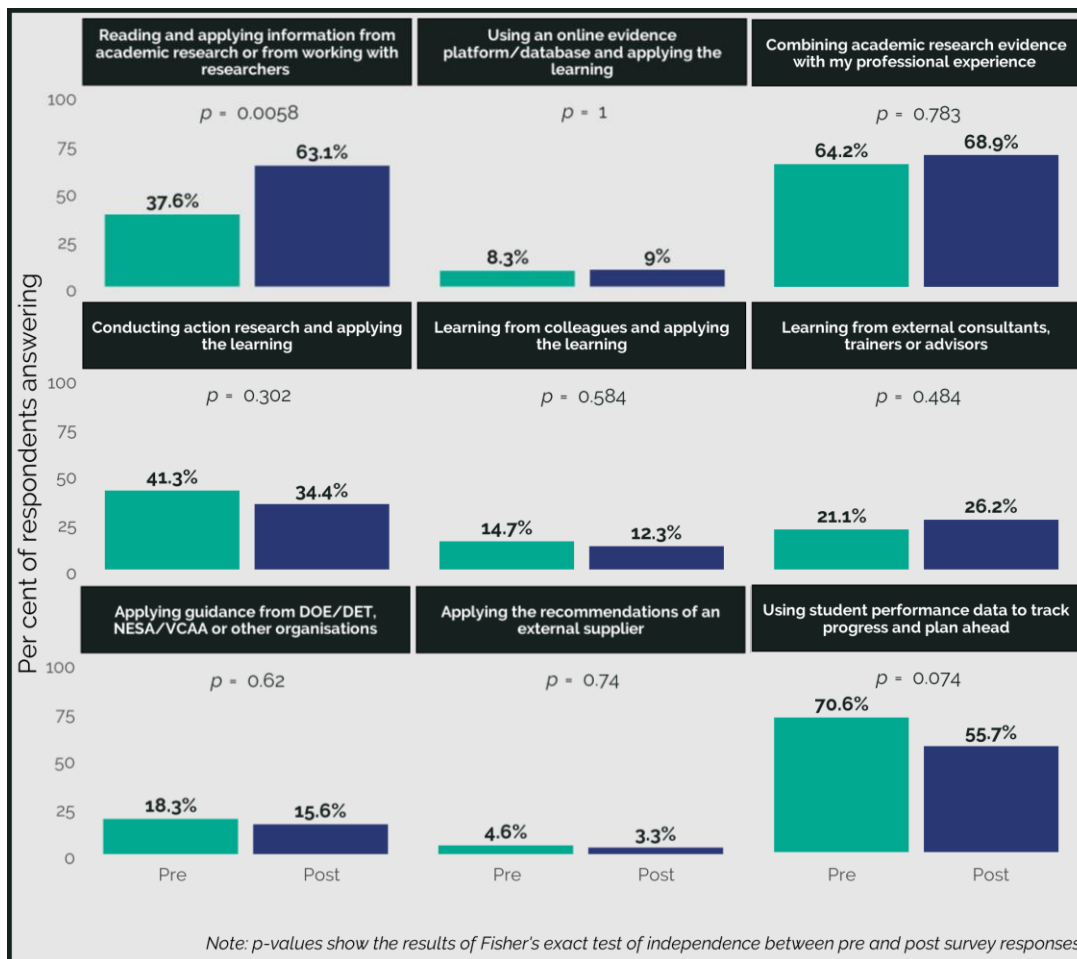
Knowledge

General observations of educator knowledge of evidence-informed teaching strategies

Although interviewees were not specifically asked to explain concepts within the research they were using, some educators demonstrated their knowledge of evidence-informed teaching strategies when describing their focus areas. Sometimes, educators explained a concept **in the abstract**. For example, one teacher with almost 20 years of experience said that the provider had explained research on cognitive load and remembered: *"Extraneous load wasn't the good one, the germane load was the good one."* Some other educators explained concepts by **recalling explanations from the provider**. For example, one school leader explained:

> *When we did the cognitive load, [the provider] describe[d] it perfectly. You're putting it in your little IKEA sections. You've got a warehouse where you're able to store words. She was able to come up with her storage and retrieve that information through that bottleneck.*

More commonly when educators explained what research meant, they did so in terms of **what it meant for their classes**, and how it had changed their practice. Examples of this are included in the "Practice" section.

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[52] Question: What does the term 'evidence-informed teaching' mean to you? (Please select up to three options that best describe your understanding of the term).

Case study of content knowledge

Besides this interview data, educators were asked survey questions to test aspects of their content knowledge relevant to their focus areas. Given the diversity of focus areas selected (section 3.2.1), these questions needed to differ between provider and in some cases between schools. As a result, sample sizes for particular questions and schools were small, making results unreliable. We have therefore included a **case study of results for educators engaged with one provider** who answered the same set of questions, and for whom the sample size was larger (n = 74). These are described below, and results for the questions are detailed in Appendix D Table D.1. These results (which are a snapshot in time) cannot be causally attributed to involvement with the provider.

Case study of content knowledge

Questions asked of 74 participants engaged with one provider ("GEMS sample participants") tested phonemic knowledge, phonemic skill, and pedagogical knowledge.[53] Three of the questions asked were drawn from a published validated tool (Stark et al., 2016) trialled with 78 Prep teachers in Victoria[54] who were participating in a randomised controlled trial involving a teacher-led oral language intervention (i.e. some respondents were receiving the intervention and some were not). On these questions, the 74 GEMS participants performed better than teachers in the trial sample: 89% (compared with 79%) correctly identified the definition of a phoneme; 55% (compared with 13%) correctly identified a diphthong; and the mean percentage of correct answers in a series of seven items requiring participants to identify and count phonemes was 79% (compared with 46%).

Another question (on the relative focus recommended for phonics versus reading comprehension in Year 1) was sourced from the NFER North East Scale-Up Endpoint Survey 2018,[55] which was trialled with 608 school leaders and mid-level leaders in the UK who were participating in a randomised controlled trial involving a literacy intervention. GEMS sample participants performed slightly better than the UK educators on the question, with 53% (compared with 47%) identifying a response considered to align with good practice.

The final question (relating to cognitive load) has no external comparison. It showed that 80% of GEMS sample participants were able to identify at least two evidence-informed strategies for optimising students' working memory, although only 34% could correctly identify all three correct options.

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[53] Stark et al. (2016) defines these question sub-types as follows: knowledge ("[e]xplicit knowledge of a term or concept"), skill ("[i]mplicit ability to perform [a] task utilising knowledge"), pedagogical [knowledge] (knowledge of a "[p]ractice or process associated with teaching a term or concept"). She also defines "phonemic" as "[dealing] specifically with perceiving or manipulating individual sounds".

[54] Although Stark et al. (2016) did not report on the level of experience of teachers in their sample, it was open to teachers of all experience levels and analysed for correlations between knowledge and years of experience. It could therefore be presumed that the teachers in the Stark study had varying years of experience.

[55] The North East Scale-Up Endpoint Survey 2018 question had one other response option, but it received 0% of responses in that study and does not affect comparisons here.

Skills and practice

Educator outcomes in skills and practice were measured through paired pre- and post-survey questions, interview data and classroom observations.

Self-reported skills in finding, analysing and using research

In the pre- and post-surveys, educators self-reported they were using research to inform their practice and to decide how they would implement new approaches. There were also some statistically significant changes in how educators self-reported that their skills — for example, in the post-survey educators were more likely to say they:

- knew where to find relevant research ($p = 0.002$, $\hat{r} = 0.31$);

- felt confident about analysing information from research ($p = 0.002$, $\hat{r} = 0.3$); and

- were able to use information from research to determine how they would implement new strategies ($p = 0.002$, $\hat{r} = 0.3$).

However, these self-reported skills contrasted with findings reported elsewhere (e.g. on barriers to evidence mobilisation in section 3.4.3).

Self-reported changes to classroom practice

In interviews, educators were asked what changes (if any) they had made to their teaching practice as a result of the evidence they were using.

In terms of the perceived difficulty and extent of changes, educators described these to range from **easy to difficult, and simple to extensive**. For example, one teacher with 10 years of experience described a relatively easy change to their practice — incorporating open-ended questions that encouraged students to *"think deeper"*. By contrast, one early career teacher explained more extensive changes as a result of the evidence around interleaving (spaced practice):

> *[I've changed] the way I structure [my teaching]. The way I plan. The way I programme. The way I time manage the lesson itself. So, it really influenced the way I changed. I changed a lot of things in my teaching to make sure that it fits with that, that's why planning's so heavy for us. I know that we started planning for term four … halfway through term three [to ensure students had spaced practice].*

Another early career teacher explained the extensive changes they made after being introduced to phonics research:

> *I went home and I re-wrote and I got rid of all my phonics program because I just thought I need to be so much more specific in my planning with the questions I want to ask.*

Some educators also explained how awareness of research had **reinforced their existing practices**.[56] For example, one school leader said:

> *I remember the first time we did [the readings]. All my team [of K-2 teachers] … went, 'That just confirms what I've already found out.' So it wasn't like they were learning something brand new; it was just, 'Wow, yes, I worked that out myself. That reading backs up what I [was already doing].*

When these educators were asked to explain what difference the evidence had made to *existing* practices, one said it reinforced practices that had "dropped off". Others said they

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[56] Cain (2015, p. 489) describes this as the "confirmatory role" of research, which is "reassuring teachers that their practice accord[s] with research."

now had a better understanding of *why* they were doing something, and this understanding made them more likely to continue with the practice. For example, a Kindergarten teacher explained: *"It was just all off the cuff type of stuff and over the years you know kind of where you're going. Where now it's much more for me, in my personal practice."*

As noted earlier, although interviewees were not specifically asked to explain concepts in research, some educators showed they both understood and were acting on research by describing how they had changed their teaching. Examples are set out in Table 8.

Table 8: Examples of changes to teaching practice

Educator	Focus area	Self-description of change to teaching practice
Year 3 teacher	Partitioning and representations	For me with the partitioning, it was coming to the realisation that students didn't know from doing a pre-test, didn't know how to break numbers down and then looking into best ways to teach that to them and that being a lot of hands on material [including MAB blocks]. … I hadn't even thought about teaching them to break the numbers apart like we have been, so non-standard forms. It was really just standard forms that I ever taught partitioning. I never thought about doing it in another way. … I suppose previously it was harder to check also if they had moved beyond any surface learning, so long as they could name what the hundreds were, what the tens were.
Teacher with 10 years of experience	Open-ended tasks in mathematics	[I've changed] little things like trying to get the kids to explain their thinking a lot more, things like them writing their answers on the board and not going and correcting them if they get it incorrect straight away. We might do that at a different time, trying to give them that confidence to actually just show their thinking, to have a go and not just give up as soon as they can't think of the correct way of doing it, that there's more than one way to go about solving a mathematical equation. If one person does one way and another person does another way [but] they come to the same answer, does it really actually matter how they came about that? As long as they can explain how they're doing it. … Open ended questions like that one we did there, there was more than one answer so the kids can actually continue to work rather than I've got the answer, I'll sit here and stop and wait for five minutes. Think deeper. What's another way?
Early career teacher	Synthetic phonics	Phonics, it's not like other subjects. There is a right way and there is a wrong way and if you teach it the wrong way, you're potentially causing a real problem for these kids. Even just take the letter 'x'. If I am teaching kids to say 'x' how are they going to read the word correctly, they are not going to get that.
Kindergarten teacher	Retrieval in relation to phonics	The new content that we're teaching is unit six phonics, the phonemes. But, I was asking them to recall things that we did about /c/ and /k/ and the three /l/s that we have, and then I was using those together, as well as with the unit 5 phonemes. So, words like – I think I did chicken or something like that. So, you've got the /c/ and /k/, and the /ch/ for chicken, things like that. So, putting it all together. So, a bit of retrieval for that.

Educator	Focus area	Self-description of change to teaching practice
School leader working with teachers	Learning intentions (in persuasive writing lessons)	I know that if you walked into my rooms there's a big focus on learning intentions and learning a skill as opposed to learning, "We're going to be writing <u>about</u>." … I think if you walked into the other rooms if you asked a kid what they're writing about it's going to be which is the best dog or which is the best pet. If you walk into the rooms I was working in, we were trying to teach [students] transferable skills so they could actually go and argue anything that they know about rather than to teach a topic. In term two, [Year 1 and 2 students] were doing informative texts. I guarantee if you walked into a room they would have said, "Our lesson's about Tasmanian devils or kangaroos," whereas that's the vehicle to drive the teaching. It needs to be about, what English skills or Maths skills are you doing?
Early career teacher	Learning intentions (in phonics)	[We now] make sure we actually talk about [the learning intention with students] … That is something that we would skip over a little bit because I just thought, 'It's phonics. Is that a really big part of it?' But it is. They need to know.

General observations on the use of evidence-informed practices

In general terms, an educator's ability to *name* the research or research source in an interview was **not necessarily connected** with the educator's ability to *explain* the research concept in an interview or demonstrate the teaching strategy in the classroom during a lesson observation.

Some focus areas were more readily observable during one-off class visits than others. For example, spaced learning was difficult to observe in a single lesson without observing classes at different times of the semester, whereas guided reading, modelled reading and number talks could be observed within one lesson.

Observations of synthetic phonics classes showed many similarities across classes and across schools – e.g. in terms of how students began lessons, pronounced phonemes, used meta-language, used class routines, were sitting in rows and used similar teaching resources (especially slides).

Case study on the use of evidence-informed practices

One example of an observed change to classroom practice based on high-quality evidence was by an early career teacher in Teaching Sprints.

The specific focus of Year 1 teachers for that term was to "develop conceptual understanding of fractional notation through different models of fractions", and the school leader supporting the team had sourced three specific research articles on this, including a Practice Guide by the US-based What Works Clearinghouse, a peer-reviewed journal article, and a NSW Department of Education website summarising research on fractions linked to the numeracy curriculum (all of which could be considered high-quality evidence sources).

The teacher explained:

> *What we're exploring for this Sprint is: 'What is half? How do you represent it? How do you show it?' so that when they move onto year two, and they get into quarters, and eighths, they've got that conceptual understanding before it just becomes something that is more numerical.*

One lesson was observed with Year 1 students. The lesson objective discussed prior to the observation was to assess students' understanding of a half (i.e. to carry out an informal diagnostic assessment). When asked how she previously would have assessed students' understanding of a half, the teacher said:

> *I probably think the easiest way would have been worksheets which probably had pictures of different shapes. Some whole. Some halves. Some quarters. And, to circle each one it is, or which one is a half, or there's eight objects. Circle half of them. I think that would have been probably my go to.*

During the 30 minute lesson, the teacher used open-ended activities to explore students' understanding. The first part of the lesson involved a class discussion where the teacher recorded students' thinking on butchers' paper about the spoken word "half": *"Tell me – when I say the word 'half', what does that mean? What does that look like in your heads? When do we use the term 'half' at home?"*

This drew out some differing levels of prior knowledge across both students' lived experiences and conventional mathematical settings. For example:

- some raised ideas of partitioning, sharing, evenness and fairness:
    - "in maths half of 6 is 3"
    - "when you cut a pizza and you cut it in half – they're the *same pieces*"
    - "half is something cut into *even* – for instance we had 6 pizzas but we had 12 people, we could cut all the pizzas in half and everyone would get one piece"
- one used the term 'half' to refer to all fractions:
    - "there can be four halves in AFL"
- some talked about a half being between two points (although not necessarily halfway):
    - "it's like the plant is meant to grow big but it's still growing"
    - "when you're 6 and you're *almost* 7 but you're not going to turn 7 in the next day and your birthday wasn't yesterday"

> o (asked to explain a shoe size of 30 and a half): "if your foot is *not quite 30 or 29 or 31* then you can say it's a half because it's a *bit more than* 30"
>
> When the teacher wrote "½" on the butchers' paper, the class discussion also touched on students' understanding of fractional notation (one of the ultimate goals of the Year 1 teachers). Again, this revealed some differences in knowledge — e.g. "I think it's *one and a half*".
>
> The second part of the lesson involved hands-on activities in small groups requiring students to show what half looked like with manipulatives (e.g. playdough, paper squares and paper circles) and then explain what they had done. This too showed some range of understanding — e.g. one student split the playdough into three pieces; another cut a circle into quarters and said to another student: "These are quarters".
>
> In line with the recommendations in the research shared with the team, the teacher used questions[57] and manipulatives to explore how students were thinking of a 'half'. This showed a change from the teacher's previous "go to" practice, which relied on conventional representations, would have required students to immediately distinguish between different fractions (halves and quarters), and could not have revealed the range of understandings that this activity did. This presumably allowed the teacher to gain some formative understanding of the range of levels across her class as a whole.[58]

Likelihood of seeking further research

One other source of data that points to changes in educators' practice commensurate with their involvement in the professional learning is a post-survey question asking the extent to which educators sought out further evidence, research or information. **The majority (76%) of respondents agreed or strongly agreed they sought out further research or information on their focus area**; and 67% agreed or strongly agreed in relation to other topics or approaches.

When combined with earlier findings, this suggests that even if educators are not the usual source of research for their focus area, they may be prompted to seek some additional materials (whether research or information to assist in designing classroom resources) for their focus. This may also link to comments outlined earlier (section 3.2.2) regarding the lack of specificity or practical guidance in research they had been provided.

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[57] Some (e.g. about birthdays) seemed to be directly from the peer-reviewed article.
[58] The teacher's planning as a result of the lesson was not explored in depth.

3.3.3. Formative student outcomes

This section describes findings regarding formative student outcomes (where available).

> **Section summary:** Very few educators or schools indicated they had *aggregated* pre/post assessment data to monitor and evaluate the impact of changes. When educators were asked what difference the changes had made in terms of student outcomes, most talked about informal teacher observations during class (at the class level). Sometimes participants discussed teacher-created formative or summative assessment tasks (sometimes including a pre/post element). At the school level, school leaders often mentioned how they were waiting to see impacts within standardised or validated assessment tool data or aggregated data platforms. Where educators indicated there had been a change in student outcomes, they were largely positive (and sometimes extremely positive) or said it was too early to tell.

Very few educators or schools had aggregated pre/post assessment data to monitor and evaluate the impact of changes. When educators were asked what difference the [changes] had made in terms of student outcomes, most talked about **informal teacher observations during class** (at the class level). For example, one participant explained:

> *You're getting so many more students involved in the discussions. … I just find that [using paddle pop sticks as a formative assessment tool is] really effective, because you normally have your top kids always putting their hand up by using the paddle pop sticks, and often [other students] have got some great suggestions. It's quite an engagement, incredibly.*

Another explained how their teacher judgements of student ability had changed through the Sprints process:

> *It's quite amazing. When they come up with their ideas, I've had times where I had never thought of that, and it's just like, "They've got a lot to show you." It's my mindset of [thinking] 'this is how it should be taught' or 'this is how it should be done', and they will show you another way. … My examples [for teaching the number 12] have been using tens frames, it might have been the analog clock, et cetera. Whereas, they come up with 12 on a jersey. "12 on my letterbox." That whole bringing it back to their world. "Where do I see number 12? I see it on the microwave when it's 12 o'clock." They're thinking about their world, which is so important.*

School leaders also referred to observed changes in student outcomes. For example, one school leader with nearly 25 years of experience commented:

> *These are the big [differences] that I see. I see our kids understanding what they're doing. I see our kids talking the same language from kindergarten, year one, year two. They're talking about phonemes, diagraphs, trigraphs, quadgraphs. They're all blending. They're reading. They're not just guessing at words. They're actually sounding out words. They're spelling words and they do it like daily instruction. … That's what I see.*

Sometimes participants discussed **teacher-created formative or summative assessment tasks** (sometimes including a pre/post element). For example, a Year 3 teacher stated: *"We took a little snippet out of our data. We did the fractions at the beginning and the end. I couldn't even believe it myself. It was really nice."*

A school leader with more than 30 years of experience drew on student work samples:

> *We would only have to take our work samples and look at where our kids started to where they are now to go, "It does work," because we've used the whole approach for*

[Training 24/7] and the phonics and their morning routine and their writing. That's all been linked in together.

At the school level, school leaders often mentioned how they were waiting to see impacts within **standardised or validated assessment tool data or aggregated data platforms** (e.g. Year 3 and 5 NAPLAN data, ASA testing, Schedule for Early Number Assessment [SENA] testing, and Scout reports[59]). Some said they were keen to trial the national proposed phonics test when it became available. One school leader with almost 20 years of experience described a combination of approaches, including tracking of class assessment data, and attributed this to the provider:

Every single [kindergarten] student knew every single phoneme [of the approximately 32 phonemes taught] at the end of the year. Two students got one thing wrong and it was the /th/ and /th/. … Without [the provider] … they definitely wouldn't have known that. … We've been tracking the kids in terms of the phonemes, whether they can see them, say them and then hear them, write them and they can all do it. We've been tracking their camera words. They all know all of their camera words.

At the school level, the same school leader said "*the tests that we've been using [ASA and Waddington testing are] showing that it's successful. We're getting more kids to where we want them to be, where we're happy with them*", but explained there was limited validated data for younger students:

I don't think we'll get a really good picture until things like NAPLAN [in 2-3 years]. We do ASA testing … but in year one [it's less reliable because] … kids are still learning computer skills. … When they're in year two, year three I think we'll get some really good data.

One school leader explained how they triangulate standardised, whole-school assessment data with other data sources:

It's really important for us to keep an external source of data on-hand, because sometimes it doesn't correlate [with teacher judgements], and you go, "What's happening there?" … But, at the moment, our NAPLAN data does correlate. And, it's about that triangulation of school data, who the target groups of kids are, what the target programs are, and looking at that data all together and the evidence all together [to assess the impact of changes].

Some educators also mentioned **feedback from families or members of the broader school community**. For example, one school whose focus area involved metacognition mentioned feedback from families:

Some of the parents are actually talking about how their children are talking about the learning process in general and they're more aware of it … [Students] are going home and can articulate something they learned [that day]. (School leader)

The school leader with nearly 25 years of experience referred to above also mentioned teacher aides:

Even teachers, support teachers that go in, [say] "The kids that are coming through just have so much more than the older kids that haven't ever done [synthetic phonics]."

Where educators indicated there had been a change in student outcomes, they were largely positive (and sometimes extremely positive) or said it was too early to tell.

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[59] Scout is a data analysis platform from the NSW Department of Education.

3.4. Enablers and barriers in mobilising research evidence

Section summary: Educators identified numerous enablers and barriers relating to evidence characteristics, professional learning provision characteristics, system contexts, school and classroom contexts and educator characteristics. The *key* enablers to mobilising research evidence were:

- support from and discussion with colleagues (within a school);
- access to and guidance in finding research;
- the external expertise of providers;
- having a structured or allocated time to work on evidence mobilisation; and
- support from school leaders/mid-level leaders.

Support from school leadership was also reflected in the post-survey responses to "My school leaders or mentors do not encourage me to use information from research to improve my practice". Nearly all (95%) educators disagreed (38%) or strongly disagreed (57%) with this statement, and there was a statistically significant difference over time, suggesting an increased level of leadership during the project.

Overall, sustaining change over time and finding research about the focus area were identified as the most difficult aspects of mobilising evidence. When asked by role, school leaders indicated their main concerns were:

- finding relevant, high-quality research specific to the focus area;
- difficulty sustaining the change over time;
- not knowing what the evidence looks like in their school; and
- disagreements among staff and high teacher turnover.

Teachers' main concerns were:

- finding relevant, high-quality research;
- experiencing an additional workload;
- feeling overwhelmed or trying too much change at once; and
- not knowing what evidence looks like in their classroom.

This section describes factors that helped (enablers) and hindered (barriers) educators in mobilising research evidence. It first provides an overview of all of the enablers and barriers, presented side-by-side. It then examines enablers and barriers in turn, starting with an examination of the *key* enablers/barriers (as identified through the post-survey) and then setting out illustrations of how these were experienced by educators (as described through interviews and open-ended post-survey responses). The section on enablers also includes an additional source of data regarding school leadership and school environments.[60]

Throughout this section, enablers and barriers are considered with reference to five domains — evidence characteristics, professional learning provider characteristics, wider system contexts, school and classroom contexts (in general and through school

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[60] In this section, comments in quotation marks that are not italicised indicate responses to an open-ended survey question.

mobilisation strategies and processes), and educator characteristics.[61] These categories are not always clear-cut. For example, although support from colleagues is classified within "school and classroom contexts", providers sometimes played an active role in fostering collaboration within schools.[62] Similarly, although school leadership is classified within "school and classroom contexts", this was a prerequisite or explicit goal of most or all of the professional learning providers in that some of the providers require support from school leaders before schools were enrolled in their professional learning.

3.4.1. Enablers and barriers overview

Table 9 summarises the enablers and barriers according to the five domains described above. Features listed in the same row are equivalents (e.g. where the presence of a feature could function as an enabler, and the absence of the same feature could function as a barrier). The table also highlights the most commonly identified enablers and barriers for educators.

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[61] These domains accord with syntheses of empirical research (e.g. Dagenais et al., 2012; Rickinson, Perrotta & Selwyn, 2020) except that: (i) access to research has been classified as an "evidence characteristic" rather than part of a further "characteristic of communication" domain or part of the wider system; (ii) the professional learning provider characteristic has been added as participants often explained how the features of professional learning acted as an enabler (or barrier), and program inputs can themselves be enablers or barriers (e.g. Damschroder et al., 2009); and (iii) school and classroom contexts has been further divided into general contexts and school mobilisation strategies to highlight how specific actions of school leaders in relation to the professional learning process were enablers or barriers (which is similar to the "Process" domain in the Consolidated Framework for Implementation Research [Damschroder et al., 2009], and how participants often explained how the features of school mobilisation strategies [or school structures] acted as enablers or barriers).

[62] For example, one participant explained: *[The provider] asked us questions about … how we are as a staff, how we work together, what … we see as things that might block us and she gives you hints on how you can get around that. We knew it was going to be a bit of a process, but I really feel that everyone's on board now.*

Table 9: Summary of enablers and barriers

Domain[63]	Enablers	Barriers
Research evidence characteristics (Factors relating to the focus and form of the evidence being used, as well as communication channels from researchers to educators)	Access to research or research databases	Insufficient access to research or research databases
	Guidance in finding relevant, high-quality research	Difficulty finding relevant, high-quality research
	Guidance in adapting evidence to the school or classroom	Difficulty adapting evidence to the school or classroom
	User-friendly research	Lengthy and difficult to read research
	n/a	Lack of research on specific focus areas
	n/a	Conflicting research
Professional learning provider characteristics (Factors relating to the input of professional learning)	External expertise	n/a
	Features of delivery	Duration of delivery
System contexts (Factors relating to the wider context of education system policies and priorities, as well as wider school communities)	Departmental resources	Inconsistent advice from departments of education
	Sufficient funding to support professional learning	Lack of funding to support professional learning
	Networks of schools	n/a
	Family engagement	n/a
	n/a	Change fatigue due to system requirements and high pressure for change
	n/a	Political debates/ideologies
School and classroom contexts *General contexts including school leadership* (Factors relating to the institutional context in which evidence is being mobilised)	Support from and discussion with colleagues	Lack of trust and collaboration between staff
	Support from school leaders / supportive school environment	n/a
	Having a whole-school approach	n/a
	n/a	High staff turnover
	n/a	School size (overly large or small)
		Insufficient classroom resources

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[63] Definitions of each domain (except for professional learning provider characteristics and school mobilisation strategies) have been adapted from the Research Framework. Professional learning provider characteristics and school mobilisation strategies were included as elements of the Research Framework, but not defined as enablers and barriers in their own right.

Domain[63]	Enablers	Barriers
School mobilisation strategies (Factors relating to the specific strategies being used in schools to mobilise evidence)	Having a team to drive the process	n/a
	Having protocols, tools, structures	Lack of protected, collaborative time / high workload / unplanned interruptions
	Having regular, job-embedded meeting time	
	Having spaced practice and time to plan and process	
	Promoting staff accountability and buy-in	n/a
	Feedback	Insufficient feedback
	Trialling and monitoring impact	Difficulty trialling and monitoring impact (having a system for assessing impact)
Educator characteristics (Factors relating to the interests, needs and background of teachers and school leaders)	Seeing a need for change / commitment to change	n/a
	Willingness to engage / innovate	n/a
	Attitude towards research	n/a
	Self-efficacy	Lack of self-efficacy
	n/a	Difficulty adapting previous teaching practices
	n/a	Experience
	n/a	Insufficient university preparation

Note:

Shading indicates that these were identified within the top 5 enablers or were identified as barriers in at least 10% of responses for teachers or school leaders.

Darker blue shading indicates that the enabler had a corresponding barrier and both were identified as key.

Lighter blue shading indicates that the key enabler did not have a corresponding barrier (or vice versa).

n/a indicates that the feature did not emerge through post-survey responses or coding (to saturation) of interview data; it does not suggest that these were not present at all.

3.4.2. Enablers for evidence mobilisation

Key enablers

When open-ended post-survey responses were grouped by theme, the key enablers for evidence mobilisation identified by educators were:

- support from and discussion with colleagues (n = 26);
- access to research / guidance in finding research (n = 25);
- external expertise of the providers (n = 24);
- having a structured/allocated time to work on evidence mobilisation (n = 20); and
- support from school leaders and mid-level leaders (n = 17).

It is worth noting that three of these — support from and discussion with colleagues, structured/allocated time, and school leader/mid-level leader support — are part of the school and classroom context domain.

Illustrations of enablers experienced by educators

Table 10 provides examples and further insights into the enablers experienced by educators. In some cases (e.g. where open-ended survey responses were similar and brief, or interview responses were potentially identifiable), a summary is provided of these experiences.

Table 10: Illustrations of enablers

Category / details	Example
Research evidence characteristics	
Access to research or research databases	**Summary:** The ability of educators to use or find research partly depended on their ability to have easy physical access to research. This included having copies of actual articles, books or resources and having the ability to search for high-quality research (e.g. "*Access to quality research through my partner's university login*" and "*Access to resources and professional reading from the Henry Parkes Equity Resource Library*": Survey respondents). **Hard copies example 1:** *We always try and keep hard copies of the texts here at school, we put that into our budget, and make sure that it's a well-resourced project.* (School leader) **Hard copies example 2:** *One of the things we did in the welcome pack, which was very expensive, was buy all those books for teachers. It's one thing to say to a teacher, 'Go and get the Seidenberg book.' Well, number one, I've got to go home, I've got to find it, I've got to pay for it, I've got to wait for it to be delivered, or I can borrow it from the library, then I can't write in it, I can't mark it up, I can't carry it around with me … [When using a research paper with teachers] I will print it off and hand it to them, because when it's in [their] hands, it's less time for me to say, 'Now, you go and invest this extra hour to go find it, print it,' and with all good intentions, it's like, 'Yeah, I'll do that,' and then they don't. We call it 'in the hands of teachers' — if we want them to do something, we put it in their hands.* (Provider)
Guidance in finding relevant,	**Summary:** As noted in section 3.2.2, guidance in finding relevant and rigorous research took various forms, requiring differing levels of capacity within the schools: • professional learning providers **directly sourcing and providing** research to schools (e.g. by including extracts from articles in the program materials or providing books

Category / details	Example
high-quality research	to the schools). In this case, the provider is doing the work of finding the research (although educators may specifically request it, or use this as a starting point for finding further research). For example, a teacher with 10 years of experience commented: *"We'd always be able to shoot an email [to the provider] and say, 'This is our focus. Can you suggest any readings?', and they would do it"*;

- professional learning providers offering schools a **curated or 'vetted' list** of research options, usually grouped into focus areas (e.g. the "Resources" page of the Teaching Sprints website), and perhaps providing feedback on the choice of research. In this case, the providers and educators are jointly doing the work of finding the research; or

- professional learning providers **describing** to educators where to find relevant and rigorous research (e.g. the South Australian Department for Education website) and how to find additional research if/when required, and perhaps providing feedback on the choice of research. In this case, most of the work is being done by the educators with guidance from the provider.

Guidance in finding research – and assistance in condensing or summarising this research or highlighting relevant parts – appeared to assist educators in various ways. For example, it gave educators a starting point or increased their capacity to become aware of research – one school leader explained that guidance in finding research "*has given me somewhere to start … I wouldn't have even known where to go otherwise"*.

Increased relevance of accessed research: *Having specific reading highlighted by the facilitators … that [they have] found that apply directly to what we're doing … made me read so much more relevant research.* (School leader with over 10 years of experience)

Curated lists: *[The provider's site has] areas where you can get into and find [research], so the fact they've filtered out some research, that has been a big thing … Before, I would have put a google search in, and then come up with a million things and then read about four them and go, 'Well this is all too much for me; I haven't got time to go through all of this,' and even I'm not expert enough to know if it's good research or bad research or just someone trying to sell something. But [the provider has] already done that and I know that I could go on their site, click on something and that would give me a bit more of an idea of where you're going.* (School leader describing how curated lists saved time, made the process less overwhelming and increased the quality of research they were accessing)

Guidance in finding research also seemed to assist a number of educators to a large extent. For example: *"Having that directed research has just been fantastic. It's been amazing. It's been probably one of the best bits of the course for me"*. (School leader with 12 years of experience) |
| Guidance in adapting evidence to the school or classroom | **Summary:** As noted in section 3.2.3, guidance in adapting evidence to the classroom or school helped when it involved:

- having "real-life" examples, practical strategies or sample programs contained in the research itself, or having research that was explicit in how it could be implemented;

- watching demonstration lessons from colleagues or experts;

- watching videos commissioned for the professional learning sessions; and |

Category / details	Example
	• having an overarching structure for implementing professional learning in the classroom.
	Research containing specific details to help teachers implement practices in similar classroom contexts: *The case study was a script of the teacher and the students, and I could see the way the teacher, without giving [students] the information, guided their understanding by using questioning to get them to that point that she wanted them to get to. So, that case study in particular helped me to think … "How can I make sure that everything I say has a purpose to continue them to get to that concept on their own." So, I really liked that one.* (Year 1 teacher describing with a guided writing case study focussed on deliberate questioning with Year 1 students)
	Research containing practical examples: *We've tried to select readings that are not just, 'this is the theory', but have actually got practical examples. … As a classroom teacher, I've been more open to those readings than just the big theoretical papers that don't actually tell you how to implement it.* (Participant)
	Watching demonstration lessons: *We saw [the provider] do a lot of lessons at the beginning. We then did the research, the professional learning in the afternoons. 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.* (School leader with nearly 25 years of experience)
User-friendly research	**Summary:** Evidence texts needed to be interesting, concise and easy to read, and texts in which educators could have confidence.
	Concise and usable: *CESE documents were helpful with the cognitive load because they weren't massive and they were audio books too so you can listen to them while you're doing something else which I've found helpful in my professional development and I'm sure the teachers have. Sometimes I'm making dinner and I'm listening to it but I can still multi-task. So, audio books are great. Short and concise is great.* (School leader)
	Relevant to the role of the educator: *Some of [the research] has even been levelled at classroom teacher level, Leading Teacher level, and leadership and principal sort of level. So, having different readings that reflects the different needs of the cohort that's there has also been really good.* (Participant)
Professional learning provider characteristics	
External expertise	**Ability to explain:** *Sometimes I just wanted to transport [the provider] into the room and just say, "Can you just tell that to my –" 'cause he had a way of saying it that was very easy to follow.* (Teacher with 10 years of experience)
	Ability to provide feedback: *If there's something we're unsure of or we want to change something or we don't understand something, it's just being able to have [the provider at the school on team professional learning days] and really confirm we're doing this right. Is this the right approach to take, that kind of thing.* (Teacher)
	Experience over time: *You can see they've spent a lot of time perfecting what they do.* (Teacher)
	Experience in range of contexts: "It's believed and acted upon as they are seen to be experts as they work with many schools who they are giving the same messages to and are following in the same footsteps". (Survey respondent)

Category / details	Example
	Being external to the school : *It was really good because she broke down what is metacognition, what is self-awareness, so it was good for the whole staff to hear it from someone externally.* (Teacher with 10 years of experience)
Features of delivery	**Summary:** Some survey respondents referred to features such as offsite sessions or online training modules which placed them in direct contact with the providers, course content or other schools.
	Support: *Support wise, they're there if we need them. We probably haven't needed them too much, to be honest, outside of those times. They're pretty good at explaining what's going on so you don't really need to. The support is there straight away.* (Teacher)
	Networks or collaboration with other schools facilitated by the provider: *In the workshops [with the provider] we're given a lot of time to have chats in our team and also across other schools. You get to share ideas and perspectives. That really helps.* (Teacher with just over five years of experience)
System contexts	
Departmental resources	**Access to evidence-based resources:** *I think there's been a lot within the department, especially coming out this year. I think the amount of resources has definitely improved, because [I previously] had to go interstate to go looking for a numeracy framework … and that doesn't sit as well, because ideally … you're wanting something that will apply to our curriculum.* (Mid-level leader, Victoria)
Sufficient funding to support professional learning	**Summary:** A small number of school leaders explained how their schools' funding arrangements (e.g. to support students from Culturally and Linguistically Diverse backgrounds) were an enabler as they allowed their schools to continue engaging with professional learning providers to improve student outcomes.
Networks or collaboration with other schools	**Pre-established networks with a culture of sharing evidence:** *Having rich discussions with other schools has actually also been terrific. … [We're] able to share readings and books that we've got, and apps that we've been using. It's like, "Have you seen this? This is what we've been using." … It's taking what's occurring, even in the principal's network meetings … [and] at [Assistant Principal] meetings. … There's also been a high maths focus in the network … So, it's actually then multi-faceted about getting a whole lot of resources, and trying to have tools and strategies in order to build capacity of us all.* (Mid-level leader)
Family engagement	*We're hoping to change the mindset and the attitudes that our students have [about the characteristics of a good maths learners]. Of course parents can play a big role in that. We need to make sure that we're actually getting the evidence out there so that they're on board and we've got the shared message at school and at home.* (Teacher with six years of experience)
School and classroom contexts: *General contexts*	
Support from and discussion	**Summary:** Educators referred to various teams when describing their collaboration (e.g. year level teams, professional learning teams, team teaching partnerships and school leadership teams), and described it both in terms of conversations/discussions and support/resource sharing.

Category / details	Example
with colleagues	**Helping to understand:** *Being able to have colleagues to discuss it with means you can clarify anything, ask any questions, work together on 'What does that look like? When I do this, is that that?' … I know there are very gifted teachers who can turn it into practice like that. But if you can't, you need someone to help you understand it.* (School leader with almost 10 years of experience) **Sharing experiences:** *[Our] team is expected to plan together which helps a lot because you do share those ideas, you collaborate, you work out what works and what doesn't and one person will try something and go, "Don't go there, it doesn't work." Or vice versa. It could be a fantastic lesson and someone wasn't going to use it but they will after you collaborate.* (Teacher with 10 years of experience) **Drawing on more expert staff:** *We had a staff member who was already interested in that area, so she was already further on that journey along. So, we were able to tap into her as well. So, she was happy to do [demonstration] lessons for staff as well. And then, once everybody could see that it was easy-ish and they could get things, then we moved on.* (School leader)
Support from school leaders	**Summary:** Survey respondents identified as enablers "guidance and enthusiasm", "openness to change", "clear direction" and "encouragement" from the principal, the executive team and Instructional Leaders. Prioritising of professional learning included being perceived to have a "school commitment", demonstrating this through the setting of goals and provision of time, and having a "continued focus" on professional learning. **Trusts staff to adopt appropriate teaching practices:** *We've got a confidence [from] our leadership to use [the evidence], I think that's the biggest thing. They've seen a need for the change so they're going to allow us to go about using the evidence as much as we can which has been really good because they trust the decisions we make as a team.* (Teacher with 10 years of experience) **Values experimentation:** *Everyone understands that this is something new that we're putting into place, and it's not going to be perfect first off. It's going to take time to get to where we want it to be. Just having that shared understanding. I think everyone is so enthusiastic about trialling something new, and if you get a win out of it, it's fantastic. If you don't, it's still fantastic, because we know that that particular part of it doesn't work for us or it doesn't work for that group.* (Participant) **Involvement of school leaders in the professional learning:** *When you've got four days out at the school to work as a team and to understand the metadata and the research together and think about how that would then implement back to your school, that's absolutely crucial to change.* (School leader with 12 years of experience) **Involvement of mid-level leaders in the professional learning:** *Our DPILs [Deputy Principal Instructional Leaders] work closely with both consultants … It's really imperative that all of our DPILs, APs [Assistant Principals], and our grade leaders [are involved in the professional learning] … We want our future leaders to have the knowledge, understanding, and ability to implement evidence.* (School leader with decades of experience) **Instructional leadership:** *It's building the relationships that I think has made the difference too – … building that relationship of trust and the collegial dialog in between visits to the classroom. And, to show that [school leaders are] learning it all too, that we don't have all the answers, that we are learning it along the way with them, especially for me, being a classroom teacher as well as an instructional leader, I found that's been really good to say to my team that I'm leading, 'hey, … I'm doing this with you at the same time'. But, it's also been good as*

Category / details	Example
	a classroom teacher to come back to the instructional leadership team and go, 'look, as an instructional leader, I'm doing this in my classroom as well', 'this is working', 'this isn't working', or, 'this is … where staff are at with it'. (Participant)
	Instructional leadership: *[Another school leader] and I are getting into the classrooms and seeing it happening as well. … It's not just 'Here do it, be quiet' – we support them along the way so they have an understanding of why we're doing things.* (Participant)
School and classroom contexts: *School mobilisation strategies*	
Alignment with a whole-school approach	**Summary:** Having a whole school focus, approach and/or agreement for evidence-informed teaching, and having consistency both across teams and between the professional learning and the whole school focus, was seen as beneficial. A few also mentioned alignment with teachers' performance and development goals. **Alignment between focus area and school strategic direction:** *Our strategic direction was focussed on the metacognition, so it was coming from the top.* (Teacher with 10 years of experience) **Alignment between strategies in the focus area and existing school direction:** *I think that most of the strategies or the methods or practices that they show us at the course are quite easy to implement because most of them are matching what we've started on already but just providing a bit more reason as to why we should do it so they're justifying what we've started already.* (Teacher with six years of experience) **Consistency in adaptation to classroom:** *You go to other schools … [and see] the teachers having their own take on things. Even on the research, putting it into practice in their own way, whereas I think what [our school leaders and the provider] have done here is really make sure that this is the research, everyone understands … what the content actually says. Now this is how we're telling you to put it, so even being quite specific on sitting in rows, whiteboards, … it's the language that's used and the kids are coming through all the way from Kindergarten to Year 6, there's a real consistency within the way things are taught, the routines, so there's not that overload of thinking. Yet there's still some room for teachers to have obviously their own personality and their own teaching, obviously they're not robots, but still within a very structured frame.* (Participant)
Having a team to drive the process	**Having a team with a clear vision:** *[One of the biggest enablers is] having a small [Sprints] team that has a big picture of what we want [the Sprint] to look like and the direction that we want it to go. If it's clear in our heads, then we can communicate it to the whole staff, as I said. There's a staff of over 70 so … that time that we all have together is very valuable, so [we must make] sure that we understand what we want the direction to be.* (Teacher with a role in implementing Sprints in their school) **Having a dedicated role to curate research:** *[The Instructional Leader said] he has lots more time to read, and he's done that and brought a lot of it back to us in these meetings as well, so we may all not be reading every single piece individually, but we're all exposing ourselves to all of that through everyone's different role.* (Participant)
Having protocols, tools and structures	**Summary:** Educators referred to the benefit of having structures and processes in schools to support their professional learning, as well as having tools supplied by the provider to assist with selection of focus areas, unpacking and planning around the evidence and reflecting on progress.

Category / details	Example
	Having a standard, step-by-step process for engaging with evidence: *Sprints … [gives] people a simple step by step process to hang each part of the process on so that teachers could follow that. 'Yes, … I understand that we need to look at that – now we need to drill down and see exactly what it is in there that we want to do – refine it even further – now what do we need to do?' That was a really good scaffold and step by step process that teacher could understand. … Patterning [in maths] is the next logical thing for us to do. We will [use] the same format and the same process [with this new focus area], because we found that that was really powerful.* (School leader) **Organisational structures and processes:** *We think the number one enabler is … an organisational routine and process. Otherwise, it will be, "We read something, or heard something, and at the end of it someone said, 'You should try something out.'" We really think you need some sort of organisational routine or habit whereby research mobilisation becomes, "The way we do things around here." I think the big answer, for us, about mobilisation is not mindset change. Everyone always says, "If the teachers had a mindset to want to use research [their practice would change]." We say, "No, set up an organisational routine or process."* (Provider) **Having a school system for storing quality evidence:** *Now we have our little mobilising research group or folder, and inside that, it's all foldered into literacy and numeracy. There's some great things … and all of these little bits of research … that we can just access quite quickly and delve into …* (Teacher)
Having regular, job-embedded meeting time	**Summary:** Educators often described regular or structured meeting times for discussing and planning around research. These meetings could be among groups of teachers on the same grade (with or without input from mid-level leaders and school leaders), the school leadership team, the whole staff, or networks with other schools, and with or without input from the providers. Their frequency also differed (e.g. weekly meetings during the day followed by a curriculum meeting; whole days twice a term; or during the day). In one school, meetings to discuss evidence were optional but well-attended. Meetings were structured both over time and internally. For example, over time the leadership team might first meet to discuss the whole school approach; the professional learning may be mapped across the year/semester; and, particularly in the Teaching Sprints schools, the meetings may follow a cycle of preparing, implementing and reflecting. Sometimes this time was strictly constant; sometimes the proportion of time spent on evidence or the focus area might vary depending on the needs of the teachers. A number of educators mentioned the importance of having a regular or allocated meeting time dedicated to professional learning. 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 (see above); and • involved pre-work by those leading the process (to maximise efficiency). **Use of protocols during meetings:** *The protocols that we used … [have] been really great in being able to break down something like a piece of research, so that we get the most out of*

Category / details	Example
	it, instead of just sitting there and it being a free for all discussion. (School leader using a mixture of protocols from Teaching Sprints and from another provider they had engaged) **Pre-work in finding evidence:** *I think having someone who can go out and do the bulk researching of it, so that you're presented with three very relevant pieces, giving us just the time. So, dedicating that [planning] time to sitting there and using research.* (School leader)
Having spaced practice and time to plan and process	**Summary:** A number of educators described the importance of having the time to plan and process research evidence, and some specifically referred to concepts of spaced practice (i.e. returning to a concept at intervals over time rather than learning it all in a single session). **Initial planning time:** *We did a three week Prepare [phase],[64] so that was gathering all the information and the research and talking about [it] with the groups and doing our heat mapping and everything. … It was so good, that big prepare phase at the beginning. … It worked wonders. You weren't trying to get everything done in one meeting, it was really good.* (Year 5 teacher) **Slow release of evidence:** *I think the Maths team that's attended it are still trying to do a slow release with what we provide to the staff to not overwhelm them and to work out exactly how we want to deliver it so we get everyone onboard and it's really active.* (Teacher with six years of experience) **Time to process:** *It's not like this is the research, 15 minutes or 20 minutes talking about it, now straightaway go and implement something. It's 'Build your knowledge, build your knowledge, build your knowledge', pretty much like what we [in terms of spaced learning] with the kids … Then it's 'How now would you see that working in a classroom? If you were the teacher, what would you do, what would you say?'* (Participant)
Promoting staff accountability and buy-in	**Summary:** School leaders described how they promoted accountability and actively sought staff buy-in, whether through ensuring staff input was part of selection of the focus area or setting expectations of engagement. **Culture of responsibility:** *You've got the advice [from the provider], but everyone also considers it as part of their role, it's not going, "The expert adviser will do that", you know? There's not that culture … But, that's us setting up those professional expectations, and those conversations are really quite explicit and quite in your face.* (School leader with decades of experience) **Staff ownership through goal-setting:** *We've actually got goals now, I think, which has helped staff to take ownership over the process. Last year it was just, 'here's an approach', at a general staff meeting, 'go have a go at it', whereas now, because we're meeting regularly and discussing and reviewing these strategies, and we've put it on staff at the beginning of a Sprint, after hearing their theory to choose their own personal learning goal that they want to focus on under that banner in the Sprint, staff … are owning their own learning a bit more too, they're a bit more invested in the process than before.* **Staff buy-in:** *We wanted our teachers to have a buy in that when we're in the room they're doing it but when we're out of the room they're still doing it.* (School leader) **Consistent expectations:** *Part of that has been we set the expectation … We've got a collective agreement I guess, that we're all on the same page, we all expect the same thing*

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[64] Learning Sprints phases are described in Appendix B.

Category / details	Example
	from our teachers. The Assistant Principals are making sure these things are happening. (Participant)
	Expectation for meeting preparation: *[We give research to teachers] to take away to do and then come back with that expectation that they have read it, they've highlighted it and they're ready to discuss it as well as brought to the table other things that were required.* (Participant)
	Developing a culture of evidence use: *What has happened is because more teachers have come on board, [others thought] … 'I'd better get on board because I'll be the odd one out.' … Then there have been a couple who have left early on the journey when they decided 'We don't like what's happening at the school — this is not for us', and they have left. There might have been two or three that have moved on because it didn't suit what we're doing. Then of course the others who stayed … have got no choice but to have become a part of it because they will really stand out if they don't do it.* (School leader)
	Accountability: *Because [school leaders] get into the classroom more often [to observe teachers], we have a higher chance of guaranteeing that whatever pedagogy we introduce is being done more often.* (Participant)
	Consistent follow-up: *[It's] the consistency that we keep going with it, it's not just, all right, 'this is what we're doing in six weeks', and then we come back to it, because we're coming back to it so consistently.* (Participant)
Feedback	**Summary:** Some mentioned the benefit of classroom observations or learning walks (and having time release to carry these out).
	Lesson observations within schools: *We've had the opportunity here to observe other teachers teach … The people that have been here longer and have worked with [the provider] longer [have] a better understanding [of the professional learning]. So, teachers had the opportunity to take time off their own class and go observe another teacher. I feel that really helped last year just to try and wrap my head around it.* (Teacher)
	Lesson observations with providers: *Lots of people ask us to do lesson observations so that they can feel comfortable that they have interpreted what we've said the right way.* (Provider)
Trialling and monitoring impact[65]	**Summary:** Some educators said their enablers included having appropriate pre- and post-assessments for measuring impact; being willing to trial small changes in the classroom; and seeing that an intervention was successful in their own classes.
	Observing impact: *Sometimes you feel like some things get done [in schools] that are quite fluffy, especially the new programs … With our research, thanks to [the provider], we know … it works. We can see it.* (Teacher)
Educator characteristics[66]	
Seeing a need or	**Summary:** Seeing how evidence could improve their teaching and enable them to better meet the needs of groups of students was particularly important for some educators.[67]

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[65] The observed success of strategies is discussed further in sections 3.3 and 0.

[66] When asked specifically about enablers and barriers, participants usually did not often refer to their personal characteristics. However, these findings can be supplemented with other data collected educator attitudes and skills (section 3.3).

[67] This reflected survey responses showing that, when choosing their focus, educators were strongly influenced by whether an approach would meet student needs (Table 7 in section 3.2.1).

Category / details	Example
rationale for change	**Understanding the theory for implementing a change:** *As a classroom teacher, to understand why I'm doing it, not just to be told, 'here's another strategy to go and do', but understanding the theory behind it has actually made me appreciate, and probably better use, the strategy in my classroom … Understanding the research and the theory behind it has been really helpful.* (Participant) **Understanding *why* they were implementing a change:** *Looking at the research article … might confirm for a teacher … this is not just having a guess … there's actually evidence to show … this will work.' I think it's increasing confidence and increasing awareness of the importance and significance of what it is you're Sprinting about.* (School leader with nearly 15 years of experience) **Believing the change would improve student outcomes:** *You have to demonstrate that that will make a difference to these kids, and in online training, that's why we use clips of real lessons to say, 'This is what the research says; watch us do the Rosenshine principle of check for understanding. Watch us,' and we have these micro teaching clips that show a child going, 'Oh.' Then they'll go, 'Okay, I'll use the Rosenshine principle. I just saw the face of that kid.* (Provider)
Willingness to engage / innovate	**Summary:** Educators described how staff desired to improve their practice or were "receptive" and "motivated" or open to change.
Attitude towards research	**Summary**: A small number of educators described how their favourable attitude towards using research was an enabler — e.g. *"[It is a] personal choice to improve my teaching practice by using evidence to guide my teaching and learning"*. (Year 1 teacher)
Self-efficacy	**Summary:** Some educators commented on personal characteristics that gave them confidence in using research — e.g. being "a reader" or having a scientific research background.

Additional data on school leadership and school environment enablers

Educators' experiences regarding school leadership (as described above) can be triangulated with two questions on the post-survey specific to school leadership and the school environment.

First, support from school leadership was reflected in the post-survey responses to "My school leaders or mentors do not encourage me to use information from research to improve my practice". Nearly all (95%) educators disagreed (38%) or strongly disagreed (57%) with this statement, and there was a statistically significant difference over time ($p = 0.023$, $\hat{r} = 0.16$) suggesting an increased level of leadership during the project.

Second, survey responses regarding the school environment also generally suggested that school environments were (both prior to and during the research investigation) conducive to evidence mobilisation (Table 11). For example, 91% of educators at both time points either agreed or strongly agreed that "My school facilitates a professional learning community or supports collaborative learning". There were no statistically significant differences in educators' perceptions of their current school environments between the pre- and post-surveys. One response *approaching* significance was "My school seeks information from a variety of sources when making a decision". The generally high level of school support for research in the pre-survey suggests these schools already had a

supportive school environment (and were therefore in environments conducive to evidence mobilisation).

Table 11: Current school environment[68]

(My school…):		Strongly agree (n)	Agree (n)	Mixed views (n)	Disagree (n)	Strongly disagree (n)
Positively-worded options:						
…seeks information from a variety of sources when making a decision	Pre	24	67	15	1	2
	Post	37	56	14	1	1
…has formal processes to help staff engage critically with information sources	Pre	19	68	19	3	0
	Post	29	53	16	11	0
…values experimentation and the introduction of new ideas for teaching and learning	Pre	35	56	9	8	1
	Post	43	47	14	5	0
…trusts staff to adopt teaching practices that meet the needs of students	Pre	29	61	18	0	1
	Post	37	54	14	4	0
…facilitates a professional learning community or supports collaborative learning	Pre	54	45	9	0	1
	Post	58	41	7	3	0
…refers to evidence of "what works" when deciding which programs to adopt	Pre	43	52	10	3	1
	Post	48	49	9	3	0
Negatively-worded options:						
…does not make time available for staff to use a variety of information sources	Pre	1	4	23	53	28
	Post	2	6	14	51	36
…does not encourage informed risk-taking in teaching practice	Pre	1	8	13	51	36
	Post	3	7	9	58	32

n = 109 educators

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[68] Question: To what extent do you think the following statements describe the current environment within your school? (Please tick one box in each row)

3.4.3. Barriers to mobilising research evidence

Key barriers

Most difficult stage of using evidence

When asked in the post-survey to identify the most difficult aspects of using evidence (Appendix D Figure D.5), educators most commonly selected **sustaining change over time** (n = 26) and **finding research about the focus area** (n = 25). However, assessing the impact of the change on student outcomes (n = 22), identifying the focus area (n = 20), and adapting research to the classroom context (n = 19) were also commonly experienced barriers. In other words, barriers across the all stages of evidence use were seen as difficult.

Key barriers for school leaders versus teachers

A more detailed picture of barriers emerges when barriers are considered by educators' role (Table 12). Barriers that had similar weighting between teachers and leaders were finding relevant, high quality research (ranked first), knowing what research looks like in the classroom/school (ranked third or fourth), and being able to assess the impact of the changes (ranked fifth/sixth). Deciding between conflicting research was a less significant concern for both (ranked seventh).

School leaders were most concerned not only with finding relevant, high quality research in general, but finding such research *specific to the focus area* (n = 33).[69] Difficulty sustaining the change over time (ranked second) could also relate to high teacher turnover (ranked fourth). In contrast to the willingness of staff to engage or innovate (identified as an enabler: section 3.4.2), disagreements among staff was a relatively high issue at the leadership level (ranked fourth).

In general, teachers seemed to emphasise more practical or pragmatic concerns such as experiencing an additional workload, feeling overwhelmed and developing necessary resources. These types of concerns may also help to explain leaders' concerns around disagreements among staff and difficulty sustaining change over time. Also, compared with school leaders, teachers were less concerned about the difficulty of sustaining changes over time.

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[69] To avoid presenting too many survey options, teachers were given the more general option of "Finding relevant, high-quality research" but not also "Finding relevant, high-quality research *specific to focus area*".

Table 12: Key barriers for school leaders and mid-level leaders compared with key barriers for teachers

School leaders and mid-level leaders (n=85; responses = 136)		Teachers (n= 94; responses = 212)	
Rank	Barrier	Rank	Barrier
1	Finding relevant, high-quality research *specific to focus area* (n = 33)	1	Finding relevant, high-quality research (n = 35)
2	Sustaining changes over time (n = 24)	2	Fitting in an additional workload (n = 32)[70]
3	Knowing what the evidence looks like in my school (n = 17)	3	Feeling overwhelmed / trying too much change at once / change fatigue (n = 31)
4	Disagreement among staff (n = 15)	4	Knowing what the evidence looks like in my classroom (n = 23)
	High teacher turnover (n = 15)		
5	Having a system for assessing impact (n = 14)	5	Developing or accessing necessary resources (n = 19)
6	Finding relevant, high-quality research (n = 7)	6	Assessing whether it improves student outcomes (n = 17)
	Inconsistent advice from the department (n = 7)	7	Deciding between conflicting research (n = 16)
7	Deciding between conflicting research (n = 4)		Sustaining changes over time (n = 16)
		8	Unplanned interruptions (n = 13)
		9	Changing my previous teaching style (n = 10)

[70] An additional data source is relevant here. In the post-survey, educators were asked to identify (from a list of 12 options) up to three ways in which the professional learning provider had helped to overcome the barriers in using research evidence in teaching. Of 150 respondents, four (2.7%) indicated that working with the providers had reduced their workload.

Illustrations of experienced barriers by educators

Table 13 provides examples and further insights into the barriers experienced by educators. Examples relating to sustaining change over time are considered separately in section 3.5.

Table 13: Illustrations of barriers

Category / details	Example
Research evidence characteristics	
Insufficient access to research or research databases	**Cost of accessing peer-reviewed research:** *When I was at university, you could get as many journal articles as you wanted. But now, to get them, you have to subscribe to these, pay X amount of money for access to journal articles, and it's just not feasible and it's not appealing. There's so much other information out there that people aren't going to pay for those journal articles, and if they do, sometimes they're very jargonistic as well. So, that's a hindrance; that is a big hindrance.* (School leader) **Poor communication between researchers and educators:** *I've contacted universities before and asked them to get access to their knowledge and their actual resources … and I've had at least two of them say this is great that someone's asking for this but then they never get back to me.* (School leader)
Difficulty finding relevant, high-quality research	**Finding relevant research:** *It's not so much finding the evidence but finding evidence that suits what we're trying to do. There's plenty of information out there but it's finding the ones that are relevant.* (School leader) **Large amounts of available research**: *There's so much research coming at you that – you want to use the things that are useful. … We don't have time to sit through, reading through pages and pages of things that are going to have no benefit for us.* (Participant)
Difficulty adapting evidence to the classroom[71]	**Need for concrete examples:** *There's lots of research out there … [to say] this is what you should be doing but there's not really concrete example of what it actually looks like. I think that's where teachers find it quite difficult. Yes, we know feedback works. … But what does that look like when you've got 30 children in your classroom?* (School leader) **Need for stage-appropriate student work samples:** *It's really hard to find exemplars of what we want [from] the kids across New South Wales. We can go to ACARA and we can go to the Board of Studies and we can go to other sections of the Department, but no one can really say "yes this is a true exemplar for writing a persuasive text." There seems to be lots and lots of it and not one benchmark for us to look at. … What is an end of stage 2 exemplar? What is an end of stage 3 exemplar?* (Teacher) **Difficulty adapting to the curriculum:** *I found some tasks really lend themselves [to open-ended tasks] so easily, … and then some tasks I find that might be like, 'Oh, how can I do this in my class?' Because, in certain times, with having the preps, ones and twos, stuff that's in the 1/2 curriculum doesn't get even explored in the prep. So, it's kind of trying to go, "Well, how can I make sure that I'm ticking off the content descriptors, but also trying to make it open-ended where, I guess, you know, the [Year Ones] and [Year Twos] are being extended, but also the preps are being supported?"* (Teacher with five years of experience)

[71] This can be contrasted with the post-survey response where 86% of educators agreed or strongly agreed that they felt confident about analysing information from research (section 3.2.3).

Category / details	Example
Lack of research on specific focus areas	**Writing:** *We've found it's a little bit trickier to find research papers on writing. That could be because we're not looking in the right places, or because we're not as confident teaching writing – writing is a lot harder we've felt. (Teacher, Teaching Sprints)*[72] **Punctuation:** *For us, it started off looking at the kids weren't picking up punctuation. … We'd always talk [with students] about [punctuation], but then when they went to do their independent writing, it just wasn't transferring. That was mainly when they started to write longer text, so they're fine, sentences in isolation, they can identify where they need punctuation. … So we then looked into the research and found that most of the research went back to modelled writing. … We didn't find a lot of articles that had specifically to do with the punctuation side of modelled writing. Most of it just came back to modelling a text as a whole.* (Kindergarten teacher) **Fraction notation:** *It would take a long time to find things, especially when there were grades that had chosen really specific things. With the Year 1s, they said that they would get fraction notation. For me [it was hard] to find something very specific to that, that could then be practical as well, that wasn't just the research jargon.* (School leader tasked with finding research to support grade teams)
Professional learning provider characteristics	
Duration of delivery	**Access to ongoing support from professional learning providers:** *Going forward we're not going to have the contact with the program facilitators. You don't have that capacity to check in unless it's through their generosity that they give of their time voluntarily to ensure that you are as you want to be at point in time. … If the government is serious about Ed[ucation] State and throwing money behind these sorts of initiatives, the 12-month span is so limiting because it ignores so many factors that take place in the context of a school.* (School leader noting the time-limited nature of Bastow Leading Mathematics in comparison with the need for follow-up)
System contexts	
Inconsistent advice from departments of education	**Competing priorities:** *A frustration that we have at a network level and then at an area level is that what we engage with is so basic. … 'Here's something new in this particular space of mathematics.' It doesn't get air time. At the moment the primary at a network and at an area level has been around the performance in NAPLAN in the top two bands. … It's not about being proactive, about "Here's some new research that says this is how you go about X,Y or Z."* (School leader, Victoria, commenting that a focus on NAPLAN performance at the network and area level drew attention away from exploring emerging evidence in numeracy) **Regarding choice of teaching strategies:** *My director's not a fan of what I'm doing so I can't talk to [my director] … about any of this.* (School leader, NSW, explaining their department director supported whole language rather than synthetic phonics) *One of the barriers that potentially has the most impact is where [schools are] getting different messages from different sources. For instance, messages that are at odds with the kind of work that we've done … Sometimes, these [messages] come from their boss.*

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[72] The provider similarly commented: *Writing came up, unexpectedly, as something that they wanted to work on. Writing is an area that we had the weakest links of resources available, that's why we started to try to serve some other things for them.*

Category / details	Example
	Sometimes they can come from the system. … Sometimes, people, like the [departmental coaches], haven't been exposed to these ideas, practices, evidence, ways of working. (Provider) **Discrepancies between policies and funding:** *One of the [barriers] is confusion from Department of Education about what are the approaches that they endorse. … People are still out there with L3, and training occurring, and teachers find it really hard to understand why one part of the Department is saying, "We're heading in this direction," but they're still paying for things that aren't aligned with that direction.* (Provider)
Lack of funding to support professional learning	**Difficulty in paying for professional learning from school budgets:** At the school level, paying for external professional learning was a strain on some school budgets. One school leader explained how they were holding fundraisers (*"community-run nights and Bunnings barbeques"*) to pay for professional learning in their school, which took *"a lot of time"* to organise.
Change fatigue due to system requirements and high pressure for change	**Rate of change:** *Change is difficult, but it's the rate of change. You can see with the syllabus documents at the moment. They're doing another review on the syllabus documents. They've literally just released PDHPE [the Personal Development, Health and Physical Education syllabus in NSW]. We're implementing that next year and it's already been reviewed. The change burnout for staff is incredible.* (School leader with almost 20 years of experience) **Continually adding to changes:** *I think the challenge is knowing when to keep the good stuff, and getting rid of the stuff that's not working. We sometimes as teachers, we get into a bit of a rut. And, we're also very busy. And, when we see some brand new shiny thing come along, we're very suspicious. And, we go, 'Uh. Just another thing. Something else that's going to make more work on top of my massive amount of work.'* (Participant) **High pressure for multiple changes:** *There is a tendency … that schools need to be showing in their plans that they're working on many things, at least literacy and numeracy, and often wellbeing and attendance. I think that that common push that they needed to have improvement in many areas sometimes meant that schools struggled to sustain a focus in one area at a time … I would call that accountability and pressure from the system to be improving in multiple areas in parallel definitely meant that schools felt challenged to say that they were doing their professional learning over more than two terms in one area.* (Provider)
Political debates/ ideologies	**In reading:** *It shouldn't be a matter of what individual principals think … holding onto their deep-seated beliefs … I think it's really sad that the debate has come to the people who are pro-phonics are looking anti-teacher and I think that is a way the debate's kind of been simplified when it's not the case. … I didn't know I was entering a reading war. I just started reading in my search for finding something for this school and everything I read it just pointed [to synthetic phonics].* (Principal describing opposition they had faced from educators at other schools in relation to their phonics work)
School and classroom contexts: *General contexts*	
Lack of trust and collaboration between staff	**Lack of trust in internal expertise example 1:** *Some [staff] like external people coming in so then they feel that has more impact. They don't always believe that people within the school have any expertise.* (School leader) **Lack of trust in internal expertise example 2:** *[The Assistant-Principal] was trying to tell [teachers] that internal staff have just as much knowledge [as external providers, but] … they*

Category / details	Example
	felt that someone bringing other ideas and knowledge [was more powerful]. (School leader from the same school)
	Lack of sharing between educators directly enrolled versus not directly enrolled with a provider: *Three of us might go off, and we go, "Okay. We're going to do X, Y and Z," and we're able to implement it, because we were there [at the offsite professional learning session]. But, sometimes, I guess it's a bit hard to try and feed it out through with everyone, to make sure that everyone's up-taking it, because they weren't, obviously, on the course.* (Teacher directly enrolled with the provider)
	Competition between staff: *There's a little bit of one-upmanship — "I've read this book, you haven't read that book" … It's the judgement that comes around it that's not productive.* (School leader)
	Working in isolation: Some educators reported the difficulty of making changes to their teaching when they were working in isolation (rather than part of teams) or perceived that they did not share the same problem of practice as their colleagues.
High staff turnover	**New or changed staff in the school:** *[Compared with four years ago], more than 50 per cent are new to the school … [so it's] been a challenge to manage the influx of staff or the change of staff. Where you had a knowledge base in 2015, that knowledge base is not necessarily consistent in 2019.* (School leader)
	Temporary staff: *Every year we've got teachers that get permanent positions in other places. It means their position has to be filled by another temp, and then we're retraining constantly.* (School leader)
School size (very large or small)	**Small schools:** *Big schools have groups of people that do things. We've got six staff that do everything. We can't say you go to that thing; you go and do that thing … We've all got to do everything.* (School leader in a school with fewer than 100 students)
Insufficient classroom resources	**Lack of required materials:** (Teacher 1): *I didn't use concrete materials with my class 'cause we were using high numbers and I didn't have the MAB blocks to be able to do that.* (Teacher 2): *[We need] to get more material across the school [when focussing on place value] … 'cause there's definitely some students in my class that could have done with hands on blocks …*
School and classroom contexts: *School mobilisation strategies*	
Lack of protected, collaborative time / high workload / unplanned interruptions	**Difficulty getting all relevant staff together at the same time:** *We have all this time together at Bastow [for offsite Bastow Leading Mathematics sessions], and then sometimes it's really hard to get time back at school, because we've got so much going on. There's so many different people, and so many different teams. Trying to meet together … [is] really hard, especially with timetabling. … I don't think I'm actually timetabled off any time that [another participant leading work with the provider is] also timetabled off.* (Participant)
	Competing school priorities: *In some of our schools they struggled to … stick to the schedule of engagement with our coaches. … There were instances where we were running work with all teachers in a school, or a group of schools, … where the time that we had allocated was halved on the day because someone needed to do something else within the school agenda.* (Provider describing engagement with coaching they provided)

Category / details	Example
	Competing teaching priorities: *We don't have time to go and read papers. When they ask us to do that [we] almost freak out because you've got to actually be doing a thousand other things to make the lessons good for your children. You haven't got time to read papers when you should be preparing a lesson.* (Teacher)
	Need for time to understand and reflect: *[It's difficult] if time's not created or time's not afforded by leadership to actually digest what you've [learned]. You need time to digest and reflect and then work out a plan of how to implement, how to bring other people along or how people observe.* (Participant)
Insufficient feedback for adapting evidence to the classroom	**Lack of feedback on classroom practice:** *That's the big thing. We don't know [if we're doing the right thing]. We go back and talk about it in the meetings, but again, what if you all don't know and you're feeding off each other, but none of you are really hitting it properly. You will never know because no-one with the expertise comes in to watch or listen.* (Year 3 teacher)
Difficulty trialling and monitoring impact	**Not having a system for assessing impact:** *A lot of it's probably a lot more anecdotal notes, and it is hard to capture. I have in the past explained everything, where you can get the kids to record what they're thinking. But, unfortunately, due to limited resources, it's a little bit harder. That's probably an area that, as a school, we need to work on. How are we going to document and capture the evidence, especially if we're moving away from work sheets and tasks?* (Teacher focussing on open-ended tasks in mathematics)
	Not trialling first: *[Another barrier is] a tendency to go whole school straight away, rather than to learn with an incubation group, and to share that learning with others.* (Provider)
Educator characteristics	
Difficulty adapting previous teaching practices	**Incorporating different styles of teaching in mathematics:** *The 'Launch, Explore, Summarise' part was tricky at the start for people to wrap their heads around, but it took a little bit of practice and then we got into the swing of it with planning. And, we found giving the students the prompt at the Launch part of it the hardest part to make it sound more authentic and real.* (School leader)
	Among experienced teachers: *We've got a few teachers that are very highly experienced, but also, when they're highly experienced, they've been here for a long time, so they haven't embraced – things here have worked for a long time, so they haven't really had to get out of their comfort zones as much as they've needed to.* (School leader)
	Going beyond teachers' subject preference: *Maths has never been as important as literacy at this school.* (School leader working on a numeracy focus)
Experience	**Immediate developmental priorities for early career teachers:** *[It's] a hard, rainy day – you say to the teacher, "How are you?", and she just bursts into tears. Her priority at the moment is to make sure that she can stand up in front of our classroom and maintain some sort of level of respect within the relationships and in that classroom. That's what we need her to do right now. We don't need her to be reading [research].* (School leader ensuring that school and departmental goals did not overwhelm early career teachers)
Lack of self-efficacy	**Lack of confidence in applying research:** *The other [barrier] is the research practice – being confident that our interpretation is right and having that supported. I think teachers are still*

Category / details	Example
	very unsure they can read it and they can know what it says but then applying it and being confident that it's working. (School leader)
Insufficient university preparation	**Insufficient preparation in finding and assessing the quality of research:** *I said, "Didn't we all do the analysis of research and literature reviews and all of that as part of our university degrees? Apparently, the answer is no.* (School leader)

3.5. Sustaining evidence use

Section summary: Even though sustaining change over time was difficult, educators believed sustainability was more likely to be achieved when:

- changes were small or easy to implement;

- changes were structurally embedded (e.g. in school organisational structures and unit/lesson plans), scaled out across staff and (where appropriate) across the curriculum/subject areas;

- changes were seen to improve student outcomes;

- there was reflection on previous changes;

- there was an expectation for the change to sustain over time; and

- there were necessary resources to support changes into the future.

Educators identified "sustaining the change over time" as the most difficult aspect of using evidence (see section 3.4.3). This warrants further exploration given that sustainability itself has barriers and enablers. Schools which had been involved with the providers for a long time were able to talk about various dimensions of barriers and enablers they had experienced specific to previous focus areas; schools that had recently joined were better able to talk about their intentions in relation to evidence use.

One of the most common factors discussed was that **small or easy changes** (perhaps building on each other) are easier to sustain. Although ease of implementation was therefore seen as an enabler for *sustaining* change, it was rarely a factor in selecting a focus area (see section 3.2.1).

Another enabling factor in sustaining evidence use is that **changes are structurally embedded**, including in school organisational structures, unit/lesson plans ("*if it's in the unit, you've got a very high chance that the majority of teachers are going to be teaching it*": Kindergarten teacher), and weekly classroom routines ("*It's just part of our week*": Year 1/2 teacher). One teacher with 10 years of experience commented: *"We've got the success criteria and the learning intentions … so we're hoping that this whole idea [focus area] of developing their metacognition will continue throughout the school practice, and it doesn't have to be this set time."*

Another enabler is that **changes are scaled out** across staff and (where appropriate) across the curriculum/subject areas. Scaling out across staff involved:

- systematic inductions of new staff[73] (one school leader noted in relation to phonics: *"I train them an hour a week for about six weeks"* and said she gave new teachers access to previous resources and evidence where available);

- ensuring that many staff were involved (*"I would hope if the principal was to leave that there would be enough pedagogical knowledge of the staff that they would back synthetic phonics … because we would say 'Look, here in research is why we do what we do'"*); and

- ensuring there was consistency and consensus around the practices required (*"I think staff understand more of the elements that go into a modelled reading lesson now. … There's consensus around what it should look like in a classroom across K-6"*).

Depending on the nature of the focus area, scaling out across the curriculum involved educators identifying where else the evidence-informed teaching strategies were relevant.

One school leader with almost 10 years of experience explained how scaling out of changes over time in a large school involved differentiating between the needs of teachers, as well as embedded organisational supports:

> *We're also creating … a requirement structure … for new teachers who are untrained in phonics and a maintenance protocol for teachers who are already trained so that they stay up to date with phonics pedagogy and so that we can track consistency across the school, because what we've noticed is while no one's in there watching – not that you want to have big brother watching – but while no one's watching, what's happening with … ten K-2 classes?.*

Reflection on previous changes was important for teachers in determining their next steps. A Year 5 teacher explained:

> *I remember having an issue back in 2017 [in the same program]. We never spoke about it afterwards. That wasn't really a part of the process, and I thought "What do you mean?" They said gather data, gather evidence, but then there was no discussion about what we would change next time or what really worked well. I thought "What's the point of doing it if we're not talking about it?" But now, that's changed [with] Teaching Sprints. … I love talking about [how a focus area has gone]. It's like a missing link for me.*

Similarly, seeing the change was **improving student outcomes** made it more likely for evidence-informed teaching strategies to be sustained. One participant explained:

> *We started off by teaching all those words explicitly because we found in a previous Sprint cycle when we were learning about vocabulary that the research around building vocabulary said to pick a few words each day, teach that, and then build on it and recall it each day, so we found that really effective, so we've applied that to this Sprint as well, so that's worked really, really well. I found that putting sentences in a verbal sentence with a buddy has worked really well, lots of modelling, lots of explaining, lots of questioning, talking about the sentences has worked really well.*

More broadly, continued or **ongoing attention** to the focus area was important even after new focus areas were pursued. At the simplest level, this involved an **expectation** or stated intention for the change to sustain over time. As one teacher with 10 years of experience stated:

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[73] High teacher turnover was the fourth highest concern for school leaders in relation to using evidence: see section 3.4.3 above.

There was a bit of a reluctance in the beginning because things do come and go in schools. There's always new ideas. They're like, 'Here's another thing, Sprints has come in,' but we've made sure that everyone sees it's going to be embedded into our practice … beyond 2019.

Where necessary, the changes needed to have **resources** to support them into the future, and educators needed an ongoing ability to refer to concepts or teaching strategies previously discussed. This arose particularly in relation to synthetic phonics, and the supporting classroom resources and online modules. For example, one school leader explained: *"This has been a priority for our school so when they initially started resources were bought. As each year goes on, resources are continually topped up. It is something that is kept on the boil."* Another school leader using Training 24/7 explained:

[The online modules are] just amazing because teachers can watch them two, three, four, five times if they need to. They can go back to things or as things pop up in the classroom. "What's a schwa? I don't know. Let's go have a look at the [Training] 24/7 video. That's what a schwa is." [The provider has] told us but I've forgotten because I haven't taught it.

3.6.   Educators' recommendations for providers

This section considers the recommendations made for providers that relate generally across providers. Recommendations specific to each provider are summarised in program-specific feedback that will not be published.

> **Section summary:** The majority of educators had positive perceptions of the professional learning, and few educators identified any changes were needed in the professional learning. Of those who identified potential changes, most were seeking greater assistance in finding/sharing research or greater assistance in adapting research into classrooms.

When asked (in interviews and in the post-survey) if they had any recommendations for providers, few educators identified any changes were needed. Of those who identified potential changes, most were seeking greater assistance in finding/sharing research, whether through expanding curated lists of resources or developing a 'bank' that would act as a one-stop research depository of high quality, rigorous research evidence. The other potential change highlighted was greater assistance in adapting research into classrooms, with some educators indicating that the opportunity to practise strategies before implementing them in the classroom would be beneficial.

The relatively few recommendations for improvements to the professional learning models align with educators' positive perceptions of the professional learning (Figure 13). For example, 87% of educators indicated the provider enabled them "a lot" to discuss best practice with colleagues in their school.

Figure 13: Educators' perceptions of the professional learning[74]
To what extent did the provider enable you to …

Total number of respondents in sample: 120

Discuss best practice with colleagues in my school
130
20

Influence colleagues in my school to improve their classroom practice
106
42
2

Improve my knowledge of a topic or subject
118
29
1

Improve classroom practice
126
22
1

Use research evidence to reflect on my own practice
120
27
2

Number of respondents

A lot   A little   Not at all

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[74] Note the two options involving "classroom practice" specified that "this could be starting, developing or discontinuing an approach".

4. Insights and implications

This chapter describes insights arising from the findings of this research investigation. In doing so, it draws on two conceptual frameworks that were particularly instructive and relevant to the findings — Nelson et al. (2019)'s continuum of approaches among practice-focussed intermediaries working with schools, and Farley-Ripple et al. (2018)'s conceptual framework for rethinking connections between research and practice in education. The chapter also sets out implications for schools, professional learning providers generally, and departmental and other stakeholders. Implications for researchers can be drawn from the limitations and suggestions for future research chapter that follows.

4.1. Insights

Throughout these insights, it should be remembered that the professional learning providers involved in this research investigation differed from traditional, one-off or 'light touch' forms of training found to be insufficient for changing educator practice and improving student outcomes (Lord et al., 2017). Among other things, all of the professional learning models took place over at least six months, and involved numerous forms of engagement with educators (sections 2.5.1 and 3.1). It should also be remembered that the schools involved had opted to work with the professional learning providers (indeed, many of the schools had worked with the providers for years), and were perceived to have existing supportive school environments (sections 2.5.2 and 3.4.2). Collectively, this meant the conditions in which the research investigation took place presented conducive environments in which to mobilise evidence.

4.1.1. *Evidence mobilisation is a deliberate and complex endeavour involving multiple stages and multiple actors*

In many fields, it is understood that evidence mobilisation is not a one-off process, but involves a number of stages (Albers et al., 2017).

In this research investigation, we observed that evidence mobilisation involves a series of deliberate activities to not only find evidence, but also to understand and apply it to the classroom. Broadly, educators and professional learning providers worked across a number of stages — selecting focus areas, identifying specific research to support focus areas, and understanding and using research — in order to mobilise evidence. Figure 14 illustrates the main steps evident in this investigation, the activities of each actor at each stage, and the categories of enabling conditions surrounding this process. It should be noted these stages:

- were not necessarily linear (e.g. identifying a focus area might also involve an understanding of what evidence exists);
- could occur in multiple overlapping phases (given the number of focus areas educators were working on at any one time);
- could occur as part of a broader program or approach (i.e. evidence may be one part of a larger professional learning and school improvement process, and may not be the sole focus of that process); and
- were often collaborative and involved multiple actors within schools, professional learning providers, and — although not explicitly part of this project — the research community. At the same time, there was some task division (e.g. mid-level leaders appeared engaged most in identifying research to support focus areas).

In this sense, the evidence mobilisation process was often messy and iterative. This is a common experience in implementation, which "can be full of surprises, setbacks and changes in direction" (Albers et al., 2017).

Figure 14: Interactive stages and roles involved in evidence mobilisation[75,76]
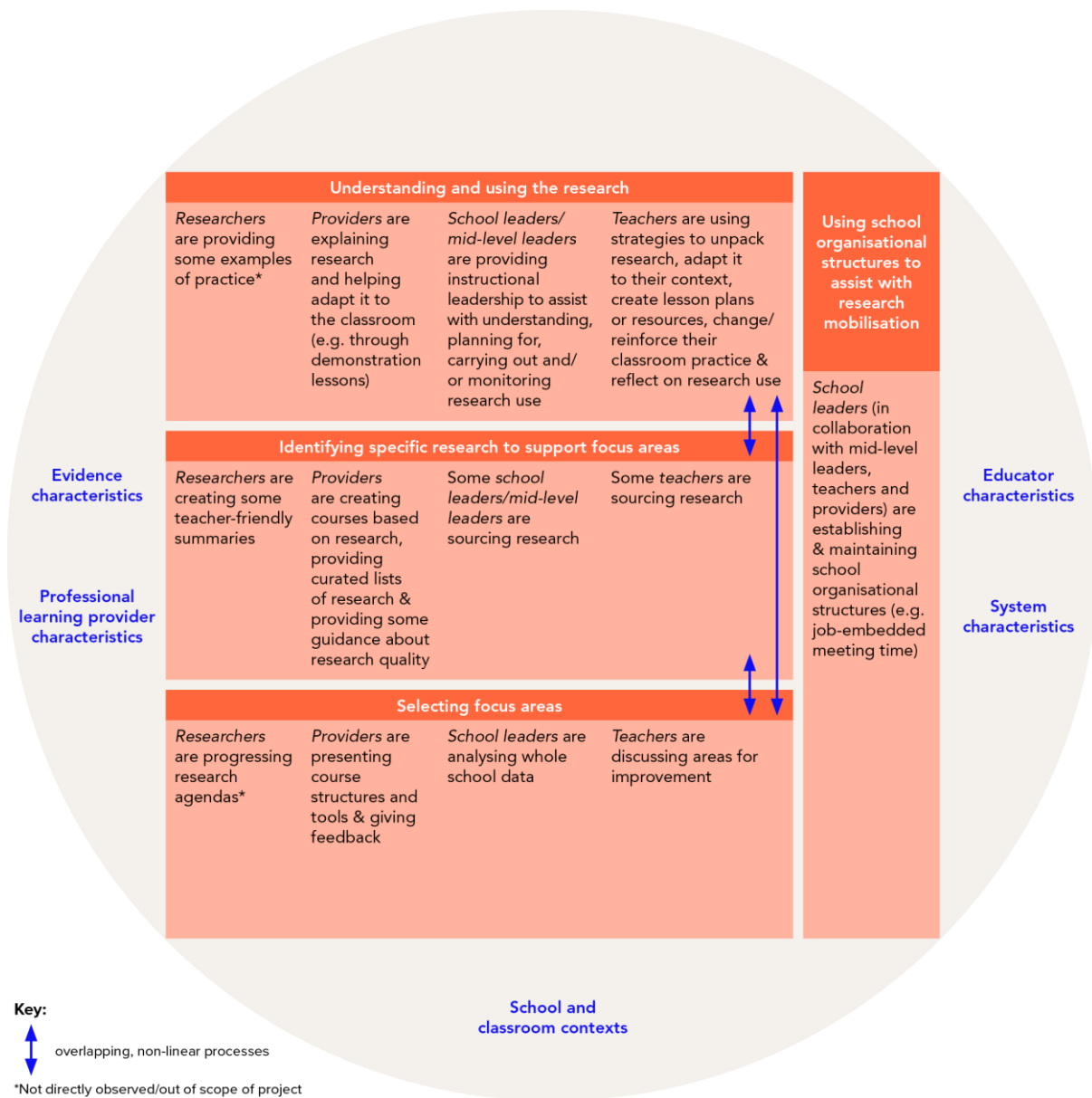
[75] This figure has been inspired by the Interactive Systems Framework for Dissemination and Implementation (Wandersman et al., 2008). In particular, it draws on the idea that dissemination and implementation of evidence involves different, interacting systems, and those systems are defined by their activities rather than by specific organisations or individuals. However, the nature of and activities involved in the stages presented in this figure differ from those in the Interactive Systems Framework, which was developed for health prevention innovations. The categories of enabling conditions in the figure have been added from the GEMS Research Framework.

[76] Many implementation frameworks consider implementation in stages, and most use a four-phased approach consisting of *exploration*, *preparation*, *implementation* (initial and full), and *sustainment*. All four of these stages were evident in this research investigation, although consistent with the focus of data collected, the exploration stage was considered at the most granular level. Applied to Figure 14, "Identifying focus areas" and "Identifying research to support focus areas" could be considered *exploration*, while "Understanding and using the evidence" includes *preparation*, *implementation* and *sustainment*.

4.1.2. Professional learning providers played various roles in supporting schools, and educators valued the support of providers

Providers demonstrated provider-led to provider-facilitated approaches

Within each stage of evidence mobilisation, it is important to examine the observed roles or activities of the professional learning providers and of educators. Nelson et al. (2019) have found that intermediary support for evidence mobilisation can be placed on a continuum ranging from approaches that are provider led and directed, to those that are more arms-length. They describe these approaches as "advocate led" (involving centrally-coordinated training); "advocate facilitated" (with guided improvement and modelled practice) and "distributed advocacy" (where clusters of schools are encouraged to provide peer-to-peer support in pursuit of self-improvement). Their study involved various kinds of "advocates", including training organisations and local authorities. It made a tentative finding that provider-facilitated approaches showed the most promise, but concluded that longer-term studies would be needed to assess effectiveness — in other words, currently there is no conclusive evidence regarding whether a particular type of approach is better or worse, and schools might look towards different approaches depending on their needs.

Using Nelson et al. (2019)'s concept, we mapped the professional learning observed at various stages of evidence mobilisation to continuums ranging from provider-directed approaches to school self-improvement (Figure 15). All of the approaches could be placed between the provider-directed and provider-facilitated half of the continuum (rather than at the school self-improvement end). In more provider-directed approaches, evidence was primarily introduced through demonstration lessons and provider-led explanations, and lesson observations demonstrated considerable consistency between schools. In more provider-facilitated approaches, school leaders/mid-level leaders usually held the role of finding and sharing evidence, and lesson observations showed a range of practices depending on the focus selected by the schools/educators.

As described in section 2.5.1, the type of professional learning support provided to schools varied by provider. Some providers put greater emphasis on specific capacity-building related to teaching strategies and resources for particular focus areas (e.g. synthetic phonics). Other providers put greater emphasis on general capacity-building designed to enhance the leadership and organisational structures within schools, which would in turn support various focus areas for literacy and numeracy.[77] There was a general alignment between the extent to which a provider adopted a provider-directed or provider-facilitated approach, and the extent to which they focussed on intervention-specific capacity-building versus general capacity-building. It is unclear if different capacity-building focuses more naturally lend themselves to different ends of Nelson et al. (2019)'s continuum, however.

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[77] The concept of specific versus general capacity building draws on Wandersman et al. (2008) and is explained in more detail in Figure 2 (section 2.5.1).

Figure 15: Observed elements of the professional learning on a continuum from provider-directed to school self-improvement approaches to evidence mobilisation[78]

Identifying focus areas and selecting evidence to support the focus areas

Provider-directed

Provider-facilitated

School self-improvement

Bastow Leading Mathematics

- Focus areas selected by educators reflected course emphasis (e.g. 63% focussed on characteristics of good maths learners)
- Part of the course explicitly involved schools using tools from the provider (e.g. pedagogical cross-walk survey) to identify which course focus areas were most relevant in their schools
- Role of finding/disseminating evidence relatively shared between school and provider

Teaching Sprints

- Diversity of focus areas selected by educators (30% in common at most)
- Evidence options presented in a curated list
- School leaders/mid-level leaders usually held the role of finding/disseminating evidence

Training 24/7 core component

- Focused on synthetic phonics and other foundational literacy approaches
- Role of finding/disseminating evidence shared between school and provider

Training 24/7 project component

- More emphasis on schools selecting focus areas and evidence from within an umbrella of approximately 15 focus area/evidence options
- Within the umbrella of options, many educators were focussed on Rosenshine Principles (86%), spaced practice (68%), cognitive load (60%) and lesson structure (53%)
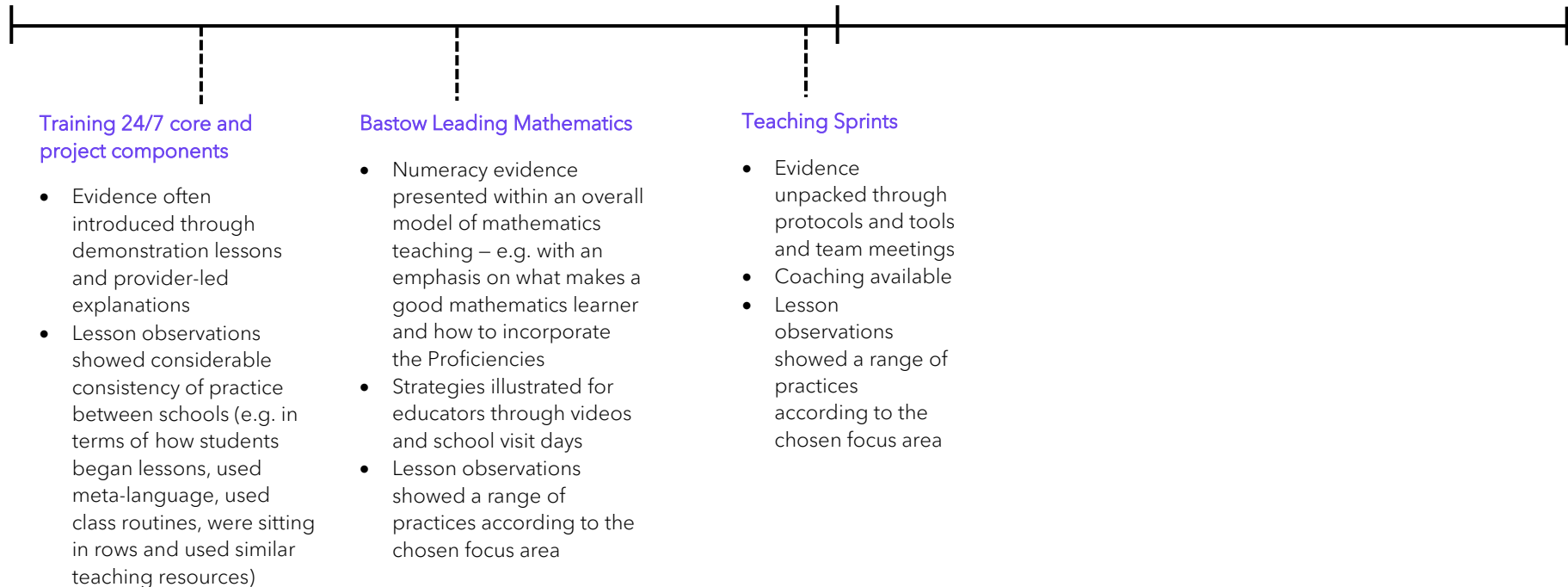- Role of finding/disseminating evidence shared between school and provider

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[78] These descriptions highlight key elements of the professional learning relevant to this research investigation – they do not set out to be a comprehensive summary of the professional learning models.

Understanding and using the evidence[79]

Provider-directed   Provider-facilitated   School self-improvement

Training 24/7 core and project components

- Evidence often introduced through demonstration lessons and provider-led explanations
- Lesson observations showed considerable consistency of practice between schools (e.g. in terms of how students began lessons, used meta-language, used class routines, were sitting in rows and used similar teaching resources)

Bastow Leading Mathematics

- Numeracy evidence presented within an overall model of mathematics teaching – e.g. with an emphasis on what makes a good mathematics learner and how to incorporate the Proficiencies
- Strategies illustrated for educators through videos and school visit days
- Lesson observations showed a range of practices according to the chosen focus area

Teaching Sprints

- Evidence unpacked through protocols and tools and team meetings
- Coaching available
- Lesson observations showed a range of practices according to the chosen focus area

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[79] In this figure, both components of Training 24/7 appeared to be similar in their approach to how evidence was understood and used, although some educators noted there was more emphasis on sharing/explaining the evidence during the semester studied in comparison with previous semesters (i.e. in the project compared with the experiences of the core component).

Educators valued the support of professional learning providers

Regardless of the approach, within the complex context of evidence mobilisation, educators valued the support and expertise of providers in assisting them to apply evidence relevant to their focus areas. Through surveys and interviews, educators identified numerous ways in which they had been assisted by providers. For example, they described how providers gave them useful guidance for finding research, demonstrated how research could be applied in the classroom, provided tools for supporting discussions around evidence and practice, and provided feedback on implementation processes within the school. Survey results regarding educators' perceptions of the professional learning (section 3.8) confirmed the value that most educators placed in the providers (e.g. 87% of educators indicated the provider enabled them "a lot" to discuss best practice with colleagues in their school). External expertise was also identified as a key enabler for evidence mobilisation (section 3.4.2).

At the same time, some educators identified a tension between *drawing on* external expertise where appropriate and *developing a reliance* on external expertise. This was evident in comments about staff trusting external experts over their own school leaders, as well as in schools where educators' efforts were partly directed into fundraising so they could afford further external professional learning. It also accords with tensions noted in Nelson et al. (2019) where participating UK schools often assumed that sustaining evidence-based literacy practices would involve continued involvement with providers rather than internally-driven processes.

4.1.3. *Evidence mobilisation is (still) active, social and demanding for educators when professional learning providers are involved*

Evidence mobilisation is thought to be an active, social and demanding process for educators (Rickinson, Perrotta and Selwyn, 2020). This means that educators are not passive recipients of research; that interactions between educators and others help to develop educators' use of evidence; and that evidence mobilisation involves complex technical and relational skills. These characteristics were evident among the educators involved in this research investigation, and the involvement of providers provided an additional dimension to how these characteristics played out.

Active

Even with (and perhaps because of) the involvement of professional learning providers, the role of schools and educators in mobilising evidence cannot be underestimated. In the large majority of cases, schools and educators were highly active co-designers across each stage of evidence mobilisation, meaning there were few 'program inputs' separate from the schools themselves. This was evident in the significant role schools and educators played in selecting evidence and putting it into practice. Particularly in provider-facilitated approaches, selection of focus areas and evidence sources occurred in conjunction with the school. Evidence mobilisation also built on what was already happening within the school (e.g. on previous and current school-wide goals; on educators' prior experiences with evidence use; and on educator engagement with other providers or departmental initiatives). Further, many of the key enablers were school-based factors. While professional learning providers often worked with schools to establish these enabling conditions (and, in some cases, required certain conditions before schools could enrol), the role of the school must be seen to be of key importance. In other words, even where professional learning providers are involved, evidence mobilisation cannot be seen to *start* with the professional learning approach.

In many ways, this is not surprising. Figgis et al. (2000, p. 347) describe this in terms of practitioners not being seen as "passive receptacles patiently waiting to receive advice and insight from research and researchers" and warn against a "straight transmission model" of research mobilisation. The active nature of evidence mobilisation also emphasises the importance of schools linking focus areas and evidence to the needs of their own students and to the school context — something professional learning providers alone cannot fully do, even if they tailor their professional learning to the needs of participants (as they did here). Indeed, expert practitioner use of evidence does not imply "that the 'best available evidence' is slavishly followed", but is filtered and understood by (incorporated within the mental models of) practitioners and adapted to context (Brown & Rogers, 2014, p. 247).[80]

Social

In addition to being an active process, evidence mobilisation is recognised as being social — meaning it "develops with and through interactions with other colleagues and collaborators" (Rickinson, Perrotta and Selwyn, 2020). This social nature of evidence mobilisation was evident both within schools, between providers and schools, and in some cases between schools as facilitated by providers. It was seen throughout the findings on how evidence is sourced; what strategies are used for understanding the evidence; and how support from and discussion with colleagues, relating evidence to school goals, and feedback were enablers for evidence mobilisation. Providers also actively encouraged this — e.g. by supporting the use of protocols and tools to encourage focussed, evidence-informed discussions among educators. The social nature of evidence mobilisation was not without its challenges, however — e.g. some educators commented on a lack of trust and collaboration between staff, and in some cases there was a disconnect between educators directly enrolled with the professional learning provider and those not directly enrolled.

Demanding

The demanding nature of evidence mobilisation — i.e. the complex relational and technical skills and competencies required for evidence use (Rickinson, Perrotta and Selwyn, 2020) — was also evident, and was reflected in a practical sense through educators' concerns about workload. Educators commented on the difficulties of adapting evidence to their context, and even for relatively small and easy changes, there was work involved in finding evidence, adapting it to the specific classroom or school, and monitoring its impact. Again, the 'heavy lifting' involved in evidence mobilisation was often being done collaboratively within schools, and between schools and providers. However, this did not necessarily relieve teacher workloads — fewer than 3% of educators identified that one of the main three ways in which providers had assisted was in reducing their workload, and practical concerns around time constraints, feeling overwhelmed and needing to develop necessary resources featured prominently among the barriers to evidence mobilisation raised by teachers.

One demanding aspect of evidence mobilisation — the work involved in finding/identifying relevant, rigorous research — also relates to an open question regarding who might best carry out this task. Given the time involved in finding relevant, rigorous research (and teacher concerns about workload) and given the high-level skills

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[80] This also links to concepts of fidelity within implementation science. Fidelity is the extent to which an intervention is implemented as its developers intended. However, fidelity in practice settings (where a lot of local adaptation is often required) is more complex than in clinical settings. More nuanced or sophisticated understandings of fidelity in practice settings have been considered in other fields (Boller et al., 2014; McLeod et al., 2013), but further work is needed on this within education (Albers et al., 2017).

required to assess the internal validity of research (and the generally low levels of research literacy among educators), it is unclear whether it is more appropriate and/or efficient:

- for this work to be done primarily by school leaders and/or mid-level leaders, with professional learning providers bringing external expertise;[81]

- there is work to be done in building the ability of *all* educators to assess the relative quality of evidence; and/or

- there is further work to be done by intermediaries in creating toolkits etc to summarise available evidence.

4.1.4. *Evidence mobilisation was both superficial and deep, and supportive school structures and environments were a key part of deeper mobilisation*

Evidence mobilisation was both superficial and deep

There is increasingly a focus on *quality use* of research evidence in education, and work is underway to develop and test a framework for this (Monash Q Project, 2020). Farley-Ripple et al. (2018) uses a related concept of *depth* to examine the extent to which evidence "meaningfully and systematically informs educational decisions" through "activities, roles, routines, and tools".[82] This can also be described in terms of "simple" or "superficial" versus "complex" uses of evidence (Farley-Ripple, 2015), and it can be examined along various dimensions — evidence, search, interpretation, participation, frequency and decision stage. Farley-Ripple and colleagues propose (in theory) that deep evidence use among educators will be characterised by:

- systematic collection of high-quality (peer reviewed, generalisable, causal) evidence integrated with other knowledge;

- the seeking out, dissemination, storage and retrieval of multiple evidence sources;

- informed and critical interpretation of evidence (which goes beyond educators only using research that accords with their current beliefs);

- widespread participation and collaboration across individuals and organisations (e.g. researchers and educators) to ensure multiple perspectives shape the design and interpretation of research;

- regular use of evidence in decision-making, such that it is an institutional part of organisational practices; and

- reference to evidence at appropriate or useful points in decision-making, which may include when problems are defined, when potential solutions are identified, and when strategies are selected (among other points in time).

In this research investigation, we identified differing levels of evidence use among schools and educators working with the professional learning providers. These levels were suggestive of both superficial and deep aspects of evidence mobilisation — i.e. across participants, there were examples of superficial and deep evidence mobilisation, and individual educators could also show examples of differing levels of evidence use in

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[81] If professional learning providers were involved in the same way over a long period of time, however, this could also potentially lead to a reliance on external expertise in lieu of building internal capacity (section 4.1.2).
[82] Similar conceptions of "depth" exist to provide guidance for schools and educators — e.g. Stoll et al. (2018a, 2018b) set out self-assessment rubrics for evidence use by teachers and schools. These span from "starting out" to "deepening" and "embedding" use of evidence.

different dimensions.[83] Examples are set out in Table 14, which uses an adapted version of Farley-Ripple et al. (2018)'s dimensions of depth to align with activities described elsewhere in this paper.

Five of the examples in Table 14 warrant further examination, and are explained beneath the table and in sections 4.1.5 and 4.1.6.

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[83] Some dimensions of depth also give rise to broader questions — beyond the scope of this research investigation — around what constitutes expert use of evidence among practitioners. There is a growing body of literature recognising that expert use of evidence is likely to involve increasing levels of 'rule transcendence' or adaptation of strategies, as well as holistic incorporation of evidence-informed practices to the point that they become unconscious additions to the teachers' repertoire (Brown & Rogers, 2014; McCrea, 2018). These are important considerations, and section 5 notes implications for researchers in relation to these.

Table 14: Examples of differing depth of evidence mobilisation

Dimension	Example findings suggesting *surface-level* evidence mobilisation	Example findings suggesting *deep* evidence mobilisation
Knowledge and attitudes about evidence	• Knowledge of different research types was generally low, and very few educators were able to personally apply rigorous assessments to determine the quality of evidence they were encountering • In the pre-survey, educators primarily associated 'evidence-informed teaching' with the use of student data (although this had less prominence in the post-survey) • Evidence was usually associated with well-known individual researchers rather than effectiveness studies or bodies of work	• A few educators could refer to concepts involved in rigorous assessments of evidence quality
Identifying relevant, high-quality research	• Very few teachers and school leaders said they personally sourced evidence, so it was unclear who was actually carrying out this role in some cases • There was a prevalence of general pedagogical approaches (rather than literacy- or numeracy-specific approaches) in the list of focus areas [1] • Educators' self-reported confidence in analysing information from research or knowing where to find relevant research contrasted with interview data and discussions around barriers and enablers [section 4.1.5]	• Some schools had established structures/role allocations in place around finding evidence • Some educators could describe in detail the processes they had followed to source evidence more specific to their focus area
Understanding evidence	• When interviewed, it was common for educators to talk in general (rather than specific) terms when asked precisely what evidence they were using • Some educators had multiple (up to 15) focus areas in any given semester and did not articulate how all of these areas fit together or were being specifically implemented	• Educators were using a range of specific strategies for unpacking and planning around research • Even if they could not name the research source, some educators could explain the key pedagogical concept [2] • In the case study of phonics content knowledge questions, educators performed better on 3 of 4 questions compared with a sample of Prep teachers in Victoria
Participation in evidence mobilisation	• Some educators described a lack of collaboration among staff, including teachers working in isolation and a lack of sharing between those directly enrolled in the professional learning and the wider staff	• Many schools had established or were establishing organisational structures to support evidence mobilisation (e.g. protected meeting times; opportunities for lesson observations; alignment with school goals) • Many educators perceived their school environments and school leadership supported evidence mobilisation
Using evidence (and sustaining evidence use over time)	• Some educators could name the evidence source but did not demonstrate it in lesson observations where it appeared there were opportunities to do so [2] • Educators pointed to the difficulty of sustaining evidence use over time [section 4.1.6] • There was relatively little aggregated student outcomes data to support monitoring of the approaches [4]	• Some educators could identify the evidence they were using in detail, explain the pedagogical concept and demonstrate it in lesson observations • Even if they could not name the research source and did not explain it in an interview, some educators demonstrated the relevant evidence-informed practice during a lesson observation [2]
Decision stage	• While many educators described referring to evidence while preparing or planning, few described returning to evidence sources following full implementation or when sustaining changes (e.g. to refine or seek further clarification)	• A number of schools had systems in place for reflecting on evidence use • Some schools had established systems for storing evidence

[1] There was a prevalence of general pedagogical approaches: Evidence-informed high impact approaches (or 'best bets') are undoubtedly important in improving the quality of teaching overall, and are a key source of evidence and key area for evidence implementation. However, in a research investigation where schools and providers were recruited for their focus on improving literacy and numeracy-specific outcomes, it was notable that there was still considerable focus on general pedagogical strategies rather than strategies focused on, e.g., aspects of reading comprehension and writing skills.

[2] Expert use of evidence: Sometimes teachers who could not name the evidence source or author they were using were observed enacting the practice in the classroom; others could name the source but did not demonstrate the practice in the classroom where there were opportunities to do so (section 3.3.2). This raises the question of the extent to which it is necessary for teachers to have high levels of research literacy or be able to list the authors of research sources they are using to enact evidence-based practices in the classroom.[84]

It also gives rise to broader questions — beyond the scope of this research investigation — around what constitutes expert use of evidence among practitioners. There is a growing body of literature recognising that expert use of evidence is likely to involve increasing levels of 'rule transcendence' or adaptation of strategies, as well as holistic incorporation of evidence-informed practices to the point that they become unconscious additions to the teachers' repertoire (Brown & Rogers, 2014; McCrea, 2018). These are important considerations, and implications for researchers are noted in section 5.

For the purposes of this table, teachers were seen to demonstrate relatively deep evidence use if they could explain or use evidence to support teaching practice (even if they could not name its source). Teachers were seen to demonstrate relatively superficial evidence use if it appeared to the researcher conducting the observation that an evidence-based practice was not applied where it could meaningfully have been applied, or where it was applied in a way that did not bear sufficient resemblance to the research.

[3] Student outcomes monitoring was limited: Although many had worked with the providers for a long time, and anecdotally described improvements to student learning, schools provided little *aggregated* data measuring student outcomes on skills relevant to the focus areas.[85] While reasons for this were not directly examined, we suggest these could include:

- the difficulty or practical impossibility of creating assessments that could be linked with a specific teaching strategy (changes to teaching strategies are specific, whereas school-level data is broad);

- the administrative burden involved in collating student or class results (some participants had student work samples that fell out of scope of the ethics approval for this project);

- the length of time required for there to be measurable changes in student outcomes; or

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[84] For a discussion around the benefits of teachers being able to understand research methods and aspects of the research process, see Bennett (2015).

[85] This is distinct from teacher-created formative or summative assessment tasks used with their classes, or the fact that school leaders mentioned they were waiting to see impacts within standardised or validated assessment tool data.

- the fact that two of the professional learning models were focussed on interim school and school leadership outcomes rather than student-level outcomes.

It should also be noted that some schools were using formative or summative assessment, and a number were waiting to see the results from standardised testing. In any case, monitoring of impact is an area where providers and other stakeholders could potentially provide greater assistance, and has been classified here as an example of more superficial evidence use.

Supportive school structures and environments were a key part of deeper mobilisation

As noted in section 4.1.7, it is not possible to comment on which school organisational structures or environments were essential in mobilising evidence. However, it is possible to say that some of the most common examples of deep evidence use across the whole sample were those involving the use of protocols/tools for understanding research, as well as supportive school environments and organisational infrastructure helping to embed evidence mobilisation processes.

For example, as part of the process of selecting and putting evidence into practice, educators often described regular or structured meeting times for discussing and planning around research. These meetings could be among groups of teachers on the same grade (with or without input from mid-level leaders and school leaders), the school leadership team, the whole staff, or networks with other schools, and with or without input from the providers.

More broadly, a number of the key enablers of evidence mobilisation reported by educators in this research related to these school organisational structures and the broader school environment, including support from and discussion with colleagues, and support from school leaders and mid-level leaders. Survey responses regarding the school environment also generally suggested that school environments were (both prior to and during the research investigation) conducive to evidence mobilisation. As noted elsewhere, these were not always present, however.

4.1.5. *Educators' self-reports and positive attitudes masked experienced difficulties*

Another aspect of more surface-level use of evidence that justifies further explanation is that educators' self-reported attitudes, knowledge and skills can mask experienced difficulties in mobilising evidence.

Overall, educators reported positive attitudes towards evidence, confidence in using evidence and high levels of evidence use. For example, in the pre-survey, 95% of educators believed that using information from research would help to improve student outcomes, 97% said they were able to relate information from research to their context, and 99% said they had used information from academic research to inform their practice within the previous year (and these did not have statistically significant changes over the project). In the post-survey, 97% of educators said information from research plays an important role in informing their practice, 78% of educators said they knew where to find relevant research, and 96% said they were able to use information from research to determine how they would implement new strategies. These figures often compared favourably with the same or similar questions in other studies (e.g. Nelson et al., 2019; Prendergast and Rickinson, 2019).

On the other hand, these self-reports were sometimes inconsistent with interview data and discussions around barriers and enablers. For example, only 4% of respondents in the

post-survey indicated they did not know where to find relevant research to help inform their teaching methods or practice, yet interview and other post-survey data indicated that finding relevant and rigorous research was the main barrier for both teachers and school leaders. Further, few educators personally sourced the evidence for their focus areas and recommendations for providers (where they were made) were focused on assistance in finding evidence. Research literacy (e.g. knowledge of different research types) was also generally low, and educators were using various proxy measures, including recommendations from the professional learning providers, to be able to assess the quality of research they were encountering. This suggests a disconnect between educators' beliefs about the importance of research/their own ability to access evidence, and the practicalities involved in identifying, synthesising and using this evidence in the classroom and school.

These findings provide further, detailed evidence for a common finding in the literature that self-reports of socially desirable behaviour tend to overestimate actual behaviour (Burstein et al., 1995; Penuel et al., 2017). In particular, there are numerous examples of educators expressing a strong interest and motivation to use research, but less use of evidence in practice (Levin et al., 2011; Proctor, 2015; Williams and Coles, 2007). For example, Prendergast and Rickinson (2019) found teachers in the sample from Melbourne Catholic schools valued research more than they used it; Stark et al. (2016) found a difference between self-report and actual knowledge in relation to teacher literacy content knowledge; and Brown and Zhang's (2017) UK study examined the discrepancy between teachers' beliefs and attitudes towards evidence use, and their actual evidence use (finding this may be due to a lack of school- or system-level cultural norms around evidence use).

Examining educators' depth of evidence use was often only evident through triangulation of data sources and an exploration of *details* around evidence use (e.g. not just surveying educators about whether they see evidence as important but also interviewing and observing educators about the specific evidence they are drawing on and how they are using it). This insight therefore also suggests that relying on educator self-reports in relation to evidence use is largely insufficient for establishing evidence use in practice. This is as relevant from a research perspective as it in within a school or when providers are aiming to monitor their impact.

4.1.6. *While some measurable changes in educator outcomes occurred quickly, most changes take time and are difficult to sustain*

GEMS was designed as a research investigation to explore the components of evidence mobilisation in schools. It cannot draw findings about causation, such as whether providers caused a change in educators' attitudes, knowledge, skills and practice. It can, however, outline the changes over the time during the period in which the providers were working with (or continuing to work with) schools.

Although most pre/post survey items did not have statistically significant changes (and some items had little room for improvement since they were high to begin with), there were some statistically significant changes over the course of the research project. Specifically, by the time of the post-survey educators were more likely to say:

- academic research influenced their *decision-making* around what area of teaching they should focus on ($p = 0.001$, $\hat{r} = 0.33$);
- they knew where to *find* relevant research ($p = 0.002$, $\hat{r} = 0.31$);
- they felt confident about *analysing* information from research ($p = 0.002$, $\hat{r} = 0.3$);

- they were able to *use* information from research to determine how they would implement new strategies (p = 0.002, $\hat{r}$ = 0.3);

- information from research played an important role in *informing* their teaching practice (p = 0.02, $\hat{r}$ = 0.2); and

- their school leaders encouraged them to use information from research to improve their practice (p = 0.023, $\hat{r}$ = 0.16).[86]

In interviews, educators reported changes to their classroom practice as a result of the evidence they were using, ranging from easy to difficult and simple to extensive. They also explained how evidence reinforced existing teaching practices (e.g. when it showed them *why* a particular strategy was important).

Where educators indicated there had been a change in student outcomes, they were largely positive (and sometimes extremely positive) or said it was too early to tell. Very few educators or schools had aggregated pre and post assessment data to monitor and evaluate the impact of changes on student outcomes on skills relevant to the focus areas. School leaders often mentioned how they were waiting to see impacts within standardised or validated assessment tool data or aggregated data platforms. Monitoring of impact is an area where providers and other stakeholders could potentially provide greater assistance.

Across the participating schools, sustaining change over time was difficult. Educators believed sustainability was more likely to be achieved when changes were small or easy to implement; they were structurally embedded in school organisational structures and scaled out across staff and (where appropriate) across the curriculum/subject areas; they were seen to improve student outcomes; there was reflection on previous changes; there was an expectation for the change to sustain over time; and, depending on the strategy, there were necessary resources to support changes into the future.

There is a tension between the first of these — the small incremental changes that educators see are needed for practices to become embedded — and the sometimes large changes needed for educators to improve student outcomes (particularly in schools with high levels of educational disadvantage). This tension was also evident in comments regarding pressure from external stakeholders (e.g. departments) for schools to meet multiple targets in a given year. However, system pressures to improve quickly and prioritise multiple focus areas may make it difficult to commit sufficient time to deeply embed change.[87]

4.1.7. *Evidence mobilisation enablers and barriers are largely known and predictable*

As this research investigation was not designed to test the effectiveness of different implementation strategies, it is not possible to comment on which enablers were essential (or which barriers were insurmountable) in mobilising evidence. However, a number of insights can be gleaned from educators' reports of the features that helped and hindered their evidence mobilisation efforts.

First, educators experienced numerous enablers and barriers to evidence mobilisation across evidence characteristics, professional learning characteristics, wider contexts, school

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[86] Specifically, there was a statistically significant difference over time (p = 0.023, $\hat{r}$ = 0.16) to the statement "My school leaders or mentors do not encourage me to use information from research to improve my practice", suggesting an increased level of leadership during the project.

[87] While timeframes for implementation of interventions differ, the notion that implementation takes time is well-established in the implementation science literature. It is not uncommon for implementation processes in service settings to take 2-4 years (see Forgatch et al., 2013; Albers et al., 2017).

and classroom contexts and educator characteristics (sections 3.4 and 3.4.3). Educators' experiences of these features were sometimes shared and sometimes different in that:

- some features were present for some educators and seen as key enablers, and were absent or lacking for others (or at other times) and seen as key barriers — guidance in finding relevant, high-quality research and adapting it to the school or classroom; support from colleagues; and regular, job-embedded meeting time;[88]

- some features were commonly experienced as key enablers — support from school leaders, and external expertise of providers; and

- some features were commonly experienced as key barriers — change fatigue due to system requirements/high pressure for change; high staff turnover; and difficulty trialling and monitoring impact.

Second, the enablers and barriers identified by educators in this research investigation were generally reflective of enablers and barriers in the literature on evidence mobilisation, both in terms of their content and the fact that there were a number of them (e.g. Dagenais et al., 2012; Nutley et al., 2007). In particular, seven of the eight enablers and barriers evident in Prendergast & Rickinson's (2019) study of 67 Catholic schools in Melbourne were not only present here, but were among the key enablers and barriers.[89]

Third, practices effective in school improvement generally (e.g. strong instructional leadership: Robinson, Lloyd & Rowe, 2008) were also identified as enablers to evidence mobilisation. This suggests research mobilisation should also be in the interests of where a school is heading with school improvement.

Fourth, some ways in which the enablers and barriers identified here differ or extend concepts in the literature are:

1. one of the common findings in evidence mobilisation research is that providing access to research is not sufficient, which was reflected in this study in terms of the numerous other processes and enabling conditions needing to be present for evidence mobilisation. The focus on providing research (or providing access to research), however, underestimates the active role schools do or could play in finding research specific to their needs and interests. This task of finding and accessing relevant, high-quality research (i.e. of trawling through often extensive research and discerning which is the most reliable and applicable, or of searching for more specific evidence beyond general principles and strategies) should not be underestimated.[90]

2. school structures and routines and leadership support/direction are widely seen to help evidence mobilisation. Some of these enablers could be seen as relating to the general school and classroom context and others could be seen as specific strategies for mobilising evidence. In this sense, there was an overlap between the enablers and barriers and core steps in evidence mobilisation processes.

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[88] Beyond the key enablers and barriers, there were also some features that involved contradictory experiences (e.g. funding was sufficient and an enabler for some government schools and insufficient and a barrier for others).

[89] One feature was identified by educators in the Prendergast & Rickinson (2019) study that was not raised here — jurisdiction support for evidence (i.e. support from Catholic Education Melbourne) as an enabler. Educators in this research investigation spoke more of inconsistent advice from education departments regarding evidence-informed practices, although any comparison may be difficult due to different governance structures in Catholic versus government schools.

[90] In their study of evidence-based decision makers among education administrators, Honig & Coburn (2007) argue that the search process is an understudied part of evidence use.

3. enablers and barriers observed were not static but were co-created. For example, educators described how providers supported enabling conditions of establishing school structures and protocols. In this sense, there was an overlap between the enablers and barriers and educator outcomes associated with involvement with providers.

4. school-based enablers were a mix of organisational structures (e.g. ensuring regular protected meeting time) and instructional features (e.g. school leaders going into classrooms to support teachers to try new practices).

We do not know the link between educator reported enablers and barriers and superficial or deep evidence mobilisation, although it is probable barriers may influence the surface level use of evidence. Enablers or barriers that are already known can be predicted or anticipated by education stakeholders, and systematically addressed prior and during evidence mobilisation to ensure educators are supported in making changes to teaching practice and using evidence in the classroom.

4.1.8. *Gaps exist between the evidence educators seek and the evidence available*

Finding relevant, rigorous research specific to a focus area was a key barrier raised by educators, and considerable time was spent in interviews exploring how evidence was selected, and whether and how professional learning providers assisted with finding this evidence. Educators' ability to source relevant, rigorous research is critical for provider-facilitated approaches, but it is also useful when educators are trying to locate more specific, relevant examples related to a more provider-led approach. The fact that many educators reported that finding relevant, rigorous research specific to a focus area is challenging without assistance may partly relate to other identified barriers (e.g. workload issues). Limitations of the evidence itself have also been well-documented elsewhere—e.g. Farley-Ripple et al. (2018) describe gaps in the type and characteristics of research products and the research community, and Sharples (2013) describes the lack of fit-for-purpose evidence for teachers.

However, there was one aspect of the gap in the degree to which research addresses current problems of practice that warrants further examination – that there can be a mismatch between the specificity of evidence available, and the specificity of evidence sought. In other words, there was often a mismatch between the level of specificity that educators required to implement evidence in the classroom and the level of specificity available in the research they were accessing. For example, educators were aware of evidence supporting modelled writing, but to implement this with their students, they were searching for research specifically about *"the punctuation aspects of modelled writing"*, and answers to why students might use punctuation in shorter passages of text but not transfer that skill to longer passages of text. In other words, they were not just after broad *principles* of practice that might be found in evidence summaries — they were seeking answers to specific questions and looking for specific strategies or techniques.

Various reasons may explain why this attempt to find specific strategies and techniques is so difficult:

*   **the evidence *does* exist, but only as part of an integrated program:** If teachers were implementing empirically-tested integrated programs, and the components of those programs were described in sufficient detail (which is often not the case, and is a criticism of much program evaluation research: Albers et al., 2017), then it may be that there is evidence for practices at a more granular level. However, again, these may only claim to be evidence-based practices if they are implemented as

part of that integrated program, and the external validity of that program —i.e. the extent to which it applies to a given population or context — would still be up for question.

- **the evidence *does* exist, but is difficult to locate:** It may be particularly difficult to find evidence that is highly specific, particularly if educators do not have access to research databases.

- **the evidence *could* exist, but does not yet exist:** While the number of empirical studies in education research has increased significantly in recent decades, the evidence base in certain areas needs considerable development. For example, despite its similar complexity and multiple components (spanning topics and skills such as emergent writing, syntax, spelling, genre and audience awareness), research on writing has lagged behind research on reading (Coker & Lewis, 2008).

- **the evidence *can only exist up to a point*:** This has two components. First, the very nature of putting evidence into practice in education means there will always be work involved in adapting evidence to meet students' needs, and combining research with practice-based understandings (including by incorporating research within teachers' mental models).[91] In this sense, there is a limit to the extent to which evidence can be found to meet the specific needs of educators (and their students). Second, in general, the more discrete is the technique or practice sought, the less likely it is that the practice can claim to be "evidence-based" (in the sense of empirically tested). Given the holistic nature of teaching, the multiple variables involved, and the expense and practicalities of carrying out research, it is unlikely that empirical trials will/could be carried out on the full range of granular techniques used by teachers.

Overall, this suggests it would be useful: (a) for researchers to further examine educators' decision-making while searching for evidence, as well as their understandings of how and when evidence can be used; (b) for educators to build their understanding of the limits of evidence use, different kinds of research, and when it is possible or is not possible to draw on research; and (c) for intermediaries to provide more support in mapping the (granular) topics for which there is extensive, developing, limited or no empirical evidence available.[92]

4.2.   Implications for schools

Overall, these findings mean it is important for schools to recognise the dimensions of deep evidence mobilisation, the collaborative aspects of mobilising evidence, and the critical role that schools and school leaders play in evidence mobilisation. Evidence mobilisation should not be seen as the responsibility of individual staff or something that can be 'outsourced' to external providers. If evidence mobilisation is currently occurring at an individual level, there may be benefits in shifting to a more collective, systematic form of use. To do this, it is important for schools to develop or maintain embedded organisational structures for mobilising evidence (e.g. protected meeting times; opportunities for lesson observations; and alignment with school goals).

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[91] This idea of incorporating formal research within practitioner understandings is well-defined elsewhere: e.g. Coldwell et al. (2017).

[92] Evidence and gap maps may be useful in this respect. These are visual tools that provide a precise and accessible overview of the amount and strength of evidence that exists within a given area. They show where there is strong, weak or non-existent evidence across identified interventions and their associated outcomes, and are used elsewhere in education (e.g. International Initiative for Impact Evaluation, 2020).

Many schools have an overall approach to enhancing teaching quality that involves the support of professional learning providers. Schools who work with, or wish to work with, external professional learning providers should recognise there are different ways of approaching evidence mobilisation (from provider-led to provider-facilitated to school self-improvement) and consider which elements or mixture of elements may align with their school context. They should also look for professional learning that supports the dimensions of deep evidence mobilisation.

More specific implications for schools are listed in Table 15.

Table 15: Specific implications for schools

Process or condition	Implication
Selecting focus areas	• Check how many focus areas are operating at once (for individuals, groups of teachers, and at the whole school level) • Consider the balance of literacy- and numeracy-specific focus areas with general pedagogical approaches (depending on whole-school goals) • Distinguish between the concept of using student data (e.g. to inform the selection of focus areas and assess the impact of changes) and the concept of drawing on research evidence (e.g. to identify evidence-based practices) — both are important
Finding the evidence	• Consider who will usually be sourcing the evidence, how much time that is likely to take, and what skills will be required. Consider upskilling relevant staff (e.g. in research literacy and places to source evidence), and/or seek assistance to find evidence or use quality-assured sites and sources[93]
Understanding and using the evidence	• Plan specifically around how research will be distributed and unpacked by teachers • Support opportunities for teachers and teams to practise and gain feedback on their use of evidence-informed strategies, and to reflect on these • Consider whether and how it may be possible to assess specific changes in teaching (e.g. through formative assessment) • Establish/maintain a central repository of evidence-based resources (including the original articles, examples of application and activities developed by educators within the school)
Sustaining evidence use	• Plan for sustainability (e.g. by upskilling mid-level leaders) so that expertise is not solely associated with the provider, but also recognise that having only short-term involvement with a provider may be seen as a barrier to ongoing evidence use • Reflect on outcomes
Enabling conditions	• Ensure school leaders understand the evidence and are actively involved in mobilisation processes • Ensure there is protected time for mid-level leaders involved in evidence mobilisation • Ensure there is protected meeting time for evidence mobilisation

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[93] This idea has parallels with the "Research Leads" project being undertaken by Catholic Education Melbourne (CEM, 2020).

Process or condition	Implication
	• Recognise that early career teachers are learning a great deal at once and experienced teachers may be making significant changes to previous practice • Continue with usual good practice – general enablers in effective school leadership such as having and communicating clear goals, supporting observations and feedback, and ensuring meetings were purposeful were also identified as enablers for evidence mobilisation

4.3.   Implications for professional learning providers

Although this research investigation did not evaluate the effectiveness of professional learning provision, it has implications for what professional learning providers could keep doing, extend or add to their repertoire of evidence mobilisation approaches.

As a first step, professional learning providers should consider how they work across the *stages* of evidence mobilisation (i.e. how/whether they assist educators to identify focus areas; identify research to support focus areas; and/or understand and use evidence). They should also consider what *approach* to evidence mobilisation they are taking (from provider-led to provider-facilitated to school self-improvement), and what this may mean in the context of schools they support.

Providers should recognise the central role of schools and educators in evidence mobilisation. They could be explicit about what organisational structures are needed to support changes in teaching practice or reinforce effective teaching practice (as relevant to their professional learning). Where possible, they could also support schools in establishing enabling conditions for evidence mobilisation.

Providers should be wary of superficial evidence mobilisation and work to ensure evidence selection and use extends beyond positive attitudes and self-reported confidence in research use, even in their own program. They could provide schools with greater assistance in monitoring how focus areas for professional learning are associated with student outcomes (e.g. by assisting with processes for aggregating formative student assessment data). Providers could also offer longer-term check-ins with schools to follow-up on how evidence is being used in practice, and perhaps assist schools with longer-term monitoring of progress and summative student achievement data.

More specific implications are listed in Table 16.

Table 16: Specific implications for professional learning providers

Process or condition	Implication
Selecting focus areas	• Consider who drives the selection of focus areas • Check how many other focus areas a school or educator has for that semester/year
Finding the evidence	• Be explicit about who will usually source the evidence and, where appropriate, help to upskill nominated educators (e.g. mid-level leaders) so they can find rigorous evidence specific to their team's focus areas • Where evidence is sourced by the provider, be explicit about what evidence supports the professional learning and share it with participants so they can understand the 'why', which may involve explicitly discussing why particular research is rigorous
Understanding and using the evidence	• Support schools in monitoring and assessing the impact of evidence-informed changes, both in the short and longer-term
Sustaining evidence use	• Consider if there can be a longer-term check-in with schools to support them in sustaining the use of evidence
Enabling conditions	• Ask which other providers the schools are currently working with, and make sure the approaches complement each other and do not overwhelm staff • Consider how networks between schools may be of assistance in some contexts and for certain purposes

4.4. Implications for departmental and other stakeholders

Various intermediaries and stakeholders (including education departments) can play a role in addressing the challenge faced by educators in sourcing and using relevant, rigorous research.

Departments and statutory authorities (e.g. the Victorian Institute of Teaching) frequently require or encourage educators and schools to use "evidence-based" or "evidence-informed" teaching strategies,[94] and they should continue to do so. Greater clarification would exist, however, if departments consistently distinguished between "research evidence" (which educators should use to, e.g., understand which interventions are more likely to improve student learning) and "student data" (i.e. the collection of supporting student or school-level data which educators should use alongside research evidence to identify student needs and monitor progress). Consistent and nuanced use of terminology could help stakeholders to develop a shared understanding of 'evidence-informed teaching'. Departmental and other stakeholders should also use concepts related to deep use of evidence to explicitly define, describe and share what this looks like at the school level, at the teacher level and within professional learning.

Stakeholders should recognise that embedding organisational structures and changing teaching practice can take significant time (e.g. years not weeks or months) and consumes finite school and educator bandwidth for change. Educators in this study also saw small

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[94] For example, evidence-based strategies are mentioned throughout the NSW Department of Education's *School Excellence Framework* (NSW, 2019) and registration requirements for bodies like the Victorian Institute of Teaching.

changes as more likely to be embedded. To this end, stakeholders should consider whether multiple, ambitious goals are likely to embed in schools in short timeframes, and limit the number of changes required by educators and schools at any given time, especially when there are other major disruptions or priorities.

Schools and educators also need rigorous evidence to support specific focus areas for improving teaching practices and student learning. Departments and other stakeholders (in consultation with educators and researchers) should identify gaps in research of effective teaching strategies, support rigorous research in these areas, and help schools to find this research when they need it.

More specific implications are listed in Table 17.

Table 17: Specific implications for departmental and other stakeholders

Process or condition	Implication
Finding the evidence	• Where appropriate, build research literacy among school and mid-level leaders to increase capacity in identifying high-quality, relevant research • Make it easy for schools to access rigorous evidence in specific areas and help ensure evidence is linked to curriculum documents and other teaching resources
Understanding and using the evidence	• Provide open source examples of evidence use – e.g. videos of number talks or guided reading • Recognise that many deliberate activities are required to support evidence use and understanding in schools, and the appropriate evidence and evidence mobilisation activities will likely depend on the school's specific context (e.g. focus areas and student needs, educator characteristics and school organisational structures)
Sustaining evidence use	• Support longer-term (rather than very short-term) involvement by professional learning providers • Encourage data collection on evidence use that assesses educator knowledge and skill (not just self-reported use) and monitors changes in student outcomes
Enabling conditions	• Promote aligned and consistent messaging about evidence-informed teaching strategies within departmental materials, among departmental staff who work directly with schools, and when decisions are made about school resourcing (to ensure there is wide understanding of rigorous educational evidence and support for deep mobilisation of evidence) • Support general principles of good practice, including high quality instructional school leadership • Consider how both school goals/plans and individual performance and development goals influence evidence use (i.e. balance the requirement for individual demonstration of capacity to use research with the idea that evidence mobilisation is built around collaboration and should fit within broader school structures). In particular, consider the number of ambitious goals and priorities in annual school planning requirements, and the timeframes likely needed to embed change

5.   Limitations and implications for researchers

This chapter sets out limitations of the research and research design. All research has limitations, and this is even more the case when investigations move from the lab to the real-world environments of schools and teaching. We describe the following limitations in some depth, not only so the findings may be understood within these limitations but that researchers may improve on these in future investigations.

Our observational research study design — literally *observing how evidence was mobilised* — allowed us to take a snapshot of schools and the way educators used evidence at a point in time across different professional learning providers. It did not allow us to examine in detail the differences between providers — or the potential impact of providers on educator knowledge, attitudes and practice — even though our findings suggest there were differences in the content, style, intended outcomes, implementation and approach to evidence mobilisation. This is not a critical limitation given the purpose of this research was not to evaluate the impact of providers on educator behaviour but to investigate how schools and educators mobilise relevant evidence to where it is needed. Even so, we acknowledge potential differences between providers remain inherent complicating factors with respect to interpreting these findings about evidence use and mobilisation in schools.

There were several limitations related to the 'real-world' nature of our investigation. For example:

- we were unable to ascertain a true 'baseline' in evidence mobilisation (i.e. what educator knowledge, attitudes and behaviours were prior to working with providers). This was because some schools had already been engaged with the professional learning providers at the start of this investigation (some for many years), and because participant selection procedures/ethics approval timelines meant educators could only participate and complete pre-surveys **after** they had begun the professional learning in the time under research;

- the time allocated for data collection, following education department human research ethics approval procedures across NSW and Victoria, meant pre- and post-surveys occurred within the one semester rather than being spread out across a year;

- changes in the delivery of professional learning from original program descriptions (e.g. modifications to the Training 24/7 design), a common process during the program implementation phase, meant initial interview and post-survey questions had to be amended; and

- we were only able to establish the knowledge focus areas of schools and educators at the point of school visits, and confirm this in the post-surveys, meaning questions used to assess educator knowledge could not be asked in the pre-surveys. Similarly, the number and variety of focus areas both within and across schools meant that educator content knowledge questions at the end of the investigation were not as specific to focus areas as we would have liked them to be.

We were aware from other research of some potential difficulties in investigating educator attitudes to evidence. For example, Nelson et al. (2017) noted asking teachers directly about their attitudes to research (i.e. *priming* them for subsequent questions) generates very high levels of apparent research engagement; the team addressed this by 'anchoring' survey questions to a specific teaching approach, enabling a more realistic insight into the role of research in informing decision making. Our survey was carefully designed to avoid

'priming' from the outset — therefore providing an indication of the relative importance of research evidence alongside other influences. However, the way in which schools and teachers were informed about the purpose of investigation and even the name of the project ("Getting Evidence Moving in Schools") meant priming was difficult to avoid. It is important the learning from this approach is considered and applied in other studies that seek to understand teacher research engagement in the future.

We acknowledge some limitations related to the research design and length of this investigation. While our decision to use a mixed-methods approach preferencing quantitative (i.e. survey) data over qualitative data (i.e. interviews) has led to a cohesive and focused investigation of evidence mobilisation in schools, there is a risk we may have missed some additionally useful qualitative information on this issue. We would also have liked to have gone into further analytic depth at the level of schools, to identify patterns in evidence mobilisation within and across schools, but were limited by the time-frame of this investigation.

Future research could:

- **Include a larger sample of mid-level school leaders:** The relatively small number of mid-level leaders in the sample (n = 26, forming 15% of participants) limited the extent to which we could examine their role in evidence mobilisation.[95] Yet, mid-level leaders (particularly in large schools and secondary schools) can play an important role in school improvement, and their role should be examined in greater depth (Dinham, 2007).

- **Look more specifically at years of experience:** In this investigation, as data collected and analysed about participants' levels of experience somewhat correlated with data collected and analysed about participants' roles (i.e. school leaders tended to have the most years of experience), subsequent analysis focused mostly on role rather than years of experience. There is a large body of research establishing that *early career* teachers, with appropriate supports, improve in effectiveness (Podolsky, Kini & Darling-Hammond, 2019). However, the notion that returns to experience plateau or reach a 'cap' when teachers have a number of years of experience is also now being challenged (Podolsky, Kini & Darling-Hammond, 2019). This means that the extent to which teachers continue to increase in effectiveness throughout their teaching careers remains an important question, and it is important to further explore how teachers with different levels of experience mobilise research evidence.

- **Involve schools that have had less prior involvement with providers:** Although the schools in the sample were relatively diverse (section 2.5.2), they self-selected into the professional learning and in many cases had worked with the providers for years before this investigation. Many of these schools also described high levels of staff willingness to engage with research and school environments supportive of evidence mobilisation (section 3.4.2). In the wider school community, barriers and enablers relating to (e.g.) school environment, school leadership and staff engagement may differ from those presented in this investigation, and therefore present other challenges and opportunities for evidence mobilisation.

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[95] It is unclear why there were relatively few mid-level leaders in the sample, given that staff of all roles were invited to participate in the project. It may be that there are comparatively fewer mid-level leaders in primary schools (or in the participating primary schools) or because mid-level leaders were particularly busy and unable to participate.

- **Explore a narrow range of focus areas:** Even though this investigation examined *primary school literacy and numeracy* teaching strategies, the wide range of focus areas used by educators, and the research time required to establish what these were, presented challenges for data collection and complicated the analysis process. In particular, the range of focus areas made it more difficult to create appropriate content knowledge survey questions and ensure lesson observations were appropriately focussed. These issues could be minimised by being explicitly considered in the research design and when recruiting participants, by communicating early with providers and educators about their focus areas (e.g. through a brief survey), and by confirming with educators closer to data collection regarding any changes to focus areas.

- **Consider interim outcomes at the school leadership level:** At least two of the providers considered school leadership outcomes an express aim of their professional learning, and some school leaders and mid-level leaders commented on changes in their school leadership. While specific aspects of school leadership were examined as part of this research investigation (e.g. in terms of enablers and barriers and when discussing school structures to assist planning), our focus was on outcomes related to teaching (e.g. how teaching practice changed) and student learning. Further research might explicitly measure interim outcomes at the school leader level to provide further insights into evidence mobilisation processes.

- **Use mixed methods to identify differences between self-reported practice and actual practice (as in this investigation):** Given the differences found in this research between self-reported confidence and measures of teacher knowledge in relation to using evidence, relying on educator self-reports in relation to evidence use is likely to be insufficient for establishing evidence use in practice. Despite being difficult to gather during this research investigation given the number of focus areas, it was useful to measure teacher knowledge and observe classroom practice, in addition to collecting self-reported survey data from teachers. The subsequent triangulation of data sources gave a better insight into the depth of evidence use and changes to authentic teacher knowledge and practice. As recommended elsewhere (Brown and Zhang, 2017; Nelson et al., 2017), it is therefore worth exploring teacher use of evidence in multiple ways.

- **Use innovative methods to explore teachers' mental models and development of expert evidence use:** Measuring authentic evidence use presents inherent difficulties for researchers particularly if teachers who have developed expertise in a particular practice have incorporated evidence "in an automatic rather than conscious way", and if teachers who have developed proficiency are regularly adapting strategies away from 'rules', 'guidelines' or 'principles' to make them more effective (Brown & Rogers, 2014). This exploration of expert use of evidence (which also links to literature on teachers' mental models) could build on methods such as Brown & Rogers' (2014) adapted levels of use scale. Development of teachers' thinking and mindsets could also be explored through methods such as video elicitation interviews. These have been used by Pyle et al. (2020) to ask kindergarten teachers to narrate and explain their teaching practices. They could potentially help to capture the decision-making of teachers who are using professional discretion informed by evidence (to the extent that this decision-making remains a conscious process).

- **Study evidence mobilisation over longer time periods and in relation to student outcomes:** The development of teacher expertise in any particular area is thought to occur gradually over time and through stages from non-use through various

levels to expert use (Brown & Rogers, 2014). Moreover, in this research investigation, educators emphasised the difficulty of sustaining evidence use over time, and raised enablers and barriers associated with sustainability. Studying the development of expertise, and the ways in which evidence use can be sustained, would require longer-term studies (e.g. perhaps up to five years) with monitoring of teacher and student outcomes at different time points. Longer-term studies (and collection of high-quality and reliable student data) would also enable investigation of an association between educator evidence mobilisation and student performance. Sustainability studies could also draw on lessons and frameworks from implementation science (e.g. Chambers, Glasgow & Stange, 2013).

References

Albers, B., and Pattuwage, L. (2017). *Implementation in Education: Findings from a Scoping Review*. Melbourne: Evidence for Learning. Available: www.ceiglobal.org/application/files/2514/9793/4848/Albers-and-Pattuwage-2017-Implementation-in-Education.pdf

Australian Productivity Commission (2016). *National education evidence base*. Report no. 80. Canberra: Productivity Commission. Available: www.pc.gov.au/inquiries/completed/education-evidence/report/education-evidence-overview.pdf

Bastow Institute of Educational Leadership. (2019). *Leading Mathematics*. Available: www.bastow.vic.edu.au/professional-learning/numeracy-suite/leading-mathematics

Bennett, T. (2015). Evidence and quality. In C. Brown (Ed.), *Leading the use of research & evidence in schools* (29-38). London: IOE Press.

Boller, K., Daro, D., Del Grosso, P., Cole, R., Paulsell, D., Hart, B., … Hargreaves, M. (2014). *Making replication work: Building infrastructure to implement, scale-up, and sustain evidence-based early childhood home visiting programs with fidelity*. Washington, DC: Children's Bureau, Administration for Children and Families, US Department of Health and Human Services.

Bragg, L.A., Widjaja, W., Loong, E. Y., Vale, C., and Herbert, S. (2015). Promoting reasoning through the magic V task. *Australian Primary Mathematics Classroom*, *20*(2), 10-14.

Brown, C. and Rogers, S. (2014). Measuring the effectiveness of knowledge creation as a means of facilitating evidence-informed practice in early years settings in one London borough. *London Review of Education*, *12*(3), 245-260.

Brown, C. and Zhang, D. (2017). Accounting for discrepancies in teachers' attitudes towards evidence use and actual instances of evidence use in schools. *Cambridge Journal of Education*, *47*(2), 277-295.

Burstein, L., McDonnell, L., Van Winkle, J., Ormseth, T., Mirocha, J., & Guiton, G. (1995). *Validating national curriculum indicators*. Santa Monica, CA: RAND.

Catholic Education Melbourne (2020). *Research Leads*. Available: www.cem.edu.au/About-Us/Research-in-Schools/School-Research-Engagement/Research-Leads.aspx

Centre for Education Statistics and Evaluation (CESE). (2017). *Cognitive load theory: Research that teachers really need to understand*. Available: www.cese.nsw.gov.au//images/stories/PDF/cognitive-load-theory-VR_AA3.pdf

Centre for Education Statistics and Evaluation (CESE). (2018). *Cognitive load theory in practice: Examples for the classroom*. Available: www.cese.nsw.gov.au//images/stories/PDF/Cognitive_load_theory_practice_guide_AA.pdf

Chambers, D.A., Glasgow, R.E., and Stange, K.C. (2013). The dynamic sustainability framework: Addressing the paradox of sustainment amid ongoing change. *Implementation Science*, *8*, 117.

Chetty, R., Friedman, J. N., and Rockoff, J. E. 2014. Measuring the Impacts of Teachers II: Teacher Value-Added and Student Outcomes in Adulthood. *American Economic Review*, *104*(9): 2633-79.

Coker, D. and Lewis, W. E. (2008). Beyond *Writing Next*: A discussion of writing research and instructional uncertainty. *Harvard Educational Review*, 78(1), 231-251.

Coldwell, M., Greany, T., Higgins, S., Brown, C., Maxwell, B., Stiell, B., Stoll, L., Willis, B. and Burns, H. (2017). *Evidence-informed teaching: An evaluation of progress in England*. Project Report Appendices. London: Department for Education (UK). Available: http://dro.dur.ac.uk/22311/1/22311.pdf?DDD29+vrfd57+d700tmt

Dagenais, C., Lysenko, L., Abramai, P. C., Bernard, R. M., Ramde, J., and Janosz, M. (2012). Use of research-based information by school practitioners and determinants of use: A review of empirical research. *Evidence & Policy*, 8(3), 285-309.

Damschroder, L.J., and Lowery, J.C. (2013). Evaluation of a large-scale weight management program using the consolidated framework for implementation research (CFIR). *Implementation Science*, 8, 1-17.

Department of Education and Training, Victoria. *Literacy Teaching Toolkit: Modelled writing*. Available: www.education.vic.gov.au/school/teachers/teachingresources/discipline/english/literacy/writing/Pages/teachingpracmodelled.aspx

Dinham, S. (2007). The secondary Head of Department and the achievement of exceptional student outcomes. *Journal of Educational Administration*, *45*(1), 62-79.

Farley-Ripple, E., May, H., Karpyn, A., Tilley, K. and McDonough, K. (2018). Rethinking Connections Between Research and Practice in Education: A Conceptual Framework. *Educational Researcher*, *47*(4), 235-245.

Farley-Ripple, E. N. (2015). *'Deep' Evidence Use: A Framework for Practice and Capacity Building*. Paper presented at AARE Conference, Fremantle, December 2015.

Figgis, J., Zubrick, A., Butorac, A., and Alderson, A. (2000). *Backtracking practice and policies to research*. In DETYA *The Impact of Educational Research*. Canberra: DETYA.

Forgatch, M. S., Patterson, G. R., and Gewirtz, A. H. (2013). Looking Forward: The Promise of Widespread Implementation of Parent Training Programs. *Perspectives on Psychological Science*, *8*(6), 682–694.

Gale, N., Heath G., Cameron, E. et al. (2013). Using the framework method for the analysis of qualitative data in multi-disciplinary health research. *BMC Medical Research Methodology*, 13:117.

Hanushek, E. A. (2011). The economic value of higher teacher quality. *Economics of Education Review*, 30, 466-479.

Hattie, J. A. C. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. Milton Park, Oxon.: Routledge.

Honig, M.I., and Coburn, C. (2007). Evidence-based decision making in school district central offices: Toward a policy and research agenda. *Educational Policy*, *22*(4), 578-608.

International Academy of Education [IAE]. (c. 2019). *The Principles of Instruction*. Available: https://teachinghow2s.com/faq/principles-of-instruction

International Initiative for Impact Evaluation [3ie]. (2020). Evidence gap maps. Available: https://www.3ieimpact.org/evidence-hub/evidence-gap-maps

Levin, B., Cooper, A., Arjomand, S., and Thompson, K. (2011). Can simple interventions increase research use in secondary schools? *Canadian Journal of Educational Administration and Policy*, *126*, 1-29.

Lord, P., Rabiasz, A., Roy, P., Harland, J., Styles, B. and Fowler, K. (2017). *Evidence-based literacy support: the 'Literacy Octopus' trial Evaluation Report and Executive Summary*. London: Education Endowment Foundation.

McCrae, P. (2018). *Expert teaching: What is it, and how might we develop it?* London: Institute for Teaching. Available: https://s3.eu-west-2.amazonaws.com/ambition-institute/documents/What_is_Expert_Teaching_-_Peps_Mccrea_1.pdf

McLeod, B. D., Southam-Gerow, M. A., Tully, C. B., Rodriguez, A., & Smith, M. M. (2013). Making a Case for Treatment Integrity as a Psychosocial Treatment Quality Indicator for Youth Mental Health Care. *Clinical Psychology Science and Practice*, *20*, 14–32.

Monash Q Project (2000). *Towards quality use of research evidence in education discussion paper*. Clayton: Monash University. Available: www.monash.edu/__data/assets/pdf_file/0009/2330577/Monash-Quality-Use-of-Research-Evidence-discussion-paper.pdf

Morse, J. (2000). Determining sample size. *Qualitative Health Research*, *10*, 3-5.

Nelson, J., Harland, J., Martin, K., Sharp, C. and Roy, P. (2019). *Formative evaluation of the North East Primary Literacy Scale-up Campaign.* London: Education Endowment Foundation. Available: www.nfer.ac.uk/formative-evaluation-of-the-north-east-primary-literacy-scale-up-campaign

Nelson, J., Mehta, P., Sharples, J. and Davey, C. (2017). *Measuring Teachers' Research Engagement: Findings from a pilot study.* London: Education Endowment Foundation.

NSW Government. (2017). *School excellence framework: Version 2*. Available: https://policies.education.nsw.gov.au/policy-library/related-documents/school-excellence-framework-version-2.pdf

Nutley, S., Walter, I., and Davies, H.T.O. (2007). *Using evidence: How research can inform public services*. Bristol: Policy Press.

O'Donoghue, G., Doody, C., & Cusack, T. (2011). Using student centred evaluation for curriculum enhancement: An examination of undergraduate physiotherapy education in relation to physical activity and exercise prescription. *Studies in Educational Evaluation*, *37*(2-3), 170-176.

Palinkas, L. A., Aarons, G. A., Horwitz, S., Chamberlain, P., Hurlburt, M., & Landsverk, J. (2011). Mixed method designs in implementation research. *Administration and policy in mental health*, 38(1), 44–53.

Penuel, W. R., Briggs, D. C., Davidson, K. L., Herlihy, C., Sherer, D., Hill, H. C., Farrell, C., and Allen, A. (2017). How school and district leaders access, perceive and use research. *American Educational Research Association [AERA] Open*, *3*(2), 1-17.

Podolsky, A., Kini, T. and Darling-Hammond, L. (2019). Does teaching experience increase teacher effectiveness? A review of US research. *Journal of Professional Capital and Community* (June 2019).

Poet, H., Mehta, P. and Nelson, J. (2015). *Research Use in Schools: Survey, analysis and guidance for evaluators*. Slough: National Foundation for Educational Research.

Prendergast, S. and Rickinson, M. (2019). Understanding school engagement in and with research. *The Australian Educational Researcher*, *46*(1), 17-39.

Proctor, R. (2015). Teachers and school research practices: The gaps between the values and practices of teachers. *Journal of Education for Teaching*, *41*(5), 464-477.

Pyle, A., DeLuca, C., Danniels, E. and Wickstrom, H. (2020). A model for assessment in play-based kindergarten education. *American Educational Research Journal*, *57*(6), 2251–2292.

Rickinson, M., Perrotta, C., and Selwyn, N. (2020). *Getting Evidence Moving in Schools (GEMS) Research Framework.* Melbourne: Faculty of Education, Monash University.

Robinson, V., Lloyd, C., & Rowe, K. (2008). The impact of leadership on student outcomes: An analysis of the differential effects of leadership types. *Educational Administration Quarterly*, *44*(5), 635-674.

Rosenshine, B. (2012). *Principles of Instruction: Research-Based Strategies That All Teachers Should Know*. American Educator, Spring 2012. American Federation of Teachers, Washington, DC. Available: www.aft.org/sites/default/files/periodicals/Rosenshine.pdf

Saunders, B., Sim, J., Kingstone, T., Baker, S., Waterfield, J., Bartlam, B., … & Jinks, C. (2018). Saturation in qualitative research: exploring its conceptualization and operationalization. *Quality & Quantity*, *52*(4), 1893-1907.

Science of Learning Resource Centre [SLRC] (c. 2014). *Pre-Activate Strategies to Guide Learning*. Available: www.slrc.org.au/pen-principal-12/

Seidenberg, M. (2017). *Language at the Speed of Sight*. New York: Basic Books.

Sharples, J. (2013). *Evidence for the frontline*. London: Education Endowment Foundation. Available: www.alliance4usefulevidence.org/assets/EVIDENCE-FOR-THE-FRONTLINE-FINAL-5-June-2013.pdf

Sherrington, T. (2019). *Rosenshine's Principles in Action*. Woodbridge, UK: John Catt Educational Ltd.

Stark, H.L., Snow, P.C., Eadie, P.A. and Goldfeld, S.R. (2016) Language and reading instruction in early years' classrooms: the knowledge and self-rated ability of Australian teachers. *Ann. of Dyslexia*, *66*, 28-54.

Stoll, L., Greany, T., Coldwell, M., Higgins, S., Brown, C., Maxwell, B., Stiell, B., Willis, B., and Burns, H. (2018a). *Evidence-informed teaching: Self-assessment tool for schools*. London: Chartered College of Teaching. Available: www.emsyh.org.uk/assets/Uploads/CCT-Evidence-informed-teaching-self-assessment-tool-for-schools-1-1.pdf

Stoll, L., Greany, T., Coldwell, M., Higgins, S., Brown, C., Maxwell, B., Stiell, B., Willis, B., and Burns, H. (2018a). *Evidence-informed teaching: Self-assessment tool for teachers*. London: Chartered College of Teaching. Available: https://discovery.ucl.ac.uk/id/eprint/10042947/8/Stoll_Evidence-informed%20teaching%20self-assessment%20tool%20for%20teachers.pdf

Wandersman, A., Duffy, J., Flaspohler, P., Noonan, R., Lubell, K., Stillman, L., Blachman, M., Dunville, R. and Saul, J. (2008). Bridging the gap between prevention research and practice: The Interactive Systems Framework for Dissemination and Implementation. *American Journal of Community Psychology*, *41*, 171-181.

White, S., Nuttall, J., Down, B., Shore, S., Woods, A., Mills, M., and Bussey, K. (2018). *Strengthening a research-rich teaching profession for Australia*. Canberra: Australian Teacher Education Association (ATEA). Available: https://www.aare.edu.au/assets/documents/Strengthening-a-research-rich-teaching-profession-FOR-RESEARCH-PAGE-v2.pdf

Wiliam, D. and Leahy, S. (2015). *Embedding Formative Assessment: Practical Techniques for F-12 Classrooms*. Moorabbin: Hawker Brownlow Education.

Williams, D. and Coles, L. (2007). Teachers' approaches to finding and using research evidence: An information literacy perspective. *Educational Research*, *49*(2), 185-206.

Appendix A Project context and background

A.1 Funding

Evidence for Learning (an initiative of Social Ventures Australia) was a joint winner of the inaugural Eureka Benevolent Foundation Education Prize. The prize funds three to five-year projects that have the potential for widespread positive impact on education for disadvantaged students. Project GEMS is funded partly through the Eureka Benevolent Foundation Education Prize and with co-investment from the NSW and Victorian departments of education.

A.2 Partners

Project GEMS involves a number of partnerships with individuals or organisations in NSW, Victoria and the United Kingdom. The role of each of these organisations in the project is set out in Table A.2.

Table A.2: Organisations involved in Project GEMS

Organisation	Project role
Project funding and other support	
Eureka Benevolent Foundation	Project funding
Centre for Education Statistics and Evaluation (CESE)	Project funding (co-investor)
Bastow Institute of Educational Leadership	Project funding (co-investor)
Research and project management	
Evidence for Learning (E4L)	Project lead / brokering
Monash University Faculty of Education	Preparing the Research Framework
Centre for Evidence and Implementation (CEI)	Operationalising/delivering the Research Framework — i.e. seeking ethics approval, planning the project and adjusting the Research Framework to account for real world variations, and carrying out data collection, analysis and reporting
Project oversight and advice	
Steering group: • E4L Director, Matthew Deeble (Chair) • Bastow Director (or delegate) • CESE Executive Director (or delegate)	Oversight group providing overall guidance on the design and delivery of the project
Friends of GEMS group: • E4L Associate Director, Danielle Toon (Chair)	Informal advisory group for input into and review of outputs at key points to provide steerage on the research methodology

Organisation	Project role
• Philippa Cordingley (Centre for the Use of Research and Evidence in Education, UK) • Professor Jonathan Sharples (Education Endowment Foundation, UK) • Monash Researcher, Mark Rickinson • UNSW Fellow, Simon Breakspear (also the founder of a professional learning provider participating in the project)	

A.3   Additional project components

Although the research investigation is the main component of Project GEMS, the project involves additional components.

In addition to this Investigation Paper, the outputs of Project GEMS are:

- three Guidance Reports produced by Evidence For Learning (April 2019): (1) *Improving Literacy in Lower Primary*; (2) *Improving Literacy in Upper Primary*; and (3) *Improving Maths in Upper Primary and Lower Secondary* – these Guidance Reports were given to the professional learning providers involved in Project GEMS for optional use in their professional learning;

- a Research Framework (initial version dated May 2019; updated version dated June 2020; published version dated September 2020); and

- an Insights Paper to identify and communicate key lessons from the project to practitioners.

Appendix B   Additional information about the professional learning providers

This appendix contains more detailed descriptions of the professional learning providers involved in this research investigation.

Much of this information has been supplied directly by the professional learning providers.

Teaching Sprints (Agile Schools)

https://teachingsprints.com/

Teaching Sprints supports schools to shift teacher professional learning towards a model that is school-based, evidence-informed and practice-focused. It is a simple collaborative process for practice improvement that has been co-designed with hundreds of educators.
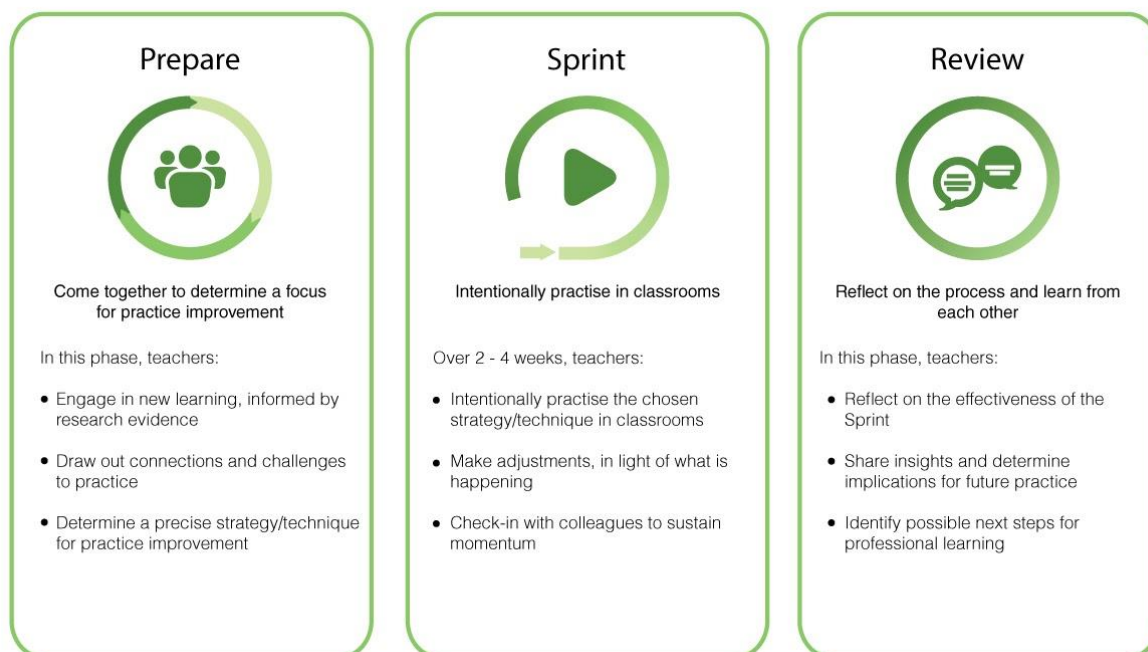
The three phases of a Teaching Sprint enable teachers to learn about, practise and review a small slice of their teaching over a period of about four weeks. Doing a one-off Teaching Sprint can of course have some benefit, but Teaching Sprints become more impactful when then are embedded as a regular team routine for practice improvement. Given limited time for professional learning in schools, the Teaching Sprints also takes a laser-like focus on only those practices that are supported by the best evidence from the field.

The process, protocols and research links are available freely online at www.teachingsprints.com

The Process

The three phases of the process can be described in more detail as follows:

Prepare	**Sprint**	**Review**
Come together to determine a focus for practice improvement	Intentionally practise in classrooms	Reflect on the process and learn from each other
In this phase, teachers:	Over 2 - 4 weeks, teachers:	In this phase, teachers:
• Engage in new learning, informed by research evidence	• Intentionally practise the chosen strategy/technique in classrooms	• Reflect on the effectiveness of the Sprint
• Draw out connections and challenges to practice	• Make adjustments, in light of what is happening	• Share insights and determine implications for future practice
• Determine a precise strategy/technique for practice improvement	• Check-in with colleagues to sustain momentum	• Identify possible next steps for professional learning

1. PREPARE: In the Prepare Phase, teacher teams determine which area of practice they want to improve. This involves engaging with the "best bets" from the evidence base, and agreeing on intended practice improvements. The Prepare Phase ends

when each member of the team commits to practise a specific evidence-based strategy in the Sprint Phase.

2. SPRINT: The Sprint Phase is all about bridging theory to practice. Over 2-4 weeks, team members apply new learning in classrooms through intentional practise. Throughout the Sprint, the team monitors the impact of new approaches, and adapts as needed. Supported by guiding questions, the group engages in quick, focused check-ins to provide support and sustain momentum.

3. REVIEW: After 2-4 weeks in the Sprint Phase, teacher teams meet again to close out the Teaching Sprint. During the Review Phase, teachers reflect on learning as practitioners. The team discusses changes to practice, considers the impact evidence, and decides how new learning will be transferred into future practice.

Elements of the Embedding Teaching Sprints Professional Learning Program

The Teaching Sprints process flourishes when teams and schools go on a collective journey together to understand, test and finally embed the process as a regular organisational routine for practice improvement.

The Embedding Teaching Sprints professional learning program is an integrated 9-12 months journey that supports school leadership teams to better engage with and mobilise robust and relevant research evidence through implementing a collaborative and job-embedded model of teacher professional learning. They do this work in the context of a network of 8-12 other school teams.

The core components of the delivery include:

- Access to online videos and tools

- Five 1-day leadership workshops spread across the four terms to train the team in the model

- Two days of in-school and online support by an implementation coach to support strategy decision making, encourage action and build middle-level leadership capability.

The 3E Teaching Sprints implementation journey

The nine-month professional learning program builds the capacity of a school leadership team (4-7 people) to move through a three stage implementation journey: explore, experiment, embed.

Exploring is all about learning the Sprints process and determining the potential benefits to your team or school. Key activities involve:

- Learn the process through online resources and talking to others who have experience with the process

- Playfully explore the tools, protocols and research resources and consider how they could add value to your collaborative professional learning approaches

- Determine who might be in a good position to be in the prototyping team for the *Experimenting* stage of implementation.

Experimenting involves conducting fast, low-risk prototype sprints in order for a smaller group to learn how to run the process with your organisational contexts. The goal of the experiment is to be able to demonstrate that the approach has already had a positive benefit for teachers within your context. Key activities involve:

- Enabling some volunteers to run simple prototype sprints on their own, in pairs or teams

- Exploring different ways of setting up teams and time

- Keeping a bias towards action and learn quickly about what it is going to take to make this work

- Seeking honest feedback from those testing it and iterate your plans on how to make this work

Embedding consists of spreading Sprints to more educators and setting up the regular time, structures and supports to enable it to become a team and organisational routine. Key activities involve:

- Schedule time, and clarify structures that will support the Sprints process

- Allocate roles for Sprint leaders and others who will guide the process

- Work to make sure that robust and relevant research evidence is easily accessible and being used to inform the practice improvement efforts of Sprints teams

- Aligning the focus of Teaching Sprints with the focus areas for team/ school/ district improvement.

- Integrate Sprints with other forms of professional learning including research-based workshops, instructional coaching, lesson observations or other approaches already happening within your team/ school.

Training 24/7

www.training247.com.au

Training 24/7 provides schools with multiple paths of professional learning, utilising a mixture of in person training, and online offerings that are adapted by schools to fit their needs. Part of the professional development offerings include assisting schools in adopting a whole-school approach to literacy development, along with spending time analysing school-specific data to help school leaders identify the right areas of focus, and working with them over many years to continuously improve results and student outcomes.

Initial professional development often starts with schools adopting a synthetic phonics approach to helping children decode words, and lift the words of the page, and genuinely read said words. This foundation in phonics, along with many other literacy topics and areas of focus, can be gained at an 'in person' training event (which can also be joined online), on-site at school, or by utilising online self-paced training. Often schools will take up a mixture of all three of these offerings, and integrate them into their learning path as appropriate for them, their needs, and their literacy goals.

Training 24/7 often also engages communities of instructional leaders to help them develop further in their roles, as well as meeting with parents at events organised by schools. Ultimately, there is engagement with leadership, teachers, and parents as schools take on the practical, research-based advice, of the Training 24/7 team of educators, to ultimately improve student outcomes, and ensure there are student-centred success measures and targets in place, at each school that Training 24/7 works with.

This approach relies extensively on taking research to practice, utilising a mixture of theory, and practice through not only training, but also demonstration (observation) lessons in real classrooms, along with peer-coaching sessions carried out in schools, and self-paced modules for review and additional learning. Further Training 24/7 highly values an ongoing review of data, and making adjustments as needed, based on what is observed within a

school, over time, to avoid complacency, and achieve consistent, and improved results, across the entire school.

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Training 24/7 core and project-based components

For the purposes of this research investigation, Training 24/7 is described as having a "core component" and a "project-based component".

The **core component** is the "Initial professional development" described above – i.e. a synthetic phonics approach combined with other foundational literacy topic and areas of focus. Many participants in this research investigation had already engaged with this core component prior to this research investigation (i.e. it was in a 'sustainment' phase).

The **project-based component** was developed specifically for educators involved in this research investigation, to address the fact that most had already engaged with the core component. It involved extending these educators, with more emphasis on educators selecting focus areas and evidence from within an umbrella of approximately 15 focus area/evidence options including the Rosenshine Principles, spaced practice, cognitive load and lesson structure.

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Bastow Leading Mathematics

www.bastow.vic.edu.au/professional-learning/leading-mathematics

Leading Mathematics is designed for both primary and secondary school teams, with a focus on developing the knowledge, capabilities and dispositions to lead and support collegial learning and change. It is an opt-in program closely aligned with the Victorian Curriculum. Considerations of "fit" and preparedness are important when schools choose to take part. The approach assumes a working relationship with teams of three teachers over nine months and seven workshops. The goal is to provide schools with expert advice to understand where they are and where they need to be.

During the course of the nine months, the teams explore together:

- key concepts that underpin and are essential to the learning and teaching of Mathematics;

- the implications of contemporary research into how best to lead improvement in the teaching of mathematics;

- how to capture and analyse multiple sources of evidence to inform strategic priorities and guide change;

- how to connect identified learning needs of students to school-wide priorities and the professional learning and capacity building of teachers;

- a wide range of tools and strategies to lead, support and facilitate the learning of colleagues;

- how to be effective mathematics learning leaders in improving mathematics learning and teaching in their school; and

- co-developing a school-wide mathematics improvement strategy and enacting that strategy.

Appendix C   Additional data collection details

C.1   Data collection with schools

C.1.1.   Online surveys of educators

Pre-survey

Survey design

The purpose of the pre-survey was to explore educators' knowledge, attitudes and practices relating to the use of evidence and evidence-informed practices. Questions for the pre-survey were drawn primarily from the validated 'Research Use in Schools' (RUS) survey instrument. This instrument was designed by the National Foundation for Educational Research (NFER) in the United Kingdom to measure schools' research engagement (Poet, Mehta and Nelson, 2015, p. 1). It has been supported by a pilot trial in 2014 involving 509 teachers (Nelson et al, 2017)[96] and a guidance paper for evaluators that included an updated instrument (Poet, Mehta and Nelson, 2015). We drew the pre-survey questions for this investigation from the updated (2015) baseline version[97] of the RUS instrument. Modifications were made to take account of the Australian context, the specifics of the three professional learning providers, and the fact that most schools had prior involvement with the providers.

Four versions of the educator pre-survey were created — one for each provider, and one additional version for 'dual enrolment' schools. Questions were trialled with three Australian teachers and slight modifications made to ensure ease of use and adaptations to the specific state context.

Survey procedures

Following consent, surveys were distributed to 194 individual teachers and school leaders via an email link to an online SurveyMonkey form. Surveys remained open until the week prior to a school's scheduled interview and observation visit (5-14 weeks, during the period July-November 2019). To increase response rates, individual participants who had not completed surveys were sent follow-up reminders via email on a fortnightly basis. Each school was sent an additional reminder for outstanding surveys when school visits were being scheduled.

Although termed a 'pre-survey', it should be noted many schools had prior involvement with the professional learning providers (see section 2.5.2).

Post-survey

Survey design

The purpose of the post-survey was to again explore educators' knowledge, attitudes and practices relating to the use of evidence and evidence-informed practices specific to each of the professional learning programs, as well as issues relating to school context. It also included questions relating to the influence and improvement of aspects of Project GEMS.

Questions for the post-survey were drawn from:

- the RUS survey — eight questions (relating to the school environment, meaning of 'evidence-informed teaching', whether and how evidence is used in educators'

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[96] The pilot trial used the original version of the NFER survey but was published after the 2015 updated instrument.
[97] The RUS survey has baseline and outcomes versions.

work, and whether how educators have used research to inform their practice) were repeated from the pre-survey with modifications to account for professional learning program design features identified during the school visits;

- questions designed by the research team to further explore and clarify themes arising from the school visits; and

- validated and non-validated[98] instruments addressing educator knowledge of research evidence — given the wide range of focus areas that emerged among schools involved in Project GEMS, questions designed to measure teacher knowledge needed to be tailored to the provider (and, in some cases, the school).

Accordingly, 14 sets of knowledge questions were created — one for Training 24/7 schools, one for Leading Mathematics schools, one for each of the 10 Teaching Sprints schools, and individual versions for the two 'dual enrolment' schools.

Survey procedures

Following the pre-survey, additional participants were added to receive the post-survey (i.e. they participated in the school-visit data collection- interviews, observations, or both). A total of 209 surveys were sent.

Post-surveys were distributed through the same means as the pre-survey, and were open for approximately four weeks for Training 24/7 and Bastow Leading Mathematics schools, and three weeks for Teaching Sprints schools (given the need for additional tailoring of questions), in December 2019. To increase response rates, individual participants were sent follow-up reminders via email. School contact personnel were also reminded by CESE/Bastow and/or the providers via email regarding survey completion.

C.1.2.   Semi-structured interviews with educators

Interview design

The purpose of the semi-structured interviews with educators participating in the professional learning was to explore educators' perceptions and experiences of:

- the school context (in the case of school leaders);

- the use of evidence and evidence-informed practice;

- the professional learning provision;

- its impact on their knowledge, attitudes and practices; and

- if and how they were able to mobilise research in their school/team/classroom context.

The purpose of the semi-structured interviews with educators not directly participating in the professional learning was to build an understanding of:

- the school context;

- local enablers and barriers to the use of evidence and evidence-informed practices;

- if and how other staff have been able to mobilise academic research evidence in practice; and

- any wider impacts or suggested improvement relating to the professional learning provision.

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[98] Non-validated instruments were used only where validated instruments were not available.

Four sets of interview questions were developed as summarised in Table C.1. Interview schedules for teachers and school leaders directly enrolled in the professional learning programs are included in Appendix E.[99]

Table C.1: Interview designs

Set	Teaching or leadership role	Directly enrolled in professional learning or not	Question categories
A	School leaders	Directly enrolled	• About you and your context (context) • About the professional learning program (the program) • About what happened as a result of you / your school being involved in the professional learning program (outcomes) • About what helps and hinders use of literacy and numeracy instruction evidence made available via the professional learning program (enablers and barriers)
B		Not directly enrolled	
C	Teachers	Directly enrolled	
D		Not directly enrolled	

As semi-structured interviews, these questions were adapted to take into account factors such as the time available from participants, questions not specific to the individual that were already answered by others in the school, and questions noted during the classroom observations.

Interview procedures

School visits were conducted with all schools from September–November 2019 (Terms 3 and 4). In nearly all cases, these visits took place during a single day by one member of the research team.

Lists of school staff (leaders/teachers) who agreed to be interviewed were developed for each school and provided to the school's key staff contact to assist in scheduling the visit day (interviews and observations).

At schools, 93 interviews were conducted with 136 staff (usually on an individual basis, but sometimes in pairs or small groups). Interviews generally took place usually scheduled for individuals, pairs and/or groups during the school day for between 20-60 minutes (depending on availability). Prior to interview, participants were reminded of the purpose of Project GEMS, the role of the different organisations in the research team and the structure and purpose of the interview, and copies of the Plain Language Statement were again made available. Participants were then given an audio consent form to sign, acknowledging they understood and agreed that their interview would be recorded for transcription purposes. The same procedure applied to phone interviews, however the final reminders, Plain Language Statements and provision of audio consent form occurred via email prior to the phone interview.

Interviews were audio recorded and professionally transcribed using software with the 'Intelligent Verbatim' setting.

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[99] As the distinction between those directly enrolled and not directly enrolled primarily applied for one provider only, interview schedules for those not directly enrolled in the programs were therefore used infrequently and are not included in Appendix B. They can be supplied upon request.

C.1.3. Observations of classes and staff meetings

Observation design

The purpose of these observations was to gain first-hand insights into:

- the nature of the school and classroom context;
- the implementation of evidence-informed practices within school/classroom context;
- concrete examples to explore with educators during interviews; and
- the enablers and barriers to research evidence use in school/classroom context.

Observation procedures

During the school visits, 56 educators were observed across 50 lessons/meetings. Each observation usually took place over one lesson/meeting (in most cases, lasting approximately 30-45 minutes).

As part of the scheduling process for in-school data collection days, educators self-nominated to have a researcher observe their class. Educators were informed of the observation purpose and scope in writing and verbally prior to the class or meeting taking place, and were invited to where possible, provide information regarding the lesson (lesson plan, content, structure, objectives). If not provided prior, this information was given to researchers after the lesson.

The observing researcher sat in a position away from the main lesson area and student desks (e.g. at the back of the room or at the teacher's desk) during the main body of the lesson (where students usually sat on the floor at the front of the room in front of the whiteboard. Where necessary, the observer would move during the lesson to be able to capture what was occurring (e.g. when students returned to tables to work independently or in groups to complete a task).

The visiting member of the research team recorded notes on the meetings using an observation template, with the purpose of providing a reference to guide the subsequent interview with the educator later that day. Key examples explored included how the lesson (structure/delivery/content or task) related to a focus identified by the school and/or as part of the school's participation with the provider.

C.2   Data collection with professional learning providers

C.2.1. Observations of professional learning provider sessions

Observation design

The purpose of these observations was to gain context for:

- the nature and focus of the professional learning;
- the presentation and use of evidence during the professional learning; and
- examples to explore with providers during the semi-structured interviews.

Observation procedures

Members of the research team attended course/event sessions that offered insight into the operation and provision of professional learning. During these observations, researchers took notes on what was occurring, discussed content and delivery with facilitators and liaised with participating educators (e.g. on occasions, observers we were invited to take part in activities with participating school teams to enhance their experience and

understanding of the program). Observers had access to relevant documentation used and/or referred to on the day (either in hardcopy or digital form).

Five of these observations were completed (four at off-site sessions and one during an in-school learning day).

C.2.2. *Semi-structured interviews with professional learning providers*

Interview design

The purpose of the semi-structured interviews with professional learning providers was to consult professional learning providers about:

- their experiences of the professional learning process;
- their views on the participants' experiences and responses to the professional learning process; and
- their reflections around issues of impact, influence and improvement in relation to Project GEMS.

The interview schedule for professional learning providers is included in Appendix E.3.

Interview procedures

One 90-minute interview was conducted with each professional learning provider between January and February 2020. Each interview was conducted online and involved up to three representatives of the professional learning provider.

Interviews were audio recorded and professionally transcribed using software with the 'Intelligent Verbatim' setting.

C.3 Document and supplementary data collection

The collection of artefacts and/or documentation were intended to provide data regarding: (i) formative student outcomes in literacy and numeracy; (ii) features of effective professional learning programs (as a program input); (iii) evidence-based resources implemented via the professional learning program (as a program input); and (iv) evidence characteristics (as a barrier and enabler of evidence use). This data collection involved schools, professional learning providers and the My School website.

School documentation and artefacts

Prior to the in-school data collection day, schools were invited to share school-level information regarding their professional learning involvement and/or provided insight into their use of research evidence in relation to their focus areas. This invitation was also extended to schools during the school visit.

Documentation and artefact collection was bound by the following criteria outlined in the ethical approvals:

- evidence is to be provided by schools to the researchers at their own discretion;
- evidence can only be collected where available (i.e. the information is already completed as part of educators' routine teaching practice);
- privacy of the school and students is to be protected (i.e. information is to be de-identifiable to the school and individual); and
- evidence of student learning outcomes or assessments must be in the form of aggregate test results.

These considerations, in combination with provision remaining at the discretion of schools, resulted in considerable variability in information gathered for analysis.

Evidence materials

Information and materials on evidence use were invited from providers and schools. Providers were invited to share evidence related to development and/or delivery of their professional learning as well as examples of evidence supplied directly to professional learning participants. Schools were invited to share specific sources of evidence they were using for their focus areas. The availability and format of these materials varied between schools.

Content gathered from My School website

To supplement the data gathered from schools directly, summary statistics for each school were gathered from the Australian Government's My School website (www.myschool.edu.au).

C.4   Data analysis

C.4.1.   Overall approach

We analysed the data using a mixed-method 'QUAN → qual' approach. We started by analysing the quantitative survey data to identify patterns and then analysed the qualitative interview and other data to add contextual depth to how research evidence is mobilised in schools, and the key barriers/enabling factors that influence this.

C.4.2.   Analysis of quantitative survey data

A total of 165 pre-surveys and 162 post-surveys were returned, representing an average return rate of 81% (85% for the pre-survey and 78% for the post-survey). Three returned pre-surveys and 12 returned post-surveys were blank and therefore could not be used in the analysis. The final sample for analysis was therefore 162 pre-surveys and 150-post surveys.[100]

134 participants (81% of the baseline sample) returned both the pre-survey and post-survey. 110 of these were completed to the extent required for paired analysis of questions repeated on the pre- and post-surveys (67% of the baseline sample).

To begin our analysis, we summarised the demographic information of educators who completed the online surveys to explore the characteristics of the sample in terms of their role (classroom teacher / mid-level leader / school leader), year levels they taught or had responsibility for, and years of school experience.

Examining the impact of research evidence mobilisation (Research aim #1)

We used paired survey data (i.e. from the 110 educators who sufficiently completed the survey at Time 1 and Time 2) to examine the impact of research evidence mobilisation on educator outcomes across three key constructs:

- educator understanding of evidence-informed teaching — how participation in professional learning impacts educator understanding of, and knowledge/attitudes toward research evidence in their practice;

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[100] In some instances, individual questions were skipped or incomplete. This is shown in figures where the total sample of respondents is smaller than the total number of completed surveys. Similarly, where figures report sample sizes greater than the number of completed surveys, it means respondents could select more than one option (e.g. "Select all that apply").

- the school environment — perceptions of educators regarding the impact or areas to improve the school environment to better mobilise research evidence; and

- factors that influenced the choice of specific teaching strategies prior to the first survey, and during their participation in the professional learning program (e.g. Q13 in pre- and Q14 in post-survey).

Relevant non-parametric tests (e.g. Wilcoxon Rank Test) were used to statistically determine differences in educators' ratings of the constructs after their involvement in the professional learning compared with before.

Exploring the influence of different layers in this mobilisation process (Research aim #2)

We explored the influence of different layers in the mobilisation process such as evidence-based resources, professional learning processes, educator characteristics and school and system-level factors, using descriptive statistics and frequencies to explore educator ratings of mobilisation layers at before and after participating in the professional learning.

We triangulated quantitative data with qualitative data (see approach below) to illuminate the influence of layers in the mobilisation process and the impact of research evidence mobilisation on educator outcomes.

C.4.3.   Analysis of qualitative interview and observation data

Our primary qualitative data source was interviews with educators and providers, and this was supplemented with observation data where appropriate. We conducted 93 interviews[101] and 50 observations (one of a staff meeting and the remainder of classes) across the 24 schools resulting in a comprehensive and rich dataset for analysis. Our unit of analysis was at the educator level.[102] In line with our QUAN → qual method we focused analysis on the confirmation or further elaboration of key findings arising from the survey data. We analysed qualitative data to the point of saturation. Saturation in this case referred not to the sampling strategy (i.e. how we selected educators and how many we interviewed) but to the selection of data that could illuminate the research investigation framework. Using terminology from Saunders et al (2018), this means we identified saturation in terms of:

- the degree to which identified codes and themes relating to the survey data were exemplified in the qualitative data (a priori thematic saturation), and

- the emergence of new codes or themes in the qualitative data relating to the survey data (inductive thematic saturation).

We used a pragmatic 'rule of thumb' to select interview data for analysis based on Morse (2000). This involved randomly selecting 20 transcripts for analysis per key research investigation framework component identified in the survey data. In general terms, approximately 20 participants were required to achieve data saturation and obtain the richness of data required for qualitative analysis. If thematic saturation was not achieved within 20 transcripts, we extended the sample until saturation was reached.

Analysis of provider data (n = 3) was not subjected to saturation.

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[101] Interviews were conducted with individuals (n = 67), pairs (n = 18) or in small groups (n = 9) depending on staff availability and school preferences. All interviews except two were conducted in person during school visit days (with the remaining interviews conducted by phone). On average, interviews lasted 32 minutes.
[102] This enabled ease of comparison with the quantitative data and could be accomplished within the short timeframe allocated for data analysis.

Description and application of analytical framework

We used the Framework Method to analyse all interview data. This method has demonstrated use and wide application across disciplines including education (Gale et al., 2013, O'Donoghue et al., 2011). The Framework Method enabled us to start with an 'a priori' coding framework while also allowing data to emerge during analysis.

The Framework Method has seven stages (Table C.2). Individual interview data was collated and analysed by educator (or provider for the professional learning provider interviews) using de-identified verbatim transcripts of interviews. The transcripts were uploaded into a qualitative data analysis software (e.g. Dedoose) to enable thematic analysis. Themes were aggregated and summarised across *all* participating educators and schools in Project GEMS. This ensured individual schools and professional learning providers were as generalised and non-identifiable as possible.[103]

Table C.2: Stages in the Framework Method to qualitative data analysis

Stage	Procedure	Description
1	Transcription	High quality verbatim transcriptions of interviews were prepared for analysis
2	Familiarisation with the qualitative data	We read selected samples of transcripts, supplementing this with observation notes collected at school visits to deepen our understanding of the data.
3	Identifying a thematic framework	We used the research investigation framework (overarching theme) and key survey results (subthemes) to develop a framework for thematic analysis.
3	Coding	Two research team members coded text from selected transcripts using the thematic framework.
4	Developing a working analytical framework	Coders, and other team members, met to discuss initial coding and agree on a codebook that formed the basis of the analytical framework.
5	Applying the analytical framework	The working analytical framework was applied to subsequent transcripts to saturation.
6	Charting data into the framework matrix	A spreadsheet was used to generate a matrix and data were 'charted' (i.e. summarised by category) and entered into the spreadsheet.
7	Interpreting the data	Characteristics and differences between the data were identified and connections drawn between different categories to explore relationships.

C.4.4. Analysis of documents and artefacts

To analyse the artefacts and documentation collected from schools and professional learning providers, we adapted an approach and established general principles for screening and interpreting studies in evidence reviews. We subjected all documents received to a screening process to ensure material was relevant.[104] For example, to be part of the analysis involving student outcomes data, the artefact needed to:

- be presented at an aggregate level;

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[103] Given the thematic nature of this analysis and the limited number of professional learning providers and schools involved, it is plausible readers with knowledge of the schools or professional learning providers involved could attribute themes to a feature of a professional learning provider's model, however this is not likely and would not affect the wider distribution and interpretation of the results of Project GEMS.
[104] Note the scope of this analysis reflects the fact Project GEMS is more interested in *how* the evidence is mobilised than *what* evidence is mobilised.

- relate to a current (not past) student learning focus of the school/s that involves the professional learning provider; and

- show student learning growth over time (rather than student achievement levels at one point in time).

To be part of the analysis involving evidence-based resources, the resources collected from schools and/or providers needed to meet the following inclusion criteria:

- resource must be written documentation (not verbal);

- resource can be fully identified from the description provided, and the research team has a copy of/is able to gain access to the resource;

- resource must relate to a current (not past) focus of the school/s that involves the professional learning provider; and

- there must have been some active engagement from the school/s in the resource.

C.5 Merging findings to enhance insights in research mobilisation

Identifying ways to improve the effectiveness of the research evidence mobilisation process (Aim #3)

Finally, we will merge the findings from the quantitative and qualitative components of this research described above to provide insights and make recommendations regarding effective evidence mobilisation in schools. These insights may address, for example:

- what inputs from professional learning providers can enhance the mobilisation of evidence;

- what processes between schools and providers enable evidence mobilisation;

- what processes and strategies within schools enable evidence mobilisation; and

- what other conditions are acting as enablers and barriers in the mobilisation of evidence.

Appendix D   Additional figures

How educators engaged with the professional learning providers (section 3.1)

Figure D.1: How teachers, mid-level leaders and school leaders were involved with Teaching Sprints[105][106]

_____
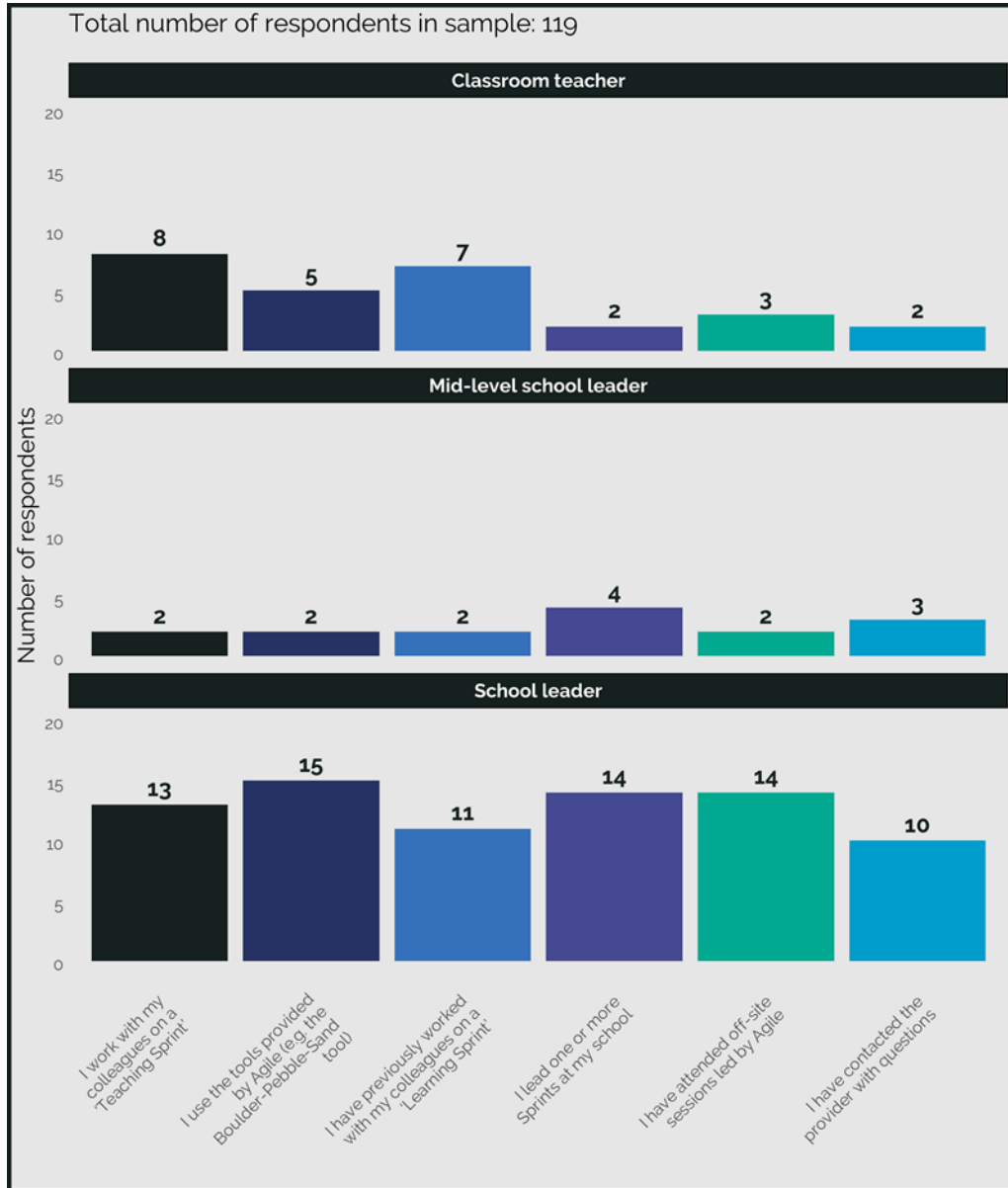
[105] Question: *How are you involved with the provider? Select all that apply.*
[106] Note that one option (describing past involvement) refers to "Learning Sprints". This was the former name for "Teaching Sprints".

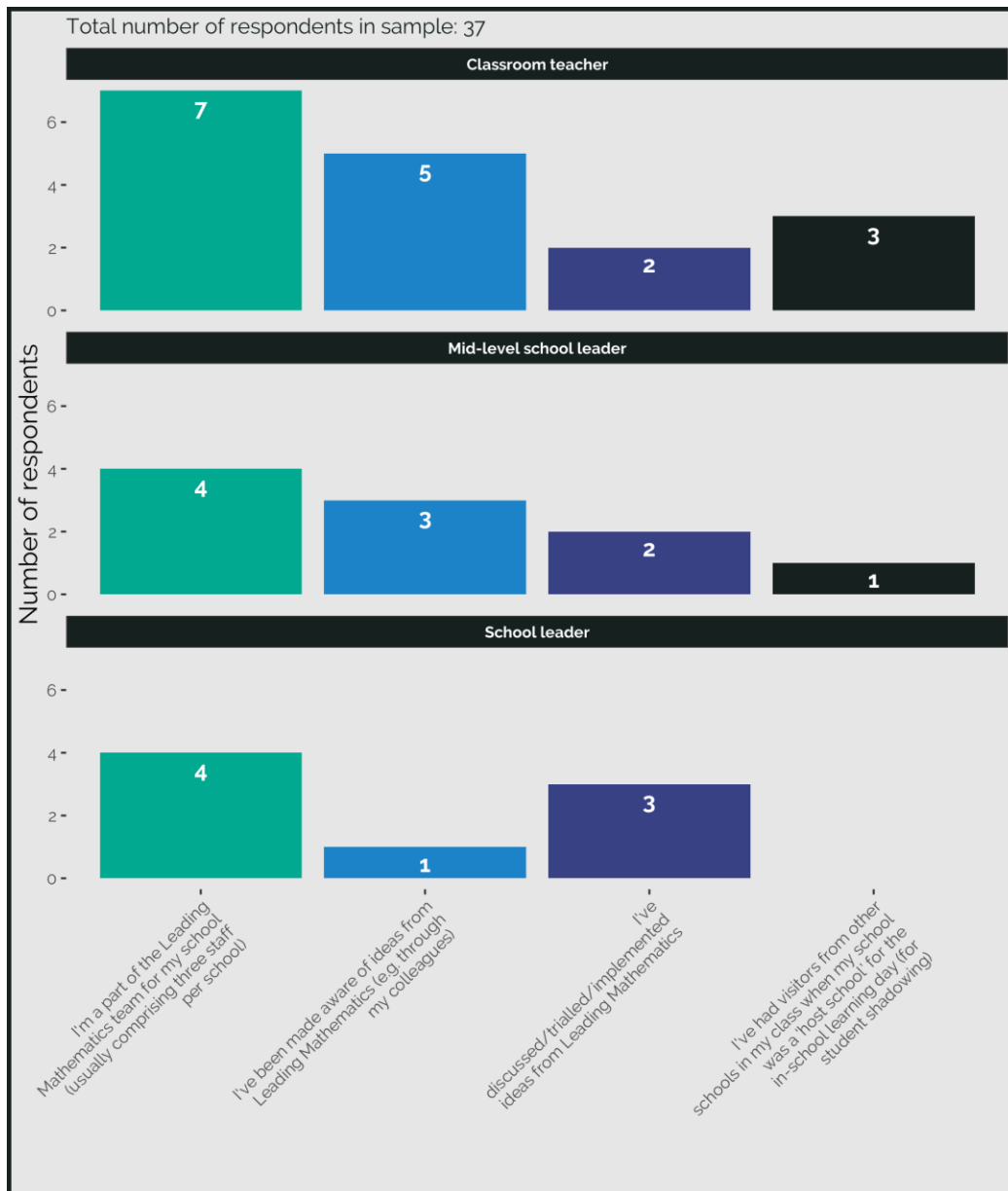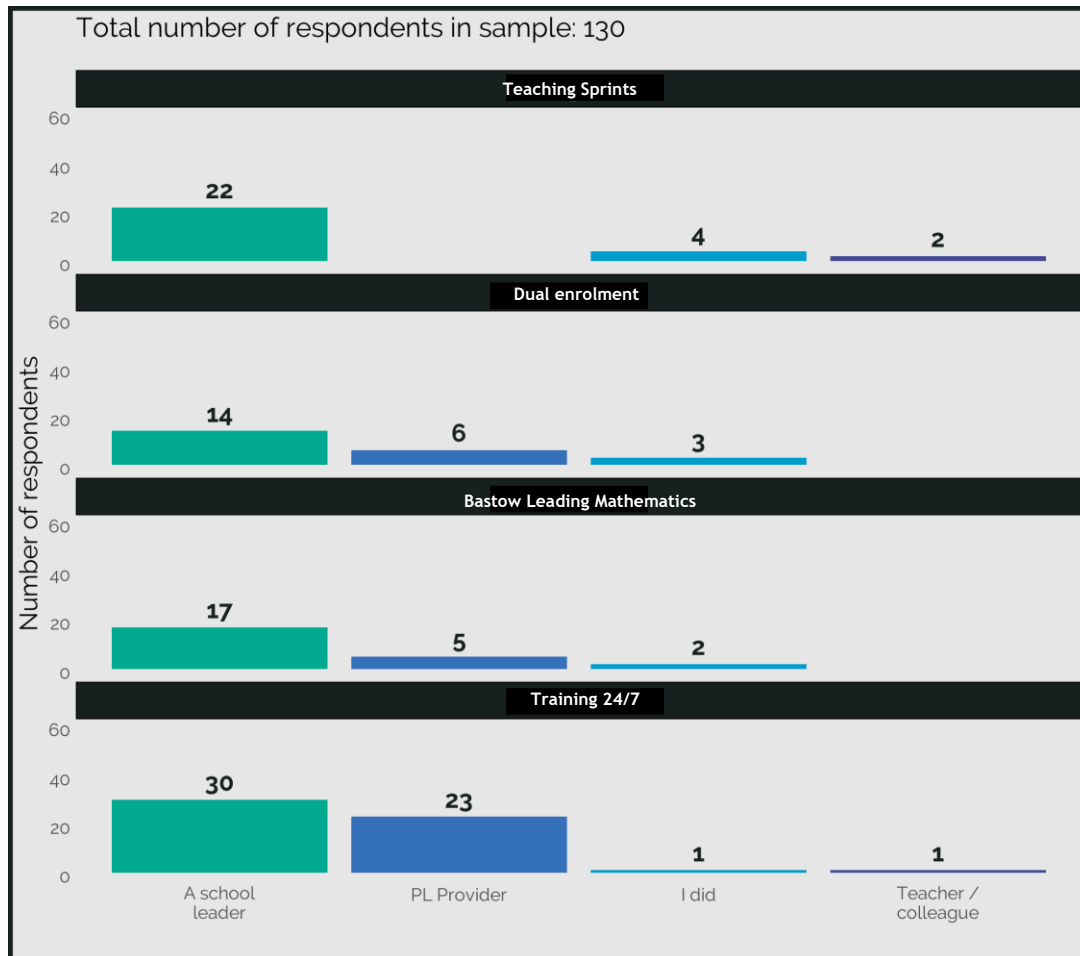Getting Evidence Moving in Schools (GEMS) | Investigation Paper | December 2020   **144**
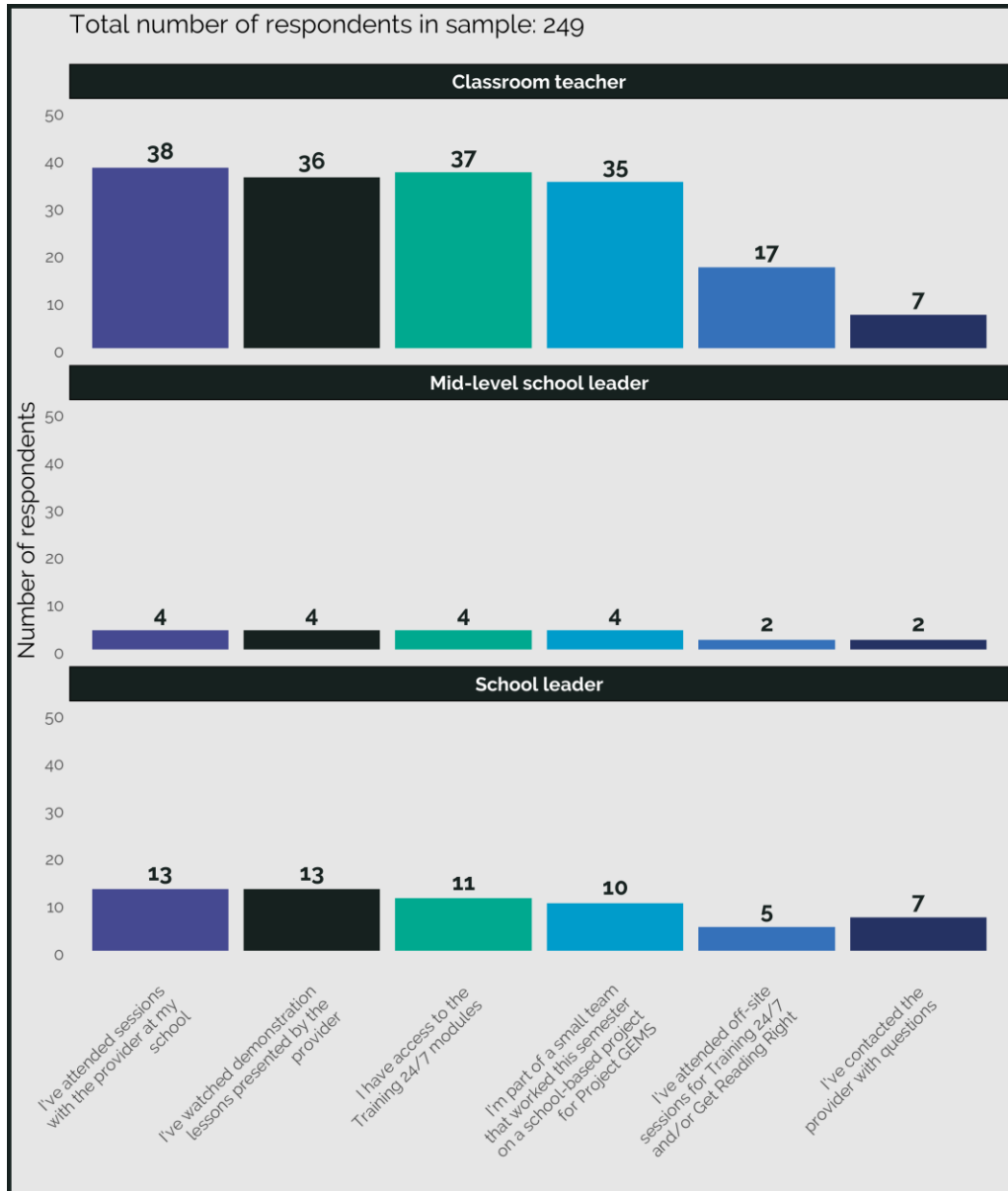
Figure D.3: How teachers, mid-level leaders and school leaders were involved with Bastow Leading Mathematics

Who usually sourced the evidence (section 3.2.2)

Figure D.4: Who usually the sourced the evidence for your professional learning focus? (Presented by provider)

Educator knowledge of teaching strategies (section 3.3.2)

### Table D.1: Educator content knowledge questions (all participating Training 24/7 schools)[107]

Item	Type	Question	Response options (correct in bold)[108] n (participants) = 74
1	Phonics vs reading comprehension pedagogical knowledge	Please indicate … the degree of focus that most academic research suggests should be placed on phonics (decoding) versus reading comprehension in [Year 1]. Answer this question in relation to all children across each year group, not just those needing additional support.	• … entirely on phonics (1%) • … mainly on phonics (39%) • **… slightly more on phonics than on reading comprehension (39%)** • **… equally on phonics and reading comprehension (14%)** • … mainly on reading comprehension (0%) • … entirely on reading comprehension (0%) Percentage of respondents who identified either correct response: 53%
2	Phonemic knowledge	A phoneme refers to:	• A single letter (1%) • **A single speech sound (89%)** • A single unit of meaning (3%) • A grapheme (0%) • None of the above (1%) • I don't know (0%)
3	Phonemic skill	Which of the following words contains a diphthong?	• Coat (34%) • **Boy (55%)** • Battle (0%) • Sing (0%) • Been (8%) • None of the above (1%) • I don't know (14%)
4	Phonemic skill	How many speech sounds are there in the following words? For example, the word "cat" has 3 speech sounds: "k" "a" "t". (Speech sounds do not necessarily equal the number of letters)	• Ship: **(3)** (91% answered correctly) • Grass **(4)** (81% answered correctly) • Box **(4)** (46% answered correctly) • Moon **(4)** (88% answered correctly) • Brush **(4)** (77% answered correctly) • Knee **(2)** (86% answered correctly) • Through **(3)** (82% answered correctly) Percentage of respondents who correctly answered all seven questions: 31%
5	Cognitive load pedagogical knowledge	Identifying up to three effective strategies in optimising the load on students' working memory	• **Present complex information both orally and visually (51%)** • Provide extra information so students can understand the whole concept (15%) • **Tailor lessons according to students' existing knowledge and skill (80%)** • **Use worked examples to teach students new content or skills (80%)** • Introduce essential information at different times during a lesson (32%) Percentage of respondents who identified all three correct strategies: 34%

[107] Questions were sourced as follows: Q1 was adapted from the North East Scale-Up Endpoint Survey 2018 (Nelson et al., 2019). Qs 2-4 were taken directly from Stark et al. (2016). Q5 was developed by the investigation team using CESE (2017, 2018).
[108] In this table, total response percentages less than 100% mean one or more respondents skipped the question.

Barriers to mobilising research evidence (section 3.4.3)

Figure D.5: Which aspect of using research evidence is the most difficult?[109]

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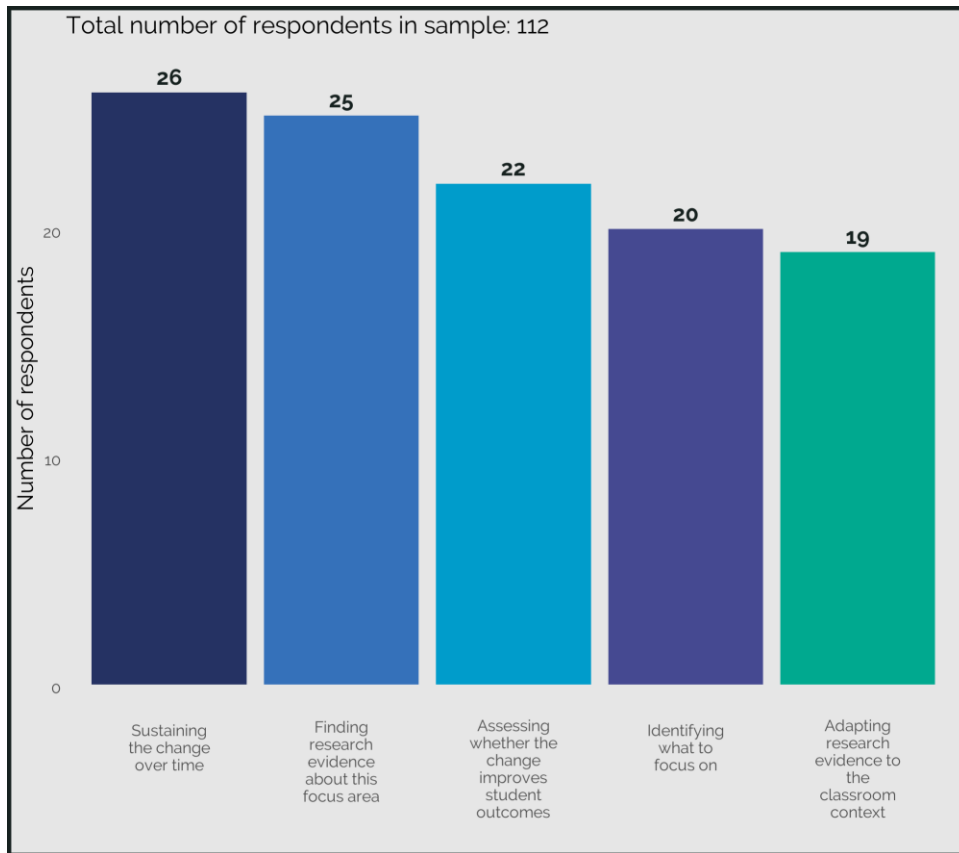
[109] The question was the same as the figure heading. Respondents were asked to select one of the five answer options.

Appendix E   Interview schedules

E.1   Teachers directly enrolled in the professional learning program

Introduction (1 min)	• Thank you for agreeing to take part in this interview for Project GEMS. • This research project has been commissioned by Evidence for Learning, with the support of the NSW Department of Education via CESE. Monash University designed the research and he Centre for Evidence and Implementation (my organisation) is carrying out the fieldwork component. • Project GEMS is focused on how teachers and schools use research evidence to inform their practice, with a specific focus on how professional learning helps this research evidence use • If you are happy, we'd like to audio record this conversation. All interview comments will be treated in confidence and reported anonymously. [Check interviewee has signed and returned both consent forms (one for the project; one for the audio recording)].

Section	Question	Indicator(s)	Time / priority
Questions about you and your context (5 min)			
Context - educator	Please could you tell me what your role is within the school and how long you have been in this role?	Educator characteristics: • Existing / pre skills and competencies • Prior participation in research / using research • Attitudes towards research • Willingness to innovate • Self-efficacy and commitment	1 min
Context - educator	Prior to [this PL], have you used evidence or evidence-based practices in your teaching of literacy and numeracy [adapt to specific PL program / school]? How did you feel about using evidence?		2 min

Context - school	Prior to [this PL] how did your school share research and evidence and knowledge on literacy and numeracy teaching and learning strategies?
	• Probe: Do you have any:
	   o Regular process
	   o Set regular time
	   o Collaborative
	   o School priority
	
	How long was your school doing this?
		School mobilisation strategies ('what'):
		• School leadership support
		• Regular process
		• Collaborative
		• Set regular time
		• School priority
		[Others identified during GEMS]
			1 min

Context - school	We understand that, as part of the [PL] process, your school is focussing on improving students' [XX]. What motivated your school to focus on this topic? • Probe: What are your key priorities (for your staff and students)? / What are you hoping to change/achieve?	PL program delivery ('what')	1 min
Questions about the PL program your school is involved in (5 min)			
PL program	Briefly how have you been involved with the PL so far?	PL program delivery: fidelity	1 min

PL program	Are you aware of any new evidence on teaching strategies related to literacy and numeracy from your involvement with the PL? What is this evidence?	PL program delivery: fidelity	1 min
PL program	What kind of support have you received from the PL providers to apply this evidence in practice? (ie act on the evidence related to literacy and numeracy instruction) e.g. via training; train the trainer approaches; support for active learning; coaching; linking to resources/tools etc	PL program delivery: fidelity	2 min
PL program	How relevant was this to your context?	PL program delivery: appropriateness	1 min
Questions about what happened as a result of being involved in the PL program (specifically about how you now use evidence in practice) (15 min)			
Outcomes	What changes if any have you made to teaching practice as a result of this evidence? (Note: Teaching could include how you think or do planning, instruction, feedback, assessment, creation of learning activities, use of data etc) • Probe: What have you done differently?	Educator outcomes: practice	4 min
Outcomes	[If teacher has changed practices]: How often to you implement these changes?	Implementation outcomes: penetration	1 min
Outcomes	[If teacher has changed practices]: How easy was it to make this change?	Implementation outcomes: feasibility	1 min
Outcomes	[If teacher has changed practices]: What impact do you think this has had on student learning? How do you know this?	Student outcomes	2 min
Outcomes	[If teacher has changed practices]: Do you see your use of this evidence changing over time? In what way? • Probe: What adaptations might you make? • How likely do you think it is that you will be able to sustain/ embed these changes?	Implementation outcomes: sustainability	1 min

Outcomes / school processes	How does your school currently share research and evidence and knowledge on literacy and numeracy teaching and learning strategies? Has this changed recently as a result of the PL program?
	• Probe: Do you have any:
	  o Regular process
	  o Set regular time
	  o Collaborative
	  o School priority
		School mobilisation strategies ('what'):
		• School leadership support
		• Regular process
		• Collaborative
		• Set regular time
		• School priority
		[Others identified during GEMS]
			3 min

Outcomes / educator / school processes	How do you currently share evidence on teaching with others (e.g. other teachers / families / students [explicitly])? Has this changed recently as a result of the PL program?	School mobilisation strategies ('what') & educator characteristics	2 min
Outcomes / educators	How do you feel about using evidence now? • Probe: How confident do you feel about using evidence now?	Educator characteristics: • Existing / pre skills and competencies • Prior participation in research / using research	1 min

		• Attitudes towards research • Willingness to innovate • Self-efficacy and commitment	
Questions about what helps and hinders use of the literacy and numeracy instruction evidence made available via the PL program in practice (18 min)			
Enablers & barriers	What do you think are the biggest enablers that support the use of the literacy and numeracy evidence made available via the PL program? (no probe)	Enablers and barriers	
Enablers & barriers	What do you think are the biggest barriers to the use of the literacy and numeracy evidence made available via the PL program? (no probe)	Enablers and barriers	
Enablers & barriers	Can you talk about how easy or hard it was to understand and use the research evidence on literacy and numeracy instruction made available to you via the PL program?? • Probe: What helped / hindered	Enablers and barriers: evidence characteristics • Accessible and timely • Objective and true (quality) • Easy to understand and implement (format) • Connected to school/classroom context; relevant	
Enablers & barriers	How relevant and/or appropriate do you think the research evidence on literacy and numeracy instruction made available to you via the PL program is for application in your school context? • Probe: What makes you think that? • Probe: How does this differ from previous research evidence you may have used/ applied?		DELETE IF SHORT ON TIME
Enablers & barriers	How do you assess/ determine whether this evidence is of high quality? • Probe: What helped you to decide this? • Probe for: concrete examples, relevant documentation/resources, and underlying thinking/reasoning		
Enablers & barriers	How did colleagues help / hinder? Probe: What role have they played?	Enablers and barriers: school and classroom context • Enjoys external support • Wants evidence for decision making • Encourages and supports initiative • Staff capacity and support to use research • Encourages internal collaboration • Prioritises appropriate professional development • Needs innovation • Committed to organisational learning	
Enablers & barriers	How did your school leaders help/ hinder? Probe: What role have they played?		
Enablers & barriers	How did school priorities, processes and resources help/hinder? e.g. mention of evidence-use in school improvement plan / annual plan / professional development plans; recognition or rewards for those involved (e.g. by school leaders / within your team / in Performance & Development goals)		
Enablers & barriers	How did school culture help/ hinder? e.g general beliefs, assumptions, values, level of collaboration		DELETE IF SHORT ON TIME

		• Allocates time and resources • [Others identified during GEMS]	
Enablers & barriers	How does the broader school system y help / hinder? e.g department policies, research community Probe: What role have they played?	Enablers and barriers: system context • System priorities • System policies • Access to research and data • Collaboration with researchers • Sustained collaboration via networks and partnerships • [Others identified during GEMS]	
Final questions (2 min)			
Overall	Are there any changes (in addition to any discussed so far) that you think should be made to help you use/ apply evidence or evidence-informed practices in your school?	PL program delivery: acceptability	
Overall	Is there anything that I haven't asked you about that you'd like to mention?	N/A	

E.2 School leaders directly enrolled in the professional learning program

Introduction	• Thank you for agreeing to take part in this interview for Project GEMS. • This research project has been commissioned by Evidence for Learning, with the support of the NSW Department of Education via CESE. Monash University designed the research and the Centre for Evidence and Implementation (my organisation) is carrying out the fieldwork component. • Project GEMS is focused on how teachers and schools use research evidence to inform their practice, with a specific focus on how professional learning helps this research evidence use • If you are happy, we'd like to audio record this conversation. All interview comments will be treated in confidence and reported anonymously. [Check interviewee has signed and returned both consent forms (one for the project; one for the audio recording)].

Section	Question	Indicator(s)	Time / priority
Questions about you and your context (5 min)			
Context - individual	Please could you tell me what your role is within the school and how long you have been in this role?	Educator/ leader characteristics: • Existing / pre skills and competencies • Prior participation in research / using research • Attitudes towards research • Willingness to innovate • Self-efficacy and commitment	1 min
Context - school	Could you please describe your school context?		
	In general, how would you describe the strengths and needs of the teaching staff at your school?		
Context - individual	Prior to [this PL], how would you describe your school's use of research evidence? How did you feel about using evidence?		2 min

Context - school	Prior to [this PL] how did your school share research and evidence and knowledge on literacy and numeracy teaching and learning strategies?
	• Probe: Do you have any:
	   o Regular process
	   o Set regular time
	   o Collaborative
	   o School priority
	How long was your school doing this?
		School mobilisation strategies ('what'):
		• School leadership support
		• Regular process
		• Collaborative
		• Set regular time
		• School priority
		[Others identified during GEMS]
			1 min

Context - school	We understand that, as part of the [PL] process, your school is focussing on improving students' [XX]. What motivated your school to focus on this topic? • Probe: What are your key priorities (for your staff and students)? / What are you hoping to change/achieve?	PL program delivery ('what')	1 min
Questions about the PL program your school is involved in (5 min)			
Professional learning program	Briefly how have you been involved with the PL so far?	PL program delivery: fidelity	1 min
	Are you aware of any new evidence on teaching strategies related to literacy and numeracy from your involvement with the PL? What is this evidence?		1 min

	What kind of support has your school received from the PL providers to apply this evidence in practice? (ie act on this evidence via training; train the trainer approaches; support for active learning; coaching; linking to resources/tools etc)		2 min
	How relevant was this to your context?	PL program delivery: appropriateness	1 min
Questions about what happened as a result of being involved in the PL program (specifically about how you now use evidence in practice) (15 min)			
Outcomes	What changes if any has your school made to teaching practice as a result of this evidence? (Note: School leadership could include how you think about or carry out: planning around school goals/priorities, focus of leadership meetings, organisation of in-school PL, organisation of performance and development processes, school budgeting, school data collection and analysis etc) • Probe: What have you done differently?	Educator outcomes: practice	4 min
Outcomes	[If interviewee or leadership team has changed practices]: How often to you implement these changes?	Implementation outcomes: penetration	1 min
Outcomes	[If interviewee or leadership team has changed practices]: How easy was it to make this change?	Implementation outcomes: feasibility	1 min
Outcomes	[If interviewee or leadership team has changed practices]: What impact do you think this has had on student learning? How do you know this?	Student outcomes	2 min
Outcomes	[If interviewee or leadership team has changed practices: Do you see your school's use of this evidence changing over time? In what way? • Probe: What adaptations might you make? How likely do you think it is that you will be able to sustain/ embed these changes?	Implementation outcomes: sustainability	1 min

Outcomes / school processes	How does your school currently share research and evidence and knowledge on literacy and numeracy teaching and learning strategies? Has this changed recently as a result of the PL program?
	 • Probe: Do you have any:
	     o Regular process
	     o Set regular time
	     o Collaborative
	     o School priority
		School mobilisation strategies ('what'):
		 • School leadership support
		 • Regular process
		 • Collaborative
		 • Set regular time
		 • School priority
		 [Others identified during GEMS]
			3 min

Outcomes / educator / school processes	How do you currently share evidence on teaching with others (e.g. other teachers / families / students [explicitly])? Has this changed recently as a result of the PL program?	School mobilisation strategies ('what') & educator characteristics	2 min
Outcomes / educators	How do you feel about using evidence now? • Probe: How confident do you feel about using evidence now?	Educator characteristics: • Existing / pre skills and competencies • Prior participation in research / using research	1 min

		• Attitudes towards research • Willingness to innovate • Self-efficacy and commitment	
Questions about what helps and hinders use of the literacy and numeracy instruction evidence made available via the PL program in practice (18 min)			
Enablers & barriers	What do you think are the biggest enablers that support the use of the literacy and numeracy evidence made available via the PL program? (no probe)	Enablers and barriers	
Enablers & barriers	What do you think are the biggest barriers to the use of the literacy and numeracy evidence made available via the PL program?	Enablers and barriers	
Enablers & barriers	Can you talk about how easy or hard it was to understand and use the research evidence on literacy and numeracy instruction made available to you via the PL program?? • Probe: What helped / hindered	Enablers and barriers: evidence characteristics • Accessible and timely • Objective and true (quality) • Easy to understand and implement (format) • Connected to school/classroom context; relevant	
Enablers & barriers	How relevant and/or appropriate do you think the research evidence on literacy and numeracy instruction made available to you via the PL program is for application in your school context? • Probe: What makes you think that? • Probe: How does this differ from previous research evidence you may have used/ applied?		DELETE IF SHORT ON TIME
Enablers & barriers	How do you assess/ determine whether this evidence is of high quality? • Probe: What helped you to decide this? • Probe for: concrete examples, relevant documentation/resources, and underlying thinking/reasoning		
Enablers & barriers	How did colleagues help / hinder? Probe: What role have they played?	Enablers and barriers: school and classroom context • Enjoys external support • Wants evidence for decision making • Encourages and supports initiative • Staff capacity and support to use research • Encourages internal collaboration • Prioritises appropriate professional development • Needs innovation • Committed to organisational learning	
Enablers & barriers	How did the Department or your school leadership networks help/ hinder? Probe: What role have they played?		
Enablers & barriers	How did school priorities, processes and resources help/hinder? e.g. mention of evidence-use in school improvement plan / annual plan / professional development plans; recognition or rewards for those involved (e.g. timetable, meeting schedule, size, student materials, teacher aides)		
Enablers & barriers	How did school culture help/ hinder? e.g general beliefs, assumptions, values, level of collaboration		DELETE IF SHORT ON TIME

		• Allocates time and resources • [Others identified during GEMS]	
Enablers & barriers	How does the broader school system help / hinder? e.g department policies, research community Probe: What role have they played?	Enablers and barriers: system context • System priorities • System policies • Access to research and data • Collaboration with researchers • Sustained collaboration via networks and partnerships • [Others identified during GEMS]	
Final questions (2 min)			
Overall	Are there any changes (in addition to any discussed so far) that you think should be made to help you use/ apply evidence or evidence-informed practices in your school?	PL program delivery: acceptability	
Overall	Is there anything that I haven't asked you about that you'd like to mention?		

E.3   Professional learning providers

Introduction	• Thank you for agreeing to take part in this interview for Project GEMS. • As you are well aware, this research project has been commissioned by Evidence for Learning, with the support of the NSW Department of Education via CESE. Monash University designed the research and the Centre for Evidence and Implementation is carrying out the fieldwork component. • Project GEMS is focused on how teachers and schools use research evidence to inform their practice, with a specific focus on how professional learning helps this research evidence use. • If you are happy, we'd like to audio record this conversation. Interview comments will be treated in confidence and comments will not be attached to individual interviewees. However, as there are only three providers involved in the project, it may be possible for readers to draw conclusions in associating comments with particular providers. Do you give verbal consent for audio-recording of this interview and use of the interview data in Project GEMS?		
Section	**Question**	**Indicator(s)**	**Time / priority**
Questions about you and your context (8 min)			
PL program	Could you briefly describe your program and operating context. *Prompts:* • *For how long have you been operating (in total)?* • *For how long have you been operating this particular model? (Eg Sprints changed from Learning Sprints to Teaching Sprints this year)* • *How many staff carry out your program?* • *Could you confirm the key features of your model (as applied with GEMS schools)?*	PL program delivery	3 mins DELETE IF ALREADY KNOW FOR THIS PROGRAM
PL program	How would you describe your program model in terms of assisting schools to mobilise research evidence and evidence-informed practices? *Prompt for Training 24/7: Can you describe the model represented by the 'umbrella' presentation at the session on 29 November?*	PL program delivery	5 mins
Fidelity (18 mins)			
PL program	At the beginning of this project, what kinds of support did you plan to deliver to the schools involved in the GEMS Project? *Prompts:* • *External sessions* • *In-school visits* • *Access to program-specific resources via publicly-available sections of website, via password-protected sections of website or online modules, via USB, via email, in hardcopy* • *Access to research evidence via publicly-available sections of website, via password-protected sections of website or online modules, via USB, via email, in hardcopy (e.g. books or articles)* • *Email / phone availability* • *Facilitation of school networks*	PL program delivery: Fidelity	7 mins

PL program	In what ways (if any), did the supports you delivered this semester differ from what you had planned? Why did they differ?	PL program delivery: Fidelity	5 mins
PL program	In what ways do you draw on research evidence in your program, and how do you share this with schools? *Follow-up questions:* • *Have you always taken this approach?* • *How do you expect participants to draw on research as a result of your program?*	PL program delivery	6 mins
Appropriateness (18 mins)			
Context – school	How would you describe the context of the schools you have worked with as part of Project GEMS? *Prompts:* • *Were there things happening in the system / school context that impacted the implementation of the professional learning in the schools (e.g. other departmental priorities?)*	Educator / leader characteristics; Enablers and barriers: school and classroom context	5 mins

PL program	In what ways (if any) did you adapt delivery of your program between schools to take account of the specific contexts of these schools?
	
	Prompts:
	• *How would you support schools differently that are at later stages of implementation?*
	• *Do you / how do you adjust your program:*
	   ○ *according to student needs identified in school data?*
	   ○ *to take account of different educator characteristics in a school (e.g. different levels of prior knowledge among school leaders)?*
	   ○ *to take account of the different strategies used by schools to mobilise evidence? How would you describe these strategies?*
		PL program delivery: Appropriateness
		
		(Implementation outcomes: Sustainability)
			5 mins

Enablers and barriers	What did you look for to ensure that the research evidence on literacy and numeracy practices you made available to schools is relevant and/or appropriate for application in the context of those schools?	Enablers and barriers: evidence characteristics	5 mins
Enablers and barriers	How do you assess / determine whether this evidence is rigorous / of high quality?	Enablers and barriers: evidence characteristics	3 mins
Acceptability (15 mins)			
PL program	For the schools involved in Project GEMS, how would you summarise participants' experiences and responses to the professional learning process? *Follow-up:* • *In your work with schools, did some schools/participants appear to be more engaged than others?*	PL program delivery: Acceptability	5 mins
PL program	Do you collect feedback from participants in your program? • In what form is this feedback? • When is it administered?	PL program delivery: Acceptability	3 mins

	Do you have it available in an aggregated form? Is there anything in particular we should know when interpreting this feedback?		
Outcomes	For the schools involved in Project GEMS, what impact do you think involvement in your PL program has had on (a) teacher knowledge, attitudes and skills; (b) teaching practices; and (c) student learning? How do you know this?	Educator outcomes: practice Student outcomes	7 mins
Questions about what helps and hinders use of the literacy and numeracy instruction evidence made available via the PL program in practice (24 mins)			
Enablers and barriers	What do you see are the enablers in the use of literacy and numeracy evidence among the schools you have worked with in Project GEMS? *Follow-up:* • *So what would you identify as the 2-3 key enablers?*	Enablers and barriers	7 mins
Enablers and barriers	How do you assist schools to make full use of these enablers?	Enablers and barriers	5 mins
Enablers and barriers	What do you see are the barriers to the use of literacy and numeracy evidence among the schools you have worked with in Project GEMS? *Follow-up:* • *So what would you identify as the 2-3 key barriers?*	Enablers and barriers	7 mins
Enablers and barriers	What specific supports do you provide to help schools address these barriers?	Enablers and barriers	5 mins
Enablers and barriers	One of the emerging findings from Project GEMS is that schools generally find it difficult to know where to start – i.e. they have used data and/or acted on advice to identify an area for improvement, and they are aware that there is a great deal of research out there, but they unsure which research they should use and may not be able to access it. They also view PL providers as a key driver for helping them to overcome this. How do you see your role in helping schools to find rigorous research evidence? OR Can you describe how schools in your program find relevant research for their PL focus? *Prompts (if not previously answered):* • *Do you tend to provide schools with research directly and/or build skills of teachers or school leaders in finding relevant research?* • *Do you tend to work with specific school staff e.g. Instructional Leaders / Principals / teachers directly?* • *Do you work with school leaders to convert the research into a more easily-accessible form for teachers to use?*	Enablers and barriers	INCLUDE IF THERE IS TIME
Final questions (7 min)			
PL program	What might you do differently in future in terms of enabling schools to further mobilise research evidence?	PL program delivery: Acceptability	5 mins
Overall	Is there anything that I haven't asked you about that you'd like to mention?	N/A	2 mins

Further information

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