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What works for “what works” centres

Learnings from system-level efforts to cultivate evidence informed practice

Centre for Evidence and Implementation

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About the Australian Education Research Organisation

This report was commissioned by the Australian Education Research Organisation, (AERO), which is funded by the Australian Commonwealth, state and territory governments.

A key recommendation from Through Growth to Achievement: Report of the Review to Achieve Excellence in Australian Schools (sometimes referred to as the Gonski review) was the establishment of a national education evidence body – AERO. The intent was to ensure that all school leaders, teachers, and educators have access to the best available evidence and resources and are supported to easily and effectively incorporate them into their practice in schools and early childhood services across Australia.

AERO is working towards excellent and equitable outcomes for all children and young people by generating and making high-quality evidence accessible, and enhancing the use of evidence in Australian education. AERO is a not-for-profit company owned by education ministers and operating under the governance of an independent Board.

About CEI

The Centre for Evidence and Implementation (CEI) is a global, not-for-profit evidence intermediary dedicated to using the best evidence in practice and policy to improve the lives of children, families, and communities facing adversity. Established in Australia in late 2015, CEI is a multi-disciplinary team across four offices in Singapore, Melbourne, Sydney and London. We work with our clients, including policymakers, governments, practitioners, program providers, organisation leaders, philanthropists, and funders in four key areas of work:

- making sense of the evidence
- generating the evidence
- building capacity to implement the evidence
- building cultures for evidence use.

Contents

Executive summary 5

Introduction 5

Key findings 6

Why "what works" may falter 6

Insights from implementation science 7

Known barriers and enablers to implementation in education settings 8

Recommendations for AERO 9

Conclusion 10

1. Introduction 11

2. Methodology 14

2.1. What was the scope of the desktop review? 14

2.2. How did we undertake the desktop review? 14

2.2.1. Expert group 15

2.2.2. Desktop search 15

2.3. How did we collate and synthesise the literature? 16

3. Why "what works" may falter 17

3.1. Seven common reasons why evidence translation efforts falter 18

3.1.1. Limited, if any, attendance to effective and sustainable implementation 18

3.1.2. Lack of credibility with the field they are seeking to influence 18

3.1.3. Presence of rigour but lack of relevance in the evidence they share 20

3.1.4. Slow pace with which evidence is shared 21

3.1.5. Insufficient awareness of how frontline practitioners, including educators, understand and use evidence 21

3.1.6. Inappropriate skills and competencies in their workforces 22

3.1.7. Insufficient attention to and understanding of how to influence the policy process 22

3.2. Conclusion 23

4. Insights from implementation science 24

4.1. Why implementation science? 25

4.2. Drawing on the lessons of evidence intermediaries 26

4.3. The intermediary's work to translate evidence into practice 27

4.4. Known barriers and enablers to implementation in education settings 28

4.4.1. Domains affecting implementation 28

4.4.2. Barriers and enablers to implementation in education 29

4.5. Conclusion 31

5. Recommendations for AERO 32

5.1. Recommendations for AERO 33

5.2. Conclusion 46

6. Conclusion 47

References 48

Executive summary

Introduction

There is a well-documented gap between research and practice: a lag of approximately 17 years between what we "know" and what we "do" (Robinson et al., 2020b). In education, a gap of 17 years represents nearly two generations of students not getting access to things we know *today* that could improve their outcomes. The "what works" movement emerged in recognition of – and to help close – this gap. Institutions working in the US, UK, and a number of other geographies identify and fill gaps in the evidence base and work to translate evidence to support and improve decision-making and frontline practice.

The Australian Education Research Organisation (AERO), established in 2020 under the National School Reform Agreement, is part of the "what works" movement. AERO is Australia's new independent education evidence body, established and funded by Commonwealth, state and territory governments. AERO's vision is to achieve excellence and equity in educational outcomes for all Australian children and young people through effective use of evidence.

There is still much to learn about how to drive change and to close the research to practice gap – this is true in education as in other sectors. There is no shortage of education research evidence available, but the track record for research translation into the field is spottier (Finn, 2021). While AERO recognises the significant strides made by global evidence centres it also acknowledges that there are valuable lessons learned that may inform its own work in this critical early stage. AERO therefore sought to undertake a review into major, system-level efforts to cultivate evidence-based practice: an assessment of "what works for what works" – and, crucially, what doesn't.

In this vein, the Centre for Evidence and Implementation (CEI), a global, not-for-profit evidence intermediary dedicated to using the best evidence in practice and policy to improve people's lives, has worked with AERO to answer two key questions:

1. What have been the successes and failures of evidence institutions and intermediaries, particularly in education?
2. What can and should AERO do differently?

To address these, CEI worked with a group of experts and undertook a desktop review of "what works" for evidence intermediaries and the barriers and enablers to implementing evidence in education. The desktop review scope was pragmatic and time-limited. The research team preferenced expert guidance, in recognition of the fact published research literature addressing the key questions was likely to be limited or inaccessible. CEI consulted individually with 7 experts to secure their recommendations on literature sources. CEI then undertook a search of reference lists of these documents, as well as a supplementary search of web-based grey literature. CEI further undertook a selected search of academic journals to address specific questions on barriers and enablers to implementation in education. This resulted in a total of 86 documents related to the success and failure of intermediaries and barriers and enablers to the implementation of evidence in educational settings. The team read through the documents and synthesised the literature according to key themes agreed by the project team and two members of the expert panel. The results of the review are described narratively.

One of AERO's research agenda priorities for 2021-22 is *Improving outcomes for Aboriginal and Torres Strait Islander children and young people*. AERO has indicated that projects undertaken as part of this priority will be undertaken with participation of Aboriginal and Torres Strait Islander researchers. The present work has suggestions of areas that may have particular implications for AERO's work with diverse communities of Aboriginal and Torres Strait Islander Australians. However, these are hypotheses only and merit further exploration with appropriate representation from groups affected.

Key findings

Why "what works" may falter

The research reveals 7 commonly identified reasons why evidence centres may fail to deliver on objectives of research translation into policy and practice:

1. Limited, if any, attendance to effective and sustainable implementation
   Too often, in too many contexts and sectors, there has been too little thought on how research will get into the hands of people who need it. As an example, within the UK What Works network, for example, the research finds that there is less focus on work that will support evidence translation into policy and practice (Gough et al., 2018). The key insight for AERO is that it must attend to implementation as a key activity, with as much or more attention paid to the effective implementation of evidence as there is to synthesis and generation of evidence.

2. Lack of credibility with the field they are seeking to influence
   To be successful, evidence bodies must be viewed as neutral and unbiased when presenting evidence and their work must also be grounded in the realities of practice. Building credibility is a critical and typically under-attended aspect of the work of evidence intermediaries and crucial to building trust (Rycroft-Malone et al., 2015). The key insight for AERO is that in order to be an effective research translation body within Australian education, it must build credibility as a trusted institution *by*, *with* and *for* educators – as well as ensuring it remains credible within the policy and research communities. Developing experience and credibility as an organisation engaging with Aboriginal and Torres Strait Islander communities will be essential.

3. **Presence of rigour but lack of relevance in the evidence they share**
   Intermediaries should clearly communicate the quality of evidence through a set of agreed criteria. This is also important for reinforcing credibility and avoiding potential bias. Yet there is also a need for intermediaries to provide the kinds of evidence that policymakers and practitioners want in formats useful for them (Bristow et al., 2015). Evidence must be both high quality and relevant. The key insight for AERO is that it must establish rigorous evidence standards but also ensure that the types of evidence it draws upon and shares reflect the reality of how educators and other key audiences use and understand evidence.

4. **Slow pace with** which **evidence is shared**
   Decision makers (whether policymakers, educators, commissioners or others) value timely evidence (Puttick, 2012); "timing matters" when interacting with the policy process (Gluckman et al., 2021). A key failure of evidence intermediaries has been the relatively slow pace at which they are able to provide and share evidence. The key insight for AERO is that it should make emerging evidence available and focus on timely contributions to decision-making, relying on the best evidence available within timeframes and caveating findings as appropriate.

5. **Insufficient awareness of how frontline practitioners, including educators, understand and use evidence**
   There are several common evidence translation pitfalls related to how research producers and translators take account of how and why educators use evidence: failure to take account of incentives; failure to understand what makes research meaningful for educators; failure to reflect time constraints for educators; failure to ensure evidence is contextualised; and lack of user involvement in design of evidence translation products and services. The key insight for AERO is that it must build organisational approaches to—and should consider furthering the evidence base for—how evidence is used in education practice settings, and how practitioners can be supported in this endeavour.

6. **Inappropriate skills and competencies in their workforces**
   While evidence centres are often well-equipped to surface robust evidence and discern its quality, they may be missing skills to select and apply strategies to ensure knowledge is utilised. The key insight for AERO is that it must include educators within its ranks as well as ensuring that its staff build (learnable, known) skills in implementation.

7. **Insufficient attention to and understanding of how to influence the policy process**
   There has been insufficient attention paid to making evidence relevant and accessible for policy professionals; the language of scientific research evidence can be alienating and inaccessible for non-experts. Evidence centres also need to be able to help policymakers understand how their findings relate to an area of their concern (Brand, 2015). The key insight is that AERO must develop approaches to influence policy that work with the grain of how policymakers use evidence.

Insights from implementation science

Implementation science is a new discipline that explicitly acknowledges and studies the work of evidence bodies like AERO and offers insights on the barriers and enablers to research uptake and implementation in education. The field offers lessons for AERO that will determine what it can do to support the effective implementation of evidence. The field of implementation science is of interest to those tasked with driving the uptake and embedding of evidence and innovation in complex systems. The discipline emerged over the past two decades and is born from the understanding that on their own, production and even dissemination of evidence are not enough to enable timely policy and practice transformation.

AERO's remit goes beyond that of a traditional evidence centre; *uptake* of evidence is a core activity the organisation has identified as enabling its vision. Because of this focus, AERO is rightly understood as an *evidence intermediary*. Implementation science is explicitly concerned with the roles, functions, strategies and organisation of intermediary organisations as key system actors (Franks & Bory, 2017; Monash Health Centre for Clinical Effectiveness, 2019). Intermediaries are entities that work *in between* system actors and institutions (including, for example, policymakers, funders and practitioners) to facilitate effective implementation and bridge the research-practice gap (Bullock et al., 2021; Monash Health Centre for Clinical Effectiveness, 2019). While evidence intermediaries are relatively under-represented in education, there are numerous bodies focused on the uptake and implementation of evidence-based and evidence-informed practices within other sectors. The intermediary sits in between two systems: one in which evidence is distilled and synthesised and the other involved in implementing the evidence in practice settings. Its role is to support the work within both settings.

Known barriers and enablers to implementation in education settings

As an evidence intermediary, AERO will have a role in supporting the implementation of evidence-based approaches in education settings. The literature reveals known barriers and enablers to implementation within education settings, which are categorised according to domains of the Consolidated Framework for Implementation Research (CFIR), an implementation science framework that captures key areas, or domains, typically affecting implementation.

- Program or intervention characteristics: perhaps the most obvious factor that influences successful implementation is the nature of the intervention or evidence-informed initiative itself. When planning to bring evidence into the practice setting, AERO should ensure the evidence is clear, feasible to implement, and is a good fit to the setting.

- Individual characteristics: individual members of a diverse school community will have varying preferences, beliefs, attitudes, motivations and attributes that can influence the successful implementation of evidence. Motivation for change is the fertile ground for successful implementation. AERO should account for and cultivate the motivations of educators and school leaders when working with them to trial or implement an intervention or practice.

- Inner setting: there are key factors within the school setting itself that influence implementation. A strong evidence culture within an education setting is one such factor that drives support for implementation among educators and staff (Hornby et al., 2013; Schneider, 2014; White et al., 2016). AERO should consider how to cultivate school cultures that facilitate the use of evidence for continuous improvement, including ensuring schools have adequate structural resources to engage critically with evidence.

- Outer setting: attention must be given to the wider system within which a particular school is embedded. AERO should consider how the wider network and system that supports each school is engaged to emphasise and incentivise the adoption of evidence-informed practices.

- Process: there are specific practices or implementation strategies that, if used at the right stage of the implementation journey, can support high-quality implementation. It is important to plan for the implementation process and treat implementation as "real work" – involving planned stakeholder engagement, practical guidelines, protecting time and resources and ongoing feedback.

Recommendations for AERO

There are five key recommendations for AERO, focused on its approach.

Recommendation 1: in the first few years, AERO should explicitly focus on building credibility and relevance through engaging with practitioners and other system actors and defining its role in the system. For busy practitioners and policymakers, intermediary organisations can help make sense of information. To be effective, AERO needs to be viewed as a trusted partner bringing neutrality and transparency (Brand, 2015; Biebel et al., 2013). Research has shown the importance of evidence intermediaries engaging in co-creation with local communities and staff, hearing diverse voices and providing strong peer-to-peer support (Davies et al., 2015; Lewis & LaValle, 2021; Wye et al., 2020). Building understanding of AERO's unique role within the education system is also important to realising system impact, and will take time. Additionally, credibility may be further advanced through the joint identification and agreement on the types and standards of evidence.

Recommendation 2: AERO should treat policy influence as one of the top priorities in its strategic agenda, given the potential of policy to shape system-level change. Influencing policy will involve reflecting on how policymakers use evidence and making emerging evidence available in a timely manner. This may involve relying on the best evidence available within required timeframes and caveating findings as appropriate. Within the education sector, policymakers and regulatory bodies are best placed to create an environment that incentivises the use of evidence among practitioners (Bazalgette, 2020; Franks & Bory, 2015). The literature finds that evidence intermediaries and what works centres have evolved over time to take on more of a focus on driving uptake and implementation (Gough et al., 2018) and to recognise the strategic importance of policy and systems development (Franks & Bory, 2015). This underscores the strategic importance for evidence intermediaries such as AERO to orient key aspects of its strategy around policy influence and systems development from the outset. To do so, there is a range of implementation strategies, ranging from workshops and convenings, articulating a formal policy agenda, being the conduit between policymakers and other stakeholders, and direct advocacy.

Recommendation 3: AERO must build a diverse team that has the skills and competencies to drive evidence translation in education flexibly and adaptively. As intermediaries diversify their implementation strategies, they deepen and intensify their implementation support (Albers et al., 2020). However intermediaries are not trained in the necessary skills and frameworks to effectively leverage implementation science (Franks & Bory, 2015). This report outlines competencies and behaviours that these institutions need to be effective, such as growing and sustaining stakeholder relationships, co-creation and co-learning, brokering, capacity-building, and a range of other skills areas. Building skills in identifying bias in their practice and undertaking culturally safe research and research translation are essential. Evidence intermediaries should remain flexible, adaptive and responsive to the evolving needs of the system they sit within. Additionally, leadership is the most commonly reported factor for creating change (Rycroft-Malone et al., 2015). Leadership can be through designated, formal roles while other roles distribute leadership among staff and other stakeholders involved in the implementation of novel approaches; both types are essential.

Recommendation 4: AERO should consider evidence uptake as its desired endpoint across all organisational strategic pillars. It is crucial for evidence intermediaries to ensure that the evidence matches a need within the system (Breckon & Dodson, 2016; Mulgan & Breckon, 2018). In this vein, intermediaries such as AERO must engage and collaborate with end-users early on, potentially beginning from conversations around where to focus

resources and the types of questions that research will address. Evidence intermediaries also need to gain insight into how the system is using evidence, how to communicate evidence, how the system is incentivising or disincentivising evidence use (Breckon & Dodson, 2016), and how to measure evidence uptake and implementation.

Recommendation 5: AERO should proactively build networks and capacity among stakeholders. Much of AERO's work to generate and disseminate evidence is reliant on people and their relationships. Addressing the social nature of research use through actively cultivating networks would therefore be a good potential step for AERO. Within knowledge translation contexts, negotiation of shared meaning is important for knowledge to be used effectively (Spyridonidis et al., 2015) and the value of collaboration and relationships between intermediaries, practitioners, policymakers and other key stakeholders is well established (Clinton et al., 2018). AERO should also concentrate on building the capability, opportunity and motivation of stakeholders to use evidence – referring to what is known as the COM-B Framework for behaviour change (Michie et al., 2011). Furthermore, insights from behavioural science and implementation science highlight the need to go beyond individual motivation and to attend to the context within which the behaviour is occurring.

Conclusion

AERO is a pioneering organisation, pursuing its vision for evidence in Australian education as the first body to do so at this scale in the country. This will likely be a multi-decade project to support better use of better evidence. There will be key challenges, including finding ways to assess its impact; finding ways to structure and govern its work; and finding and deploying a diverse team. Pursuing a consistent agenda while being responsive to stakeholder input will also be a key challenge, as will be the need to balance rigour in the evidence it shares with the pragmatism that can shape practice. AERO will also need to integrate a diverse base of evidence that reflects Australian communities' needs, particularly those of Aboriginal and Torres Strait Islander peoples. In all of this work, AERO is in good company – the 'what works' movement is full of organisations facing similar challenges. AERO can benefit from the insights of many evidence intermediaries that have come before and from ongoing contact and engagement with this network. Making its own learning and failures visible will contribute to this dynamic and emerging field of practice and research.

1. Introduction

Why “What works for ‘what works’?” is a question we should be asking.

There is a well-documented gap between research and practice, commonly reported to be about 17 years (Robinson et al., 2020b); that is, it takes about 17 years to close the gap between what we “know” and what we “do”. In education, a gap of 17 years represents nearly two generations of students not getting access to things we know *today* that could improve their outcomes.

The “what works” movement emerged in recognition of – and to help close – this gap. In the UK, the What Works network was established in 2013, and across the United States a large number of evidence clearinghouses and databases have emerged in the last 10-15 years. Entities with similar functions have sprung up in Australia, Canada, France and other countries. These institutions, which work on areas as diverse as education, wellbeing, health and justice, identify and fill gaps in the evidence base and work to translate evidence in order to support and improve decision-making and frontline practice. In what follows, we refer to this diverse and evolving set of institutions as “evidence centres” or “evidence intermediaries” working within the “what works” movement.

The Australian Education Research Organisation (AERO) is part of the “what works” movement. It was established in 2020 under the National School Reform Agreement. AERO is jointly funded by the Commonwealth, state and territory governments and is governed by an independent, expert Board. AERO’s vision is to achieve excellence and equity in educational outcomes for all Australian children and young people through effective use of evidence.

AERO takes up this work recognising that education systems globally have often struggled to incorporate evidence-based approaches that have the potential to improve student outcomes. The Monash Q project, which focuses on the improvement of research use, identifies this as a challenge in Australian schools (ACEL, 2021). There is no shortage of education research evidence available, but the track record for research translation into the field is spottier.

> *"There are plenty of sources of expert reviews, meta-analyses, and wise counsel as to what works best if you install it in your school or classroom and implement it correctly…. [but] education research and 'best practices' so seldom alter on-the-ground practice" (Finn, 2021).*

While AERO recognises the significant strides made by global evidence centres, in education and in other sectors, it also acknowledges that there are valuable lessons learned in the first decade or so of this movement and important insights that can inform its own work. There is still much to learn about how to drive change and close the research to practice gap.

As it commences an ambitious program of work, AERO seeks to undertake a review into major, system-level efforts to cultivate evidence-based practice. An assessment of "what works for what works" – and, crucially, what doesn't – is important to inform AERO's strategy and ensure it can deliver the greatest possible impact.

In this vein, the Centre for Evidence and Implementation (CEI), a global, not-for-profit evidence intermediary dedicated to using the best evidence in practice and policy to improve people's lives, has worked with AERO to address two key questions.

1. What have been the successes and failures of evidence institutions and intermediaries, particularly in education?
2. What can and should AERO do differently?

The insights and research literature on which CEI drew to answer these questions was varied, and our methods are detailed in the next section. In particular, it is worth noting that CEI looked to understand the barriers and enablers to evidence use in education to build further insights to inform AERO's practice. The following synthesis covers:

1. The common reasons why evidence translation efforts have faltered
2. Insights on the roles and functions of evidence intermediaries and the enablers and barriers to knowledge translation in education
3. Proposals for AERO to avoid common pitfalls and deliver an effective program of work to translate evidence to policy and practice in Australian education.

A note on terminology

This report uses a number of terms including "research translation", "evidence translation", "evidence uptake", "knowledge translation", "knowledge mobilisation" "dissemination research", "implementation science," and "practice translation". These terms essentially describe the same thing – getting what is known to work into the hands of the people who need it, with the objective of improving practice and policy.

Aboriginal and Torres Strait Islander Australians

AERO's principles for ethical and responsible research note that it will: "Conduct research that upholds the fundamental rights and dignity of all people, regardless of identity or background. We engage with research participants as partners rather than subjects, seeking to understand their context and perspectives. We celebrate the distinct and diverse contributions of all stakeholders in our work. We particularly value and respect the diversity, heritage and knowledge of Aboriginal and Torres Strait Islander peoples."

It is appropriate that AERO make this commitment visible in its statement of principles. AERO recognises the historically poor treatment of Aboriginal and Torres Strait Islander communities by the research establishment, including systemic racism, institutional discrimination and abuse. AERO also recognises the persisting inequalities that this has produced for children and young people of these communities, across a range of measures and across life stages (Australian Institute of Health and Welfare, 2021). The system was "never designed for Aboriginal and Torres Strait Islander students", meaning they have "largely not had access to a complete, relevant, and responsive education" (Australian Institute for Teaching and School Leadership, 2020). This is reflected in the National Agreement on Closing the Gap, which has five socioeconomic reform targets related to school readiness and education.

This report references areas where particular attention may need to be paid to the implications for diverse communities of Aboriginal and Torres Strait Islander Australians. However, these are hypotheses only and should be confirmed through further research and consultation with these communities. This work did not explicitly set out to examine the role and needs of an evidence intermediary when working with First Nations people or other marginalised groups. The evidence review yielded no papers that were focused specifically on First Nations people and did not engage in consultation with researchers from these communities, so the paper's scope for including specific advice relating to AERO's role in relation to Aboriginal and/or Torres Strait Islander communities is very limited.

This is a topic that merits deep examination on its own, as a standalone research investigation, rather than as an add-on to an existing report. A range of research guidelines and practice, many developed within the last 3-5 years, articulate how organisations focused on the generation and dissemination of research should seek to engage marginalised communities in meaningful, culturally safe ways that respect their lived experience, traditions and methodologies, and work to address bias within mainstream modes of research. These practices merit consideration and adaptation in the context of AERO's institutional mission and objectives. To this end, one of AERO's research agenda priorities for 2021-22 is *Improving outcomes for Aboriginal and Torres Strait Islander children and young people*, and AERO is currently scoping how, as an evidence intermediary, to best serve the needs of Aboriginal and Torres Strait Islander Australians in its work. This work will be undertaken in collaboration with Aboriginal and Torres Strait Islander researchers.

2. Methodology

Working with a group of experts, we undertook a desktop review of “what works” for evidence intermediaries and barriers and enablers to implementing evidence in education.

2.1. What was the scope of the desktop review?

We used a pragmatic approach to identifying and reviewing key literature to draw relevant, focused and practical recommendations for AERO in what they could do differently as an intermediary in education. The time-limited desktop review, informed by a group of experts, was guided by the following questions.

- What are the lessons learned for what works centres – particularly about what doesn’t work – for getting evidence into policy and practice?
- What are the barriers and enablers to implementing evidence in educational settings?

2.2. How did we undertake the desktop review?

We knew there was likely limited published literature on what works for intermediaries, especially their potential failures – and that this material, where available, may not be easily accessible. For this reason, our desktop review strategy preferenced expert guidance on identifying key literature, which we supplemented with discrete selected searches of reference lists of primary source material, websites and academic journals.

2.2.1. Expert group

We consulted seven experts in the fields of education, implementation science and evidence intermediaries (in academic, policy and practice settings). These experts included one CEI senior team member, one CEI advisor, two AERO senior team members and three international individuals external to both agencies identified through the project team's networks and consulted by phone. The 3 external experts either have worked at "what works" organisations, and/or bring a wider sector perspective as researchers whose work assesses and has advanced the field. To the research team's knowledge, this group did not include First Nations representation.

We consulted with expert panel members individually to gain their recommendations on sources of literature – including grey and unpublished literature, and internal organisational reports – that explored the lessons learned for evidence intermediaries.

A set of 21 primary source papers were identified.[1]

2.2.2. Desktop search

Reference list search of primary source documents

We searched the reference lists of the primary source documents identified by the expert panel to identify additional literature. To limit the search, we screened titles, abstracts and if required, full-text documents with reference to:

- Accessibility – documents were publicly available or accessible through academic databases
- Year – documents were published between 2011 to 2021, given the relatively recent emergence of the "what works" movement and critical analysis of evidence centres
- Relevance – documents described an intermediary or implementation effort at the system level rather than individual program area in education, social policy or health
- Context – documents described intermediaries operating in Australia or countries similar to Australia[2]

We identified 25 additional documents through this approach.

Search of grey literature

We undertook a supplementary search of web-based grey literature to identify additional documents describing the success or failures of intermediaries. To limit the search, we used focused search terms related to intermediaries and education,[3] applied the above criteria and scanned results for the first 10 pages. We identified 29 additional documents through this approach.

[1] A few members of the expert group continued to send the project team literature during the review process. These sources were used to frame the interpretation of results.
[2] This included New Zealand, the United Kingdom, the United States, Canada, Sweden, Denmark, or any other high-income, Western-culture country similar to Australia.
[3] L1: "Evidence Intermediary"; "Intermediary Organisation"; "Intermediary Organization"; "Clearinghouse"; "Purveyor"; "What Works"; L2: "Research to Policy"; "Impact"; "Innovat*"; "Translat*"; "Policy"; "Implementation"; "Evaluation"; L3: "Educat*"; L4: "Success*"; "Failure*"

Selected search of academic journals

To identify additional education-specific material in addressing the second question on barriers and enablers to implementation, we undertook a selected search of two high-impact dedicated implementation journals: *Implementation Science* and *Implementation Science Communications*. Using focused search terms[4] and limiting results by year and context, we identified four papers for inclusion in the review.

Due to the limited literature identified, we conducted an additional search in 2 education journals, the *American Educational Research Journal* and *Educational Evaluation and Policy Analysis, as well as* two education databases, *ERIC* and *Education Research Complete*. Expanding the search terms to improve the scope of our search[5] we identified seven papers for inclusion in the review.

2.3. How did we collate and synthesise the literature?

The search resulted in a total of 86 documents related to the success and failure of intermediaries, and barriers and enablers to the implementation of evidence in educational settings. The documents were published between 2011 and 2021 and originated, in the main, from the United States (26 papers), the United Kingdom (18 papers) and Canada (9 papers). Additionally, 28 papers had a global scope,[6] while four were identified as originating in Australia and one in Spain. We sought to include papers which focused on institutions and initiatives that aimed to improve outcomes for First Nations peoples. However, no suitable papers were identified in this search.

We read through the documents and synthesised the literature according to key themes agreed by the project team and two members of the expert panel. The results of the review are described narratively.

[4] The starter search string ran separately in each journal was: (educat* or school* or teach*) and (barrier* or enabler* or facilitator* or determinant*)

[5] The starter search string was as follows: (barrier* OR enabler* OR facilitator* OR determinant* OR driver* OR challenge*) AND (educat* OR teach* OR school*).

[6] Global was designated as covering multiple countries or regions.

3. Why “what works” may falter

Evidence centres may not always reach their potential – and there is common understanding of the reasons why.

The research reveals seven commonly identified reasons why evidence centres may fail to deliver on objectives of research translation into policy and practice:

1. Limited, if any, attendance to effective and sustainable implementation
2. Lack of credibility with the field they are seeking to influence
3. Presence of rigour but lack of relevance in the evidence they share
4. Slow pace with which evidence is shared
5. Insufficient awareness of how frontline practitioners, including educators, understand and use evidence
6. Inappropriate skills and competencies in their workforces
7. Insufficient attention to and understanding of how to influence the policy process

These are described in what follows. This section is intended to be diagnostic, with key insights provided on implications for AERO; recommendations for AERO are outlined in Section 5.

3.1. Seven common reasons why evidence translation efforts falter

3.1.1. Limited, if any, attendance to effective and sustainable implementation

Key insight: AERO must attend to implementation as a key activity, with as much or more attention paid to the effective implementation of evidence as there is to synthesis and generation of evidence.

Though evidence translation may seem to be straightforward process, the persistent research-practice gap shows that it is not. Evidence implementation is plagued both by non-uptake of interventions and by mis-implementation (see Section 4 for an introduction to implementation science and common terms). These challenges are "longstanding and persistent—and likely the rule rather than the exception" (Bauer & Kirchner, 2020). Unsuccessful implementation is common, with estimates finding at least 30% of programs or interventions are not implemented, only partially implemented or inappropriately terminated (Allen et al., 2020; Parenting Research Centre, 2015).

Too often, in too many contexts and sectors, there has been too little thought on how research will get into the hands of people who need it. Evidence is produced (and often disseminated in guidance notes and websites) but the essential work of translation gets less attention. Translation is a non-linear, long-term, interactive and recursive process (Braithwaite et al., 2018) with a variety of factors affecting both quality of brokerage and capacity and receptiveness of end users. Attending to implementation in such complexity requires ongoing attention from stakeholders. Perhaps as a result, widespread uptake goals have not always been achieved (Albers, et al., 2020; Sharples, 2019).

As an example, within the UK What Works network, the research finds that there is less focus on work that will support evidence translation into policy and practice (Gough et al., 2018). One expert consulted for this study echoed this, saying "lack of attendance to knowledge mobilisation and implementation" was a key shortcoming of the "what works" movement.

There are studies of education evidence bodies that support this finding, reflecting the need and desire to shift towards a greater focus on effective and sustainable implementation. The Literacy Octopus trial from the UK's Education Endowment Foundation (EEF) found that disseminating research summaries and evidence-based resources to schools was not an effective approach to support schools to improve outcomes. As a result of this evaluation, EEF reframed its work, putting a greater focus on scaling up, offering more structured support to schools, and focusing more on implementation (NFER, 2019). This is a promising shift within the sector and one that other evidence centres can learn from.

3.1.2. Lack of credibility with the field they are seeking to influence

Key insight: For AERO to be an effective research translation body within Australian education, it must build credibility as a trusted institution *by*, *with* and *for* educators – as well as ensuring it remains credible within the policy and research communities. Developing partnerships with First Nations-led research organisations will be essential.

Some evidence intermediaries have been criticised for being overly academic or out of touch with educator practice (Anderson, 2018). To be successful, evidence bodies must be

viewed as neutral and unbiased when presenting evidence and their work must be grounded in the realities of practice.

Bias is a concern for users of evidence, who may suspect that evidence purveyors have a hidden agenda; the Monash Q Project has found that nearly two-thirds of educators have low levels of trust in research due to perceived bias (ACEL, 2021). This issue is well-documented in the education research literature - and a known barrier to widespread implementation of evidence is mistrust among teachers of educational research (Hornby et al., 2013).

For educators and other end users of research, the intermediary must be seen to be critical and unbiased in its research brokering activities (Brand, 2015; Corcoran et al., 2015). The importance placed on credibility and trustworthiness does not just apply to the evidence, but also to the individual presenting it (Malin & Paralkar, 2017).

Practitioners within education, as in other fields, will be more receptive to research when it is aligned with their experience and legitimately "of" their sector. As noted by an expert consulted for this study, "[They] should see that an intermediary is by teachers, for teachers, it is with them. [It should not be] auditing and constricting them or [be perceived as] government pushing…demands."

Building credibility is a critical and typically under-attended aspect of the work of evidence intermediaries and crucial to building trust (Rycroft-Malone et al., 2015). This is reinforced in studies of the UK's What Works centres (Gough et al., 2018). The Q Project also finds that credibility is a key factor in effective research use, finding that research must be contextually relevant, credible and practical for educators to have the ability and willingness to use it in practice (ACEL, 2021).

Of course, the key is for evidence intermediaries to seem credible and unbiased because they *are* credible and work to address inherent bias. This will involve interrogating and addressing unintended bias within the research evidence they synthesise, generate and share. This will be particularly important in work to evaluate and/or improve practice that affects marginalised communities, including Aboriginal and Torres Strait Islander communities. These groups have been significantly impacted by past institutional policies and practices, have experienced systemic racism, and continue to face discrimination and marginalisation within research agendas. AERO should also focus on understanding Aboriginal methodologies and learning from First Nations researchers, with the aim of contributing to and learning from the Aboriginal evidence base.

> *"To be effective, the institutions of brokerage must be trustworthy to the political, policy, public and scientific communities. Brokers are connected to both science and policy worlds, but will not be effective if they are seen as peripheral or marginal to one or the other community (or both), and therefore viewed with suspicion."*
> (Gluckman et al., 2021)

3.1.3. Presence of rigour but lack of relevance in the evidence they share

Key insight: AERO must establish rigorous evidence standards but also ensure that the types of evidence it draws upon and shares reflect the reality of how educators and other key audiences use and understand evidence.

There is a need for intermediaries to clearly communicate the quality of evidence through a set of agreed criteria. This is also important for reinforcing credibility and avoiding potential bias; a study of research portals found that sound evidence standards were important for making claims about evidence and helped organisations avoid criticisms of partiality or bias (Gough & White, 2018).

Yet there is also a need for intermediaries to provide the kinds of evidence that policymakers and practitioners want in formats useful for them (Bristow et al., 2015). Evidence must be both high quality and *relevant*; the Getting Evidence Moving in Schools study within Australian education finds that for educators and school leaders, "finding relevant, high quality research" is the top ranked barrier to using evidence (Rickinson et al., 2020). Further evidence from the Monash Q Project underscores the importance that educators place on evidence relevance, which includes whether the evidence has sufficient academic backing, whether there is proof of impact and how well the evidence aligns with school plans and individual teaching practices (ACEL, 2021).

Evidence intermediaries may have limited effectiveness in translating high quality research evidence because either research conducted in other contexts is not relevant for specific practitioner contexts, or highly rigorous research (for example, randomised controlled trials, or RCTs) "tends to produce findings that are so generic so as to be of little use even if they were applicable" (Anderson, 2018). Moreover, RCTs may be perceived as an experimental approach working 'on' communities rather than 'with them' – and therefore not in line with co-production objectives (Bristow et al., 2015).

As one expert consulted for this study shared, there is a consistent failure to be pragmatic about research use within the "what works" movement; this expert suggested that this ongoing debate is a distraction from more important thinking for evidence centres. A study of the UK's What Works Centres cautioned that evidence centres must ensure their stated principles do not unnecessarily constrain the types of evidence they can draw upon (Bristow et al., 2015). In diverse contexts like Australia, this means privileging additional types of evidence including practice wisdom, community knowledge and lived experience.

> *"The institutions, frameworks, methods and data sources seen as most authoritative and valid are often far from community reality"* (Chicago Beyond, 2018).

This will mean setting rigorous evidence standards, while also ensuring that the types of evidence used are suitable to answer a variety of research questions and reflect the experience and preferences of Australia's diverse communities. While it is often "hard for professionals steeped in evidence to relax their standards, there are different purposes for evidence… the mistake evidence centres make is that only the most rigorous evidence is good evidence" noted one expert consulted for this study, emphasising the importance of leveraging a variety of evidence sources.

3.1.4. Slow pace with which evidence is shared

Key insight: AERO should make emerging evidence available and focus on timely contributions to decision-making, relying on the best evidence available within timeframes and caveating findings as appropriate.

Another key failure of evidence intermediaries has been the relatively slow pace at which they are able to provide and share evidence. Evidence centres aim to draw from a wide evidence base and may not rely on individual studies, which has meant that evidence may not be available to inform decision-making (Gough et al., 2018). Some evidence centres are perceived as too slow in synthesising and sharing evidence – in part because of the standards of evidence that they have embraced. There is a need for evidence standards to be applied intelligently, taking policymaker and practitioner priorities into account (Bristow et al., 2015).

Decision makers (whether policymakers, educators, commissioners or others) value timely evidence (Puttick, 2012); "timing matters" when interacting with the policy process (Gluckman et al., 2021). A timing mismatch between producers and consumers of research "simply means that evidence is likely to be ignored" (Gorard, See, & Siddiqui, 2020).

> *"'When an answer is required quickly, it's about working out what can be done to a high quality within that time – because it's better to have something than nothing'"* (Bazalgette, 2020).

3.1.5. Insufficient awareness of how frontline practitioners, including educators, understand and use evidence

Key insight: AERO must build organisational approaches to—and should consider furthering the evidence base for—how evidence is used in education practice settings, and how practitioners can be supported in this endeavour.

The balance of activity within many evidence centres has been about research production and dissemination rather than actual support for use (Campbell & Levin, 2012). This lack of attendance to how research is actually used in practice by educators (and the known barriers and enablers of evidence translation in education [see Section 0]) is a known pitfall for evidence centres and is cited in Section 0. There are several common evidence translation pitfalls related to how research producers and translators take account of how and why educators use evidence:

- **Failure to take account of incentives:** Without suitable recognition of incentives, research translators rely primarily on intrinsic motivation to improve practice to support practitioner take-up. This can be affected by responsibilities, workloads, experience and habits.
- **Failure to understand what makes research meaningful for educators**: The "packaging and posting" approach described in the prior section does not take account of how evidence is used and assumes that "once someone is aware of research or has a tailored research product in hand that this will lead to use... [but] It is more likely that the path from awareness… to practice requires actionable messages so that practitioners can see a clear link between behaviour and outcomes for students." (Cooper, 2012).

- **Failure to reflect time constraints for educators:** Multiple studies cite the challenges of securing practitioners' time and note that evidence centres cannot take for granted practitioner interest and time (Bristow et al., 2015). Within Australian education, the Monash Q Project has found that 85% of educators note they do not have sufficient time to engage with research (ACEL, 2021).

- **Failure to ensure evidence is contextualised:** Context is king. At the local level for educators, research products are often overly generic without sufficient attention and supports to develop the educator's capacity to understand and act on such evidence in teaching practices and local contexts (Cordingley, 2007), as well as across organisations and systems. Furthermore, even robust interventions may not be suitable across all organisations and contexts (Gorard et al., 2020). This is particularly pertinent for cultural adaptation and contextualisation for settings where the evidence has never been applied. It is important to consider where evidence comes from, where was it generated, for whom, and under what conditions.

- **Lack of user involvement in design of evidence translation products and services:** A lack of focus on user-centred design and targeted approaches often mean that evidence does not adequately inform both policy and practice (Bristow et al., 2015).

3.1.6. Inappropriate skills and competencies in their workforces

Key insight: AERO must include educators within its ranks as well as ensuring that its staff build (learnable, known) skills in implementation.

Across the literature, the lack of knowledge and skills have emerged as a key factor that prevents the mobilisation of research (Albers et al., 2020). While evidence centres are often well-equipped to surface robust evidence and discern its quality, they may be missing skills to select and apply strategies to ensure knowledge is utilised.

Some evidence centres have been criticised for staffing teams with too many academic researchers and statisticians and too few practitioners (Anderson, 2018). NESTA's Practical Guide to Setting Up an Evidence Centre notes that skills needs within evidence centres may change over time but zeroes in on a few skills that are important, including project and program management, research expertise, understanding of sector networks, and staff with lived experience working in or receiving services (Bazalgette, 2020).

In education, this suggests that failure to have educators at the decision-making table within evidence centres will compromise effectiveness. Beyond this, the literature finds that it is crucial for intermediaries to effectively apply implementation strategies while maintaining in-depth knowledge of their discipline, which suggests that either training staff or hiring staff with skills in knowledge brokering will be important for evidence centres (Albers et al., 2020; Bullock & Lavis, 2019; Franks & Bory, 2017; Gorard et al., 2020; Wye et al., 2020).

Cultivating a workforce that is aware of and actively works to address cultural bias and social inequity in research practice and translation is important for evidence intermediaries seeking to improve outcomes for marginalised communities (Chicago Beyond, 2018).

3.1.7. Insufficient attention to and understanding of how to influence the policy process

Key insight: AERO must develop approaches to influence policy that work with the grain of how policymakers use evidence.

There are many factors that influence policy development. Research evidence is one, while public opinion, political processes and the media are other key elements (Bristow et al., 2015). Nutley et al (2013) found that research evidence is less frequently used by policymakers than 'street evidence' (urban myths and conventional wisdom), 'lay evidence' (constituents' experiences), 'media evidence' and 'ideological evidence'. The policy process is contested and complex, with many factors outside the scope of evidence centre; being aware of these factors is important for those in knowledge brokering roles (Bristow et al., 2015; Gluckman et al., 2021).

There has been insufficient attention paid to making evidence relevant and accessible for policy professionals. The language of scientific research evidence can be alienating and inaccessible for non-experts and "it is not the need of the policy community" (Gluckman et al., 2021). Evidence bodies have, in the past, failed to work with national policy and funding systems or "make themselves relevant around reform," according to an expert consulted for this study. They also have not made evidence visible to target policy audiences and have under-invested in communications efforts, according to the same expert. Evidence centres need to be able to help policymakers understand how their findings relate to an area of their concern (Brand, 2015).

It is also rarely sufficient to influence simply the senior actors within policy systems – implementation processes are non-linear and complex (Hara-Msulira, 2018), and different actors will need to implement policy at different levels. The What Works Cities network has addressed this by actors at various levels of city government; each group is engaged through tailored messaging and engagement strategies.

3.2. Conclusion

This section has focused on what is known to contribute to failure of evidence translation, and it delivers some key insights for AERO. The next section explores the lessons of implementation science – a new discipline that explicitly acknowledges and studies the work of evidence bodies like AERO and offers insights on the barriers and enablers to research uptake and implementation in education.

4. Insights from implementation science

The field of implementation science has rich lessons for organisations like AERO.

The evidence assessed for this study shines a light on how and why prior research translation efforts have not achieved their intended potential. Finding 1 in Section 3 is that evidence centres must attend to implementation as a key activity, with as much or more attention paid to the effective implementation of evidence as there is to synthesis and generation of evidence.

There is an important body of knowledge that can help in determining what AERO can do to support its efficacy: the field of implementation science (see Box 1 for common definitions within the field, and refer back to the Introduction for a note on terminologies used interchangeably in this work, such as “research translation” and “evidence uptake”). This section draws on implementation science and related literatures to articulate the role of an evidence intermediary, describes the ongoing activity in which evidence intermediaries are engaged within systems, and provide insight on the known barriers and enablers to implementation of education interventions. The purpose of this section is to bring constructs, frameworks and insights to AERO’s work from a relevant discipline, in order to inform the organisation’s strategic focus and to further contextualise the recommendations in the next section.

4.1. Why implementation science?

The field of implementation science is of particular interest to those tasked with driving the uptake and embedding of evidence and innovation in complex systems. The discipline emerged over the past two decades and is born from the understanding that on their own, production and even dissemination of evidence are not enough to enable timely policy and practice transformation. Implementation science identifies multidisciplinary approaches (including drawing on the lessons and literatures of knowledge dissemination, research translation and knowledge mobilisation) to drive evidence uptake in real world settings, to help make lasting change in complex systems (Bauer & Kirchner, 2020; Eccles & Mittman, 2006).

There is a well-recognised spectrum of dissemination approaches (Greenhalgh et al., 2004) for evidence uptake:

- "Let it happen" (publishing the results, but leaving it up to policymakers and practitioners to integrate it)
- "Help it happen" (engage in some enabling activities, such as providing toolkits)
- "Make it happen" (driving change directly)

Within this framework, implementation science focuses on "making it happen" – and what it takes to do it well.

Implementation science addresses the challenge that many innovations and evidence informed approaches may fail to achieve their intended impact due to mis-implementation (see Box 1), a common challenge due to the complex nature of systems reform (Albers et al., 2020). Avoiding mis-implementation is a key priority for stakeholders across the education system in Australia, as it is internationally, but how to do this is often not well understood.

Implementation should be viewed as "real work" recognised in planning and budgeting processes, supported with human resources and monitored over time (Albers et al., 2020). It involves taking a planned and staged approach to change work, based on explicit goals and the tailored (and regularly evaluated) strategies that will deliver them. Implementation science offers practical, evidence-informed frameworks, methods and tools that add clarity to the change process. This is particularly important in complex, adaptive systems.

Harnessing implementation science in its work will support AERO to focus on strategies that are most likely to deliver impact.

Box 1: Common terms in implementation science

Implementation is defined as the process of putting a decision or plan into effect.

Evidence centres are concerned with the **uptake and implementation** – that is, the adoption within eligible settings and absorption into systems – of evidence informed practices.

A common concern is the threat of failed implementation, or **mis-implementation,** sometimes called **non-uptake**. These challenges occur when efforts to get a new policy, project, initiative, or program off the ground are disrupted or lose momentum over time.

The field also offers a rich body of literature on **de-implementation,** the process of identifying and removing interventions that are harmful, not cost effective or ineffective.

Implementation science uses a range of **frameworks** to describe, plan and evaluate implementation in complex settings and systems.

Implementation literature also refers to key determinants of implementation as **barriers** and **enablers** (also called **facilitators**). Barriers are challenges that may impede or compromise implementation efforts. Enablers support and facilitate implementation. Leveraging enablers and planning for and overcoming barriers are key to effective implementation planning. All implementation efforts will encounter barriers – this is normal and expected.

Implementation strategies are specific practices that can be used to overcome barriers, and thus can be facilitative of high-quality implementation. They are the actions taken to enhance uptake and sustainment of interventions.

4.2. Drawing on the lessons of evidence intermediaries

AERO's remit goes beyond that of a traditional evidence centre, evidence repository or evidence clearinghouse; *uptake* of evidence is a core activity the organisation has identified as enabling its vision.

Focusing on uptake and implementation of evidence in policy and practice differentiates AERO within the global education evidence centre movement, which has focused primarily on building a body of high-quality evidence and filling gaps in the evidence base. As Section 3 illustrates, building the evidence base and filling gaps is typically not sufficient to drive change. Because of this focus on uptake and implementation, AERO is rightly understood as an *evidence intermediary* and the implementation science literature on evidence intermediaries can provide insights for AERO.

Implementation science is explicitly concerned with the roles, functions, strategies and organisation of intermediary organisations as key system actors (Franks & Bory, 2017;

Monash Health Centre for Clinical Effectiveness, 2019). Most of the global work in driving better use of evidence in education has arguably focused on *letting it happen* and, sometimes, on *helping it happen* – evidence is produced and publicly shared and catalogued, passed along to educators in pamphlets and guides, or encouraged through training and talks. Evidence intermediaries, by contrast, focus on *making it happen*; in a 2015 study nearly 70% of evidence intermediaries identified this as their primary approach (Franks & Bory, 2015). Investigating what an intermediary is and does – and explicitly embracing the role and functions of an intermediary – have the potential to enhance AERO's work in improving education outcomes.

Intermediaries are entities that work *in between* system actors and institutions (including for example, policymakers, funders and practitioners) to facilitate effective implementation and bridge the research-practice gap (Bullock et al., 2021; Monash Health Centre for Clinical Effectiveness, 2019). The intermediary actor spans existing system structures to develop, implement and support best practice initiatives and build capacity of other organisations or systems to implement and sustain change (Albers & Mildon, 2017; Bullock & Lavis, 2019; Franks & Bory, 2015). While evidence intermediaries are relatively under-represented in education, there are numerous bodies focused on the uptake and implementation of evidence-based and evidence-informed practices within other sectors.

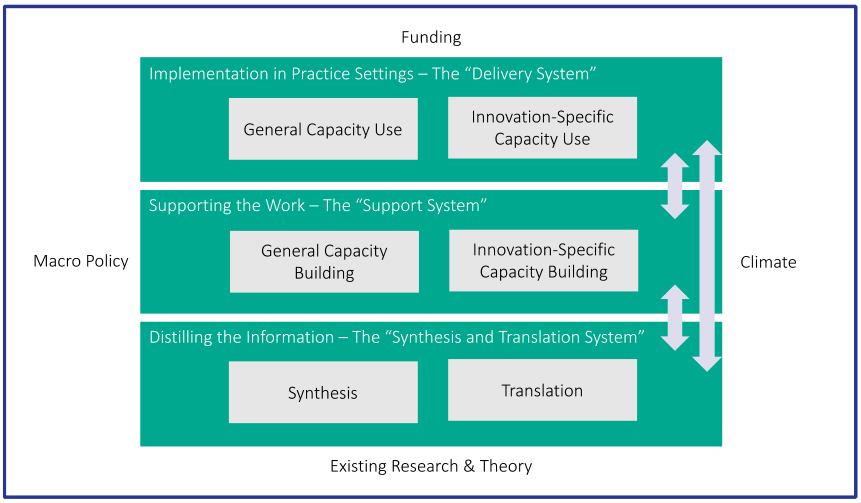
There are many different kinds of intermediaries and a wide variety of strategies they employ (Cooper, 2012).The literature notes that the intermediary role is growing and could become even more significant (Center for Innovation in Education, 2021; Tamtik, 2018): intermediaries are expanding in their work as they are able to respond in an agile way to change. This role is observed to have grown more significant as a result of the COVID-19 pandemic.

4.3. The intermediary's work to translate evidence into practice

AERO will be fulfilling its intermediary function in the context of a complex education landscape with multiple system actors. A framework can be useful for understanding intermediary work in relation to other functions. Here, the Interactive Systems Framework for Dissemination and Implementation (the ISF), can be useful for conceptualising (and potentially illustrating) AERO's role within education (see Figure 3) (Wandersman et al., 2008). The framework illustrates how knowledge of research moves into practice. It is intended to illustrate the potential for collaboration and communication among stakeholders (and to emphasise two-way flow of information), as well as helping system actors to see how their work relates to the work of others in the system.

The intermediary work in regard to evidence uptake and implementation is that of "supporting the work", sitting in between the systems in which evidence is distilled and synthesised and those that implement the evidence in practice settings. AERO also has a role in synthesising evidence as well as supporting its translation – within the "Synthesis and Translation System". Because the model looks at the process of translation, it does not look at the intermediary's role in influencing policy or generating research – these are activities that AERO will also undertake.

Figure 11: Interactive Systems Framework (adapted from Wandersman et al., 2008)



4.4. Known barriers and enablers to implementation in education settings

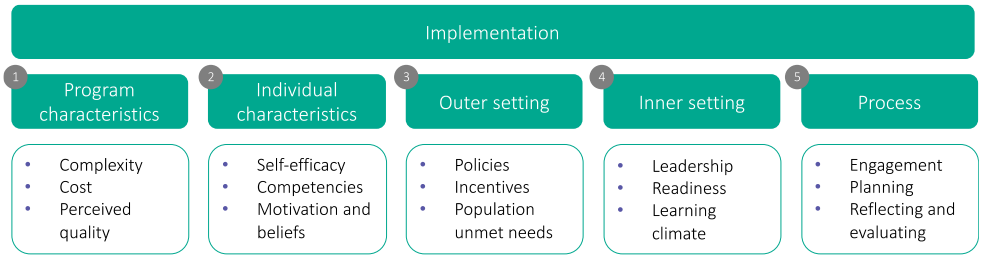
For AERO to support evidence implementation, it is helpful to understand what the literature reveals about barriers and enablers to implementation within education settings.

4.4.1. Domains affecting implementation

Implementation science offers rich insights into the known factors that influence evidence uptake and implementation in a range of contexts, including in education. The Consolidated Framework for Implementation Research (CFIR) is an often-used framework that captures key areas, or domains, typically affecting implementation. It has 5 major domains:

1. intervention or program characteristics, including cost, complexity and perceived quality, among other factors
2. (characteristics of the individuals involved, including the self-efficacy, competencies, and motivation of the people involved, among other factors
3. the outer setting, comprising the system and external environment including the policies and incentives in place and the unmet needs of the target population, among other factors
4. the inner setting, reflecting the leadership, readiness and learning climate, among other factors
5. the process of implementation, including engagement, planning and reflecting and evaluating, among other factors (Damschroder et al., 2009; Kirk et al., 2016).

Figure 2: Consolidated Framework for Implementation Research, adapted from Damschroder et al., 2009



The CFIR is useful as a practical tool for assessing potential barriers and facilitators (CFIR, 2021). In what follows, the CFIR is applied as a framework for assessing enablers and barriers to implementation in education, with the key implications and insights for AERO identified.

4.4.2. Barriers and enablers to implementation in education

Program or intervention characteristics

Key insight: When planning to bring evidence into the practice setting, AERO should ensure the evidence is clear, feasible to implement, and is a good fit to the setting.

Perhaps the most obvious factor that influences successful implementation is the nature of the intervention or initiative itself. Clarity is key for successful implementation. This includes: clearly defined educational objectives that make the intended educational benefits explicit (Cohen & Mehta, 2017) and concrete and transparent standards for what good implementation looks like (Evans et al., 2020). Further, it must be feasible for educators or other school staff to integrate the intervention within their day-to-day work (Cohen & Mehta, 2017; Reinhorn et al., 2017; Waller et al., 2017). This is crucial for sustainability. Flexibility is also an important influencing factor for ensuring relevance of the intervention: a balance between fidelity to the intervention and tailoring to different student populations and contexts must be found (Waller et al., 2017).

There is a wide variety of populations and settings within Australian education. Most programs are developed with urban contexts in mind, in which the majority of children are native English speakers. Programs must be tailored to contexts in which children may be from non-English speaking backgrounds in rural and remote settings, or in settings where there may be high poverty rates. Adaptations that maximise the fit between the initiative and the context within which it is being implemented ensure relevance and promotes spread to different settings (Herlitz et al., 2020; Waller et al., 2017).

Individual characteristics

Key insight: AERO should account for and cultivate the motivations of educators and school leaders when working with them to trial or implement an intervention or practice.

Individual members of a diverse school community will have varying preferences, beliefs, attitudes, motivations and attributes that can influence the successful implementation of evidence. Motivation for change is the fertile ground for successful implementation. Implementation of evidence-informed initiatives requires key actors to change their behaviour, such as introducing new practices into classroom teaching methods, or participating in monitoring and evaluation activities. Building the motivation and self-efficacy for change among key actors is crucial in the early stages of implementation

(Cohen & Mehta, 2017; Dan et al., 2019; Moya & Camacho, 2021; Weatherson et al., 2017; Yeap et al., 2016).

Motivation for change is also notably influenced by individual beliefs and attitudes towards the intervention. For example, believing in the benefits of the initiative (an implementation facilitator) or believing that the new initiative will be too burdensome for educators to adopt in the classroom (an implementation barrier) (Weatherson et al., 2017). The personal, ethical or religious beliefs of those who need to implement the initiative also need to be considered. Educators' level of comfort with initiatives that address sensitive topics such as substance abuse or sexuality is an influencing factor for successful implementation in education settings (Shepherd et al., 2016; Waller et al., 2017).

Inner setting

Key insight: AERO should consider how to cultivate school cultures that are facilitative to using evidence for continuous improvement, including ensuring schools have adequate (intangible and structural) resources to engage critically with evidence.

There are key factors within the school setting itself that influence implementation. A strong evidence culture within an education setting is one such factor that drives support for implementation among educators and staff (Hornby et al., 2013; Schneider, 2014; White et al., 2016). This refers to the priority and credibility given to evidence-informed practices and initiatives by leadership and colleagues. An evidence culture is built by giving educators and staff adequate time and resources to critically engage and appreciate the most up-to-date and valuable educational research, which provides greater visibility and interest in the implementation of evidence (Schneider, 2014; White et al., 2016). Another inner setting factor is the extent of administrative and leadership support that a new initiative receives. Particularly crucial here is proactive and supportive school leadership that ensures resources are freed up and barriers are swiftly addressed to sustain adoption and integration of evidence-informed interventions (Cohen & Mehta, 2017; Herlitz et al., 2020; Moya & Camacho, 2021; Shoesmith et al., 2021).

Outer setting

Key insight: AERO should consider how the wider network and system that supports each school is engaged to emphasise and incentivise the adoption of evidence-informed practices.

Attention must be given to the wider system within which a particular school is embedded. A government's approach to civil, political and social rights has a large impact on what a society understands to be 'good' education policy and practice and therefore what initiatives gain traction (Cohen & Mehta, 2017). Policy changes in turn affect the funding, endorsements and partnerships that implementation efforts in the school setting will receive (White et al., 2016). Other stakeholders including businesses, non-governmental organisations and local communities also aid in shaping the appetite for implementing evidence in school settings (Cohen & Mehta, 2017).

School-based implementation efforts will benefit from involving and engaging stakeholders from this broader context to create a reinforcing environment for change (for example, through provision of endorsements, funding and collaboration) (Cohen & Mehta, 2017; Tseng, 2014; White et al., 2016). Implementation efforts can also be enabled through strong networks between schools and educational institutions that have similar goals in implementing evidence, which can be achieved by ensuring close communication between administrators and staff across these institutions (White et al., 2016).

Research supply in the system is another important area for attention. Research uptake and implementation in schools is more likely when the research agenda is shaped by what schools find relevant and the expressed needs of educators (Tseng, 2014). Implementation of evidence is more likely when research findings are translated into practical changes that educators can easily adhere to, such as particular curricula or program changes (Tseng, 2014).

Process

Key insight: It is important to plan for the implementation process and treat implementation as "real work" – involving planned stakeholder engagement, practical guidelines, protecting time and resources, and ongoing feedback.

There are specific practices or implementation strategies that, if used at the right stage of the implementation journey, can be facilitative of high-quality implementation. Stakeholder engagement is a foundational but often rushed strategy in implementation efforts in education settings. Implementation leaders will benefit from taking the time to build strong relationships and trust with school community members, aiming to share their expertise and knowledge about the evidence in a way that is personable and relatable for educators and staff whose roles are going to be impacted (Shepherd et al., 2016; Tseng, 2014). This is linked to findings in Section 3.1.2 that identify the need to build credibility and trust. Using clear and practical guidelines that provide unambiguous standards for intervention fidelity is also a key strategy for equipping educators and staff to deliver the intervention as intended (Hornby et al., 2013).

Providing protected time and resources for educators and staff to share and learn from each other's challenges and successes in implementing evidence is another significant facilitator of fidelity to intervention (Desimone & Hill, 2017). Such a consideration enables educators and staff who were more successful with their implementation, or had more prior experience and knowledge in relation to the intervention, to guide and support other educators and staff that may find the intervention more challenging to implement (Desimone & Hill, 2017). As change efforts are challenging to initiate and sustain, ongoing support to translate learnings into teaching practice is needed. Classroom or teaching practice observations and feedback for participating educators and staff is a useful strategy for driving continuous quality improvement and building consistency in intervention delivery (Reinhorn et al., 2017).

4.5. Conclusion

Implementation science has rich lessons for AERO given its focus on evidence uptake and implementation in complex systems. AERO is an evidence intermediary. The role of evidence intermediaries means operating "in between" different layers of systems – in education this means recognising the key role AERO will play to translate and synthesise evidence into practice. Moreover, AERO can learn from systematic analysis of the barriers and enablers to uptake and implementation of interventions in education.

These implementation science insights can be usefully married to insights from the experience of what has caused prior evidence intermediaries to falter. In the next section, there are a set of further recommendations provided for AERO based on the findings in Sections 3 and 4.

5. Recommendations for AERO

There are 5 key recommendations for AERO.

→ **Recommendation 1:** in the first few years, AERO should explicitly focus on building credibility and relevance through engaging with practitioners and other system actors and defining its role in the system.

→ **Recommendation 2:** AERO should treat policy influence as one of the top priorities in its strategic agenda given the potential of policy to shape system-level change.

→ **Recommendation 3:** AERO must build a diverse team that has the skills and competencies to drive evidence translation in education flexibly and adaptively.

→ **Recommendation 4:** AERO should consider evidence uptake as its desired endpoint across all organisational strategic pillars.

→ **Recommendation 5:** AERO should proactively build networks and capacity among stakeholders.

5.1. Recommendations for AERO

→ **Recommendation 1:**

In the first few years, AERO should explicitly focus on building credibility and relevance through engaging with practitioners and other system actors and defining its role in the system.

As explored in the prior section, a key insight is that if AERO is to be an effective research translation body within education, it must build credibility as a trusted institution *by*, *with,* and *for* educators. Building understanding of AERO's unique role within the education system is also important to realising system impact and will take time. These should be explicitly recognised and planned activities.

Building credibility as a trusted broker

For busy practitioners and policymakers, intermediary organisations can help make sense of information. To be effective, they need to be viewed as a trusted partner bringing neutrality and transparency (Brand, 2015, Biebel et al., 2013). Trust is based on the intermediary's reputation, existing relationships or networks, and the reliability of the information they share. This status as trusted broker is well-recognised in the science translation literature – as observed by Gluckman et al (2021), trust must be built between the broker and the political, policy, public and scientific communities. Brokers will not be viewed as credible if they are observed to be partial to any specific stakeholder group.

Building trust takes time. The experience and growth of organisations such as the Fuse Centre for Translational Research in Public Health affirms this with its focus on building awareness and trust across the ecosystem in its first 5 years (van der Graaf et al., 2019). One expert consulted for this research indicated that trust takes at least 3 years to build.

While the literature does not explicitly describe approaches to build credibility and trust, research has shown the importance of evidence intermediaries engaging in co-creation with local communities and staff, hearing diverse voices and providing strong peer-to-peer support (Davies et al., 2015; Lewis & LaValle, 2021; Wye et al., 2020). Additionally, engaging educators and school leaders in research or intervention design offers a new layer of understanding toward the needs and preferences of the community. Other literature points to the skills and attributes that people in brokering roles should bring to their work and which can arguably support building credibility and trust; these skills are detailed in Recommendation 3.

Another mechanism for building trust stems from building mutual understanding and agreement on relevant areas of enquiry (Breckon & Dodson, 2016). Through these forms of dialogue, intermediaries will be able to understand what types of evidence is useful to decision-makers, practitioners, and communities and involve them in meaningful decision-making "at the table". Delphi panels have surfaced as one way for groups to build consensus; these allow intermediary organisations to build towards an agreed view on specific topics (Breckon & Dodson, 2016). Other methods include collaborative learning (for example, through journal clubs) and community engagement, where brokers can develop channels to bring in perception of fitness-for-purpose and relevance (Haslewood, 2021; Langer et al., 2016). Ensuring that AERO learns from the experiences and insights of practitioners and communities will both offer better insights and ensure that research is grounded in what is relevant, needed and usable.

"People say 'If you're not at the table, you're on the menu.' It's more than that. It is how you are at the table. If you don't decide what's on the menu, if you are invited after the menu is set, you are still a guest. We as researchers get funded to be hosts. But in truth, the community should be the hosts, we are guests" (Chicago Beyond, 2018).

A key success factor for intermediaries to be trusted brokers and promoters of evidence within systems is about the importance of recognition from other system actors, including policymakers, who must understand and accept the intermediary's role (Bullock & Lavis, 2019). It will be beneficial to help practitioners and policymakers understand and conceptualise what AERO is and why it exists.

In building credibility, intermediaries need to balance and acknowledge the complex socio-political contexts in which decisions are being made and avoid sacrificing policy influence for sector credibility: in other words, "You need to be independent enough that you can give an honest appraisal of government policy, but there are advantages of closeness and access" (Bazalgette, 2020). The evidence intermediary must draw together the concerns, agendas and priorities of stakeholders as one source of data, joining this with organisational expertise and research evidence to become a credible voice within the field.

Jointly identifying and agreeing types and standards of evidence

There are two aspects to building evidence standards. The first is that evidence standards should be defined and then applied rigorously – that is, in a transparent, systematic and uniform way. The second is that types of evidence that the intermediary relies upon must reflect practice and community needs.

The literature suggests that in exploring and defining evidence standards, it is crucial to expand the benchmarks of quality beyond the "gold standards" of scientific evidence, and to take into account the questions that both policymakers and practitioners are asking (Anderson, 2018; Bristow et al., 2015) and adequately capture what happens within the classroom and school. Here, flexibility and inclusivity are required. Building consensus and agreement on the types of evidence used may increase the trust which practitioners and other stakeholders have with brokers (Gorard et al., 2020). This process can also contribute to building up stakeholder understanding of what quality evidence and research looks like and how to use it. Importantly, this would mean reflecting First Nations ways of knowing, being and doing in AERO's work (Gollan & Stacey, 2021).

There is an abundance of evidence standards, with most evidence centres having their own, and the literature acknowledges that some degree of alignment within the evidence community is likely desirable (Gough et al., 2018). Newer evidence centres are advised to review evidence standards and typologies (often called evidence hierarchies) within their sectors and the wider "what works" movement, to consult with those who have applied and assessed them to understand what has worked well (and what has not), and to understand how these are applied.

→ **Recommendation 2**

AERO should treat policy influence as one of the top priorities in its strategic agenda given the potential of policy to shape system-level change.

Section 3 reveals two key insights about why prior intermediaries have faltered, including lack of attention to and understanding of how to influence the policy process and a slow pace of evidence sharing. Given these findings, AERO must develop approaches to influence policy that reflect how policymakers use evidence. AERO must make emerging evidence available and focus on timely contributions to decision-making, relying on the best evidence available within required timeframes and caveating findings as appropriate.

Why policy influence is important for evidence intermediaries

Within the education sector, policymakers and regulatory bodies are best placed to create an environment that incentivises the use of evidence among practitioners (Bazalgette, 2020; Franks & Bory, 2015). By engaging with them, evidence intermediaries therefore have perhaps the greatest potential to positively influence practice; as one expert consulted for this project noted, "top down [approaches are] important" to support the embedding of evidence in systems of practice – for example, through the alignment of regulatory or inspection regimes with evidence, which directly incentivise system actors to take on practices and may support them to shift behaviour and attitudes toward evidence (Bazalgette, 2020). This maps to models of behaviour change addressed later in this section.

There has been what some have termed a "natural developmental trajectory" of many "what works" centres toward a wider role of system influence: their activities expand over time from synthesis and translation toward driving uptake and implementation (Gough et al., 2018). This observation is supported by the research from the implementation science literature on intermediaries (see Table 1, adapted from Franks & Bory, 2015), which found that in a 5-year period the rank of strategic importance of organisational functions shifted dramatically, with "policy and systems development" shifting from being a middle-ranked organisational priority to one of the top two priority functions for intermediaries to achieve their strategic objectives. Interestingly, training, public awareness and education activities decreased in strategic importance in the same period. This is not surprising; training is typically an incremental process, while policy influence has the potential to shape systems holistically.

Table 1: Rank of strategic importance of organisational functions

Organisational functions	Rank 2015	Rank 2010
Purveyor of evidence-based practices	1	1
Policy and systems development	2	5
Outcome evaluation and research	3	7
Quality assurance and/or quality improvement	4	6
Consultation and/or technical assistance activities	5	2
Best practice model development	6	4
Training, public awareness and education	7	3

In short, the research indicates that over time intermediaries shift their approaches to drive evidence uptake and that the most strategically important function (beyond purveying evidence) as they mature, is policy and systems development.[7] AERO could potentially leapfrog this developmental trajectory by orienting key aspects of strategy around policy influence from the outset.

Implementation strategies for policy influence

There is a wide range of potential policy-related strategies captured within the implementation science literature, which vary depending on the type of target. A selection of strategies most suitable for AERO given its system role is illustrated in Table 2, adapted from Bullock et al., 2021. Approaches within these strategies may include workshops and convenings, articulating a formal policy agenda, being the conduit between policymakers and other stakeholders, and direct advocacy. This last strategy is the most time-intensive and can include a range of approaches the provision of policy briefs, to the public endorsement of specific legislature (Orphan et al., 2018). A strong example of shifting policy at systems-level is the work of Rapid-Improvement Support and Exchange (RISE) with the Ontario Health Teams. In this example, collaborative governance was put in place to ensure that the Ontario government engages in a collective decision-making process with leaders from organisations across multiple sectors (Rapid Improvement Support and Exchange, 2019). This is supported by a process which is deliberative, consensus-oriented and directed toward the achievement of a shared goal.

Table 2: Potential policy-related strategies and examples of those strategies for implementation, adapted from Bullock et al., 2021.

Target	Strategy	Examples
System	Policy authority	Accountability of the state sector's role in implementation (for example, develop system-wide performance indicators or targets, monitor performance and fidelity, evaluate, report results publicly, consider enforcement strategies).
Organisation	Organisational authority	Management approaches in support of optimal implementation, including for example, developing data collection systems, developing and monitoring performance indicators, quality improvement plans, use of scorecards or public reporting. Include evidence-based practices as part of accreditation processes. Engage in networks/multi-institutional arrangements for implementation.
	Organisation-targeted implementation supports	Develop educational materials, hosting educational meetings, training, or outreach visits tailored to organisations. Develop and disseminate program or organisational service standards. Provision of technical assistance and other forms of implementation support. Support development and maintenance of interorganisational collaboratives, communities of practice, and other forms of inter-organisational communication/learning. Consider non-monetary awards, incentives, and disincentives for organisations (for example, exemplary program award).
Workforce	Professional authority	Create or alter training and licensure requirements. Change scope of practice to reflect evidence Provide training or continuing professional development (linked to certifications) that drive use of evidence

[7] We have discounted the possibility that this developmental trajectory is somehow essential – we expect organisations can leapfrog different stages and/or learn from how others have evolved rather than going through the same developmental stages.

→ **Recommendation 3**

AERO must build a diverse team that has the skills and competencies to drive evidence translation in education flexibly and adaptively.

Over time, many intermediaries diversify their implementation strategies as they deepen and intensify their implementation support (Albers et al., 2020). However, while close to 70% of intermediaries cite that they are working to "make it happen", they are not trained in the requisite competencies and frameworks to effectively leverage implementation science (Franks & Bory, 2015).

The challenge of inappropriate workforce skills has compromised effectiveness of evidence centres, as explored in Section 0. The key insight is that AERO must include educators within its ranks, as well as ensuring that its staff build learnable, known skills in implementation. This section will focus primarily on the skills required for implementation.

Competencies and skills in evidence uptake

Across the literature, there is a clear indication of the important role of intermediaries to be able to effectively apply implementation strategies, while maintaining in-depth knowledge of their discipline (Albers et al., 2020; Bullock & Lavis, 2019; Franks & Bory, 2017; Gorard et al., 2020; Wye et al., 2020). To do so, they need to be able to draw on teams skilled in implementation science: "For intermediary organisations, [effectively bringing implementation science strategies together] presupposes that their staff are sufficiently skilled in applying implementation strategies, that is, in selecting, operationalising, designing and tailoring them"(Albers et al., 2020). As such, it is important for an evidence intermediary to look to deliberately build skills in the areas that implementation science suggests are important for evidence uptake.

The literature points to specific competencies and behaviours that professionals working to lead and facilitate practice, organisational and systems change need to be effective in their roles. There are numerous lists of these competencies; a synthesis is available below (Aarons, Ehrhart, & Farahnak, 2014; Aarons, Ehrhart, Farahnak, et al., 2014; Franks & Bory, 2017; Hateley-Browne et al., 2020; Mallidou et al., 2018; Metz & Bartley, 2020):

- Growing and sustaining stakeholder relationships: building and maintaining respectful and trusting relationships with stakeholders by modelling transparency and accountability, as well as developing a relationship that enables feedback.
- Co-creating and co-learning: supporting and facilitating the active involvement of stakeholders in the change effort; being eager to learn from stakeholders about their expertise, context and priorities and supporting the integration of these insights with implementation evidence and practice. This is likely to be of particular importance for work with First Nations communities and researchers.
- Brokering: fostering knowledge exchange and garnering insights from a wide range of perspectives; working towards consensus.
- Facilitating and conflict management: facilitating groups effectively; engaging in participatory problem-solving; supporting two-way communication and consultation.
- Understanding and tailoring to context: understanding ways of working and levers for change in the different contexts they span and being open to learning from those who are experts in their local setting (for example, about barriers and enablers); making data-driven decisions. This is likely to be particularly important for working with First Nations communities.

- Continuously improving using data: generating and using quantitative and qualitative data and insights to inform data-driven continuous quality improvement cycles; equipping stakeholders to engage with data-driven insights and use them to inform their own decision-making.
- Applying and integrating implementation science approaches: having knowledge of frameworks and methods alongside the capacity to assess and make decisions about how to apply these insights in context.
- Capacity-building: increasing the knowledge, skills, opportunities and motivation of others to engage in / enact the change effort across the whole implementation cycle.
- Cultivating leadership: identifying and strengthening the implementation leadership skills of others, intentionally fostering new and emerging leaders (especially those without historic or current power privilege). This involves cultivating both delegated and distributed leadership. This is likely to be particularly important for working with First Nations communities.
- Taking a proactive approach: taking a proactive and pre-emptive approach to driving change efforts by setting clear standards for performance and implementation, developing forward plans, and anticipating and removing barriers to implementation.
- Possessing content and process knowledge: demonstrating a deep knowledge about 'what' needs to change and 'how' to influence/effect change, and act as resource to others on these matters.
- Supporting and persevering: explicitly supporting the learning process and change efforts, even when results aren't perfect. Carrying on in the face of the ups and downs of a change effort and encouraging others to persevere as well.
- Sustaining change: having the skills to detect and respond to changes in a dynamic system, necessitating adaptations to ensure the reform initiative remains effective despite ongoing changes to the context.[8]

There is also a growing body of guidance for researchers and evaluators on how to recognise and address bias in their practice and how to undertake culturally safe studies. These focus on building awareness among researchers of the ways in which dominant culture research practice invisibilises non-majority communities and the skills to engage with Aboriginal and Torres Strait Islander ways of knowing, being and doing. Ensuring that its workforce builds skills in culturally safe practices to engage Aboriginal and Torres Strait Islander communities will be particularly important for AERO (Chicago Beyond, 2018; Gollan & Stacey, 2021).

Flexibility and adaptation

The literature refers to the *policy ecology* (Raghavan et al., 2008) within which reform takes place. Evidence intermediaries operate and navigate within this complex, ever-evolving ecology, which is out of the intermediary's control and must be understood to effect change (Waddell, 2021). Leadership teams within intermediaries must cultivate organisations that can be adaptive and responsive (Franks & Bory, 2017) to the various and evolving needs of the system they sit within; gaining comfort with ambiguity and chaos is identified as important for being able to drive meaningful change (Laur & Danilovic, 2020; Robinson et al., 2020a). This implies not only being "adept at identifying levers of influence, nimble in capitalising on opportunities as they arise, and persuasive in their approach" (Gough et al., 2018), but also, the implementation literature indicates, evolving

[8] This list of skills is closely adapted from an unpublished report, cited in the reference section, submitted to Mental Health Reform Victoria by CEI in 2021.

as institutions over time to meet the needs of the context. Ongoing adaptation in response to the growing evidence base of what works for Aboriginal and Torres Strait Islander communities will be important for AERO.

> *"The roles and functions of intermediaries should… change over time to meet the demands of the local system" (Franks & Bory, 2017).*

The importance of leadership skills within the intermediary and system

Leadership is cited in the list of skills above, and throughout the research it emerges as a common factor in overall success of evidence intermediaries (Robinson et al., 2020b); it is the most commonly reported factor for creating change (Rycroft-Malone et al., 2015). This may mean having a political actor in a senior leadership role. Studies have emphasised the importance of understanding the social position of senior individuals in intermediaries (Currie & Lockett, 2011; Robinson et al., 2020b). Other studies articulate that pro-activeness is required from intermediary leaders more so than leaders from other institution types (Laur & Danilovic, 2020). "Leadership should be at the top" of a checklist of priorities for evidence intermediaries, noted one expert consulted for this study.

Leadership can be through *designated*, formal roles, while other roles *distribute* leadership among staff and other stakeholders involved in the implementation of novel approaches. Both types are essential. Designated leadership clarifies the agenda for change, while distributed leadership supports the learning and translation process (Albers et al., 2020). In one example from Canada in the remote networked schools project (École éloignée en réseau – ÉÉR), which mobilises evidence in rural schools, the relevant intermediary (Québec liaison and transfer centre, or LTC) established monitoring committees at each project site involving local education leadership and system stakeholders alongside LTC representatives. These local committees helped to promote local decision-making and rapid dissemination of practices and consolidation of learning – building a network mobilised around a common vision and enabled by collaborative leadership. This example illustrates the importance of engaging and empowering stakeholders as decision makers and implementation leaders across multiple levels of systems through different structures and approaches. The initiatives had a steering committee, the site monitoring committees, and also relied on local teams comprising teachers, the school principal and others (Gagnon et al., 2019).

Understanding and exploring the social structures and leadership systems that underpin Aboriginal and Torres Strait Islander societies will likely be critical for any work that AERO undertakes with First Nations community members, practitioners, researchers and organisations.

→ **Recommendation 4**

AERO should consider evidence uptake as its desired endpoint across all organisational strategic pillars.

AERO's strategy includes evidence uptake *alongside* other pillars; building an organisation with this end in mind for *all* of AERO's activities would help to avoid "research for research's sake". Evidence uptake is affected by stakeholder motivation and incentives and an understanding of how evidence is used within systems.

Understanding stakeholder motivation and incentives

One of AERO's core strategic objectives is to "encourage adoption and effective implementation of evidence in practice and policy" (Australian Education Research Organisation, n.d.). Within this objective, there is a need not simply to be able to measure the uptake of evidence, but as a precondition, to understand how to reach and motivate stakeholders to use evidence.

Building on Recommendation 2, it is crucial for evidence intermediaries to ensure that the evidence matches a need within the system (Breckon & Dodson, 2016; Mulgan & Breckon, 2018). In this vein, intermediaries such as AERO must engage and collaborate with end-users early on, potentially beginning from conversations around where to focus resources and the types of questions that research will address. This manner of co-production allows evidence output to be aligned to system needs. It avoids deficit approaches when communicating with practitioner and policy communities (Gluckman et al., 2021). This also allows for a clear and dynamic contextualisation of evidence to ensure it meets the needs and culture of the target population. Furthermore, having a clear understanding of the governance structure, relationships across stakeholders, and the general attitude and approaches to the use of research will support evidence intermediaries in deepening their understanding of stakeholder motivations (Scott et al., 2017).

Evidence intermediaries also need to gain insight into how the system is incentivising or disincentivising evidence use (Breckon & Dodson, 2016) and to leverage (or simply be mindful of) these incentives when seeking to translate evidence. Through this, intermediaries are able to discern and harness incentives to encourage evidence use. Suitable incentives for educators and school leaders (contextualised to Australian schools) should be explored and may include participation in networks, recognition/status, professional development opportunities, and/or certifications, among other options. Further insights related to building stakeholder motivation are included in Recommendation 5.

Understanding how evidence is used

There is a need to understand how systems and stakeholders use evidence in order for evidence intermediaries to be effective (Mulgan & Breckon, 2018; Tseng, 2013). As seen in Box 2 below, the intermediary has to be able to recognise multiple types of use – requiring various forms and types of evidence – and make an informed decision on which are most useful and valid (Gluckman et al., 2021; Tseng, 2013). Being able to do so would allow the intermediary to pre-empt what evidence is needed and the most appropriate form it needs to take, to be meaningful to stakeholders and hence, effectively shift the system.

Box 2: Types of evidence use (adapted from Tseng, 2013)

→ **Instrumental use** occurs when research evidence is directly applied to decision-making.

→ **Conceptual use** refers to when research evidence influences or enlightens how policymakers and practitioners think about issues, problems or potential solutions.

→ **Tactical use**, also called political and symbolic use, occurs when research evidence is used to justify particular positions, such as supporting a piece of legislation or challenging a reform effort.

→ **Imposed use** refers to situations in which there are mandates to use research evidence, as when government funding requires that practitioners adopt programs backed by research evidence.

→ **Process use** differs from the preceding terms; it does not refer to how research evidence is used but rather to what practitioners learn when they participate in conducting research.

Communicating in ways that make evidence matter for stakeholders

There are persistent barriers for stakeholders to understand evidence, and therefore the evidence intermediary has an important role in providing fit-for-purpose insights (Gorard et al., 2020). This means identifying key messages for specific audiences and sharing these messages in language and products that are easily understood by specific target audience groups (Grimshaw et al., 2012).

One of the experts consulted for this research argued that intermediaries should simplify evidence when communicating with non-research communities and make it more accessible through attention to communications approaches and channels. This would include avenues such as social media, earned media, the use of design, branding, storytelling, and more engaging framing of issues (for example, "the seven things you need to know"). This is further emphasised by Gorard and colleagues (2020) who found that the way in which evidence is communicated (format, language and design) has large effects on building motivation to use the evidence. Another expert consulted for the study said that stories that tap into the belief that "teachers like me do this" are more effective for shifting behaviour; this is consistent with behavioural science insights on the role of reflective motivation in behaviour change.

An example of user-focused design in communication of research products is in the Education Endowment Foundation's (2019) use of campaigns to reach school leaders and practitioners. This was done through a combination of practical guidance for practitioners, advocacy with trusted local organisations, and direct support within schools that face specific challenges. The What Works Cities network from Bloomberg Philanthropies leverages media stories of successful impact; this communicates the upside of using evidence well, and motivates those profiled.

Finding reliable measures of evidence uptake and implementation

For many evidence intermediaries, a key constraint in funding structure is that it restricts the organisation's ability to examine the systemic impact of evidence uptake, beyond 'intention to use' (Gough et al., 2018; van der Graaf et al., 2019). This is partly due to traditional reporting structures, which prioritise reach (for example, number of published papers, number of policymakers engaged) and traditional academic indicators.

However, with an increased focus on implementation support and strategies which emphasise relationship building and building the capacity of stakeholders, intermediaries need to move toward measuring more than a stakeholder's intentions to use evidence (Proctor et al., 2019). Some example measures include the presence of cited evidence in policy and practice documents, the evidence base determining program funding, and the Global Evidence-Informed Decision-Making Index (Breckon & Dodson, 2016).

Given the limited Australian evidence base on uptake of evidence-informed practices in education, this is an area where further research by AERO would be valuable. The rise in perceived importance of "Outcome evaluation and research" as a strategic focus area for evidence intermediaries (see Table 1) also indicates that a focus on outcome evaluation in general, and evaluation of evidence uptake and implementation in particular, may be a useful focus for evidence intermediaries like AERO. This is particularly the case in relation

to education in Aboriginal and Torres Strait Islander communities. Given the disparity between social and educational outcomes for Aboriginal and Torres Strait Islander communities compared to non-Indigenous communities, and the fact that this is a key area of focus of the Closing the Gap report (Council of Australian Governments), outcome evaluations should be a priority for AERO.

→ **Recommendation 5**

AERO should proactively build networks and capacity among stakeholders.

Much of AERO's work to generate and disseminate evidence is reliant on people and their relationships. The GEMS study within Australian education finds that evidence mobilisation is a social process for educators (Rickinson et al., 2020). The study also finds that research literacy is generally low and that educators resorted to proxy measures to assess quality of available research.

Addressing the social nature of research use through actively cultivating networks would therefore be a good potential step for AERO. Moreover, addressing capacity to use research among stakeholders is likely to improve uptake. Cultivating networks and individual capability to use evidence will support AERO's evidence uptake objectives.

Building networks to encourage evidence uptake.

Within knowledge translation contexts, negotiation of shared meaning is important for knowledge to be used effectively (Spyridonidis et al., 2015) and the value of collaboration and relationships between intermediaries, practitioners, policymakers and other key stakeholders is well established (Clinton et al., 2018). While there are numerous strategies for evidence dissemination, those offering opportunities for interaction such as face to face connections have the most impact on supporting evidence-informed practice and policy (Clinton et al., 2018). There is benefit in building and sustaining networks and incorporating personal connection in these networks (Gagnon et al., 2019; Tamtik, 2018).

On one level, network building should occur across research producers and research users. While interaction across various parties already exist, a concerted effort to bring them together increases not just access to research, but understanding and action (Campbell & Levin, 2012). On another level, even within research users, building networks, such as the Research Schools Network, creates an apolitical agenda and environment to encourage improvement (Sharples, 2019). Networks can also enable researchers, practitioners and communities to build trust based relationships that encourage greater accountability for research practice (Chicago Beyond, 2018).

Particularly among policymakers, networks can be a critical vehicle to encourage competition and for the evidence intermediary to recognise and address specific disincentives to evidence use (Waddell, 2021). Networks in education have also been powerful in incentivising educators and creating communities of practice (for example, the Teach for All movement is a global community of educators). Furthermore, the exclusive nature of many networks may be experienced as an incentive and as recognition for good work, according to one of the experts consulted for this study.

Building stakeholder capacity and motivation to use evidence

Capacity

A crucial insight raised within Breckon & Dodson (2016) is that evidence uptake is often impeded by the capability and capacity of stakeholders across all system levels (educators, school leaders and policymakers) to effectively apply evidence to their existing practice. Other studies, including the work of the Monash Q project and GEMs, highlight potential issues in capabilities to use and interpret evidence; the Q project finds that educators themselves need to be supported to consume evidence critically – with the right skills to find it, assess it and use it in practice – and self-confidence in those skills (ACEL, 2021). Wandersman's (2008) ISF (see Figure 3) explicitly recognises the role of capacity among practitioners as being related to effective evidence translation *and* the role of intermediaries in supporting the development of that capacity.

Capacity building through training is important, but implementation science research has highlighted that training alone is insufficient to effect lasting practice change (Albers et al., 2020; Proctor et al., 2019). Other strategies such as providing tailored consultations or engaging champions could also be used, depending on the barriers, facilitators and motivations of stakeholders.

The inclusion of stakeholders (head teachers, school leaders and public servants) in the process of developing toolkits and other evidence outputs can also build their 'absorptive capacity' to engage and use evidence (Bristow et al., 2015). Absorptive capacity is an organisation's ability to identify, assimilate, transform and use external knowledge, research and practice. Evidence intermediaries have employed a range of approaches to develop these skills, including the development of toolkits to introduce research approaches, the provision of workshops and the inclusion of content into foundational training (Gough et al., 2018). For example, the College of Policing had included modules on research methods and evidence-based approaches within its degree-level curriculum (Gough et al., 2018). Beyond this, sharing details about research options, methods, costs, benefits and risks is empowering to practitioners and communities who are frequently treated as objects rather than full participants in research (Chicago Beyond, 2018).

Campbell and Levin describe 4 key dimensions of capacity for use of research to improve education practices and student outcomes – the capacity to *find*, *understand*, *share* and *act* on research evidence; the insights captured by Campbell and Levin (2012) illustrates how an effective system for knowledge mobilisation might look in education (see Table 3).

Table 3: Understanding effective knowledge mobilisation, adapted from Campbell & Levin (2012)

	Researchers	Mediators	Practitioners
Find	Research is made publicly available and not confined to peer-reviewed journals. Attention is paid to how results will be made accessible at all stages of the research process.	Research synthesised and summarised in one place and made freely available. Research findings are included in professional resources and materials.	Teachers and school leaders have the skills to identify research needs and find relevant research resources. Teachers and school leaders have the time and resources to look at research, perhaps with a member of staff designated the 'knowledge lead'.
Understand	Research written in an accessible form without jargon. The implications of research for practice are clearly outlined.	Implications of research for practice are clearly explained to teachers, parents, governors and the media. Findings are synthesised and inconsistencies are explained. Training and support for leaders using research is provided.	Initial teacher education and professional development equips teachers and leaders with the skills to be able to assess and interpret research. Time is allocated to discussing applications of research in all staff meetings.
Share	Researchers share their findings widely, including at conferences, training events, online and social media. Practitioners can influence research agendas and approaches.	Local and national organisations, including charities, unions, the media, academy chains and local authorities share evidence. Mediators ensure that lessons from research travel between schools and across the education system.	Experiences with research can be shared between and within schools (for example, between departments). Staff have time to attend external events and have time to share and embed knowledge on return.
Act	Research makes explicit its implications for practice, what the pitfalls may be, and which elements should (and should not) be adapted.	Benefits of using research evidence are clearly explained to different teachers, parents, governors. Schools are supported when embedding research. Examples of school and classroom approaches to acting on research are identified and shared.	Schools develop a culture and practices that value, demand and act on research in their work. Schools have the freedom to make research-based decisions. Staff have time and resources necessary to embed research and evaluate impact in their own context

Motivation

Behavioural science frameworks such as the COM-B Framework (see Box 3 below) are also useful for assessing the factors driving behaviour change, including *capacity*, but also their *opportunity* and *motivation* to make and sustain change (Michie et al., 2011). This can be achieved through building people's beliefs in their own self-efficacy, building optimism, setting goals and intentions, shaping social or professional identity to reflect and include use of evidence, and offering positive reinforcement and incentives for change.

However, behavioural science and implementation science also both highlight the need to go beyond individual motivation and to attend to the context within which the behaviour is occurring – the Theoretical Domains Framework, created jointly by implementation scientists and behavioural scientists, reflects this joint understanding of the determinants of behaviour (Atkins et al., 2017).

Intermediary organisations must seek to create more opportunities for practitioners and policymakers to access and appraise evidence, and to build capacity in other organisations to create opportunities within staff workflows and project workplans to explicitly access, appraise, and use evidence – as well as building awareness and understanding of the evidence ecosystem, their role in it, and how they can shape the evidence that is being produced so that it is more relevant to their needs.

Box 3: Understanding the COM-B Framework

The COM-B Framework seeks to understand the 'capability', 'opportunity', 'motivation' and 'behaviour' of stakeholders within an ecosystem. While this is a model of behaviour, it also provides a basis for designing interventions aimed at behaviour change. The COM-B Framework has three core components (Michie et al., 2011):

- *Capability* - the individual's psychological and physical capacity to engage in the activity concerned. It includes having the necessary knowledge and skills.
- *Opportunity* - the factors that lie outside the individual that make the behaviour possible or prompt it.
- *Motivation* - the processes that energise and direct behaviour, not just goals and conscious decision-making. It includes habitual processes, emotional responding, as well as analytical decision-making.

The three components interact with each other and influence behaviour. For example, opportunity can influence motivation as can capability; enacting a behaviour can alter capability, motivation and opportunity (Michie et al., 2011). Within the context of encouraging evidence use in schools, having access to research evidence (opportunity) or being able to understand research evidence (capability) might increase motivation to use research evidence to plan teaching and learning (Jones, 2019). Table 4 below provides one concrete example.

Table 4: Description of COM-B components and associated evidence use in schools, adapted from Jones (2019)

COM-B component	Description	Example – evidence use in schools
	Capability	
Physical capability	Physical skills, strength or stamina	Physically able to read research
Psychological capability	Knowledge or psychological skills, strength or stamina to engage in necessary mental processes	Understanding of research evidence and how it can be used in teaching and learning
	Opportunity	
Physical opportunity	Opportunity afforded by the environments, involving time, resources, locations, cues, physical 'affordance'	Able to physically access relevant research evidence
Social opportunity	Opportunity afforded by interpersonal influences, social cues and cultural norms that influence the way we think about things for example, the words and concepts that make up our language	Being able to make reference to research evidence in departmental meetings
	Motivation	
Reflective motivation	Reflective processes involving plans (self-conscious intentions) and evaluations (beliefs about what is good or bad)	Belief that research evidence can be used to improve teaching and learning
Automatic motivation	Automatic processes involving emotional reactions, desires (wants and needs) impulses, inhibitions drive states and reflex responses	Sense of satisfaction of bringing about changes in teaching and learning

5.2. Conclusion

This section has focused on the recommendations for AERO in its approach. Building trust and credibility as a system actor and securing and deploying the right team are strong priorities in these early stages, as are understanding and responding to how research is actually used in practice. These capabilities and insights will support AERO as it looks to build capacity and networks among stakeholders for change and influence the policy process.

6. Conclusion

AERO is a pioneering organisation, pursuing its vision for Australian education as the first body to do so at this scale in the country. The institution is at the outset of what will likely be a multi-decade project to support better use of better evidence in Australian education. There is much about the journey ahead that is unknown: AERO's context will change dramatically in the years to come as new political agendas come into play, new social forces take hold, and the lasting effects of the COVID-19 pandemic in Australia and globally come into view.

The key challenges we predict for AERO are finding ways to assess its impact, particularly in the early years of its work when it is finding its place and building its credibility in the system; finding ways to structure and govern its work that provide suitable levels of flexibility and adaptability without sacrificing structure and cohesion; and finding and deploying a diverse team straddling research, implementation science and practice fields. Pursuing a consistent agenda while being responsive to stakeholder input will also be a key challenge, as will be the need to balance rigour in the evidence it shares with the pragmatism that can shape practice – as well as integrating a diverse base of evidence that reflects Australian communities' needs, particularly those of Aboriginal and Torres Strait Islander communities.

In all of this work, AERO is in good company – the 'what works' movement is full of organisations facing similar challenges. AERO can benefit from the insights of many organisations and initiatives that came before with the same goals of accelerating the journey of evidence into practice in order to improve outcomes – and from ongoing contact and engagement with this network. Making its own learning and failures visible is strongly advised as a way of continuing to build this dynamic and emerging field of evidence intermediaries.

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