20 CSE LEADING EDUCATION SERIES
SEPTEMBER 2023

The evolution of evidence-informed policy and practice:
An international perspective

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Leading educational thinking and practice

Contents

Acknowledgements

The author notes that this paper is the result of many years of reflection and work with talented colleagues across the globe. It updates and extends a series of talks, themselves based on her chapter with Tom Schuller, published as Chapter 3 in OECD (2022) *Who Cares about Using Education Research in Policy and Practice? Strengthening Research Engagement*, OECD Publishing, Paris. doi:10.1787/d7ff793d-en.

Tracey would like to thank Tom Schuller, her mentor and co-author for their OECD chapter, for his continuous support and insightful reflections and comments on this draft. She is grateful to Danielle Toon and Matthew Deeble at Social Ventures Australia for commissioning this paper and providing constructive feedback throughout the drafting process. Social Ventures Australia acknowledges the philanthropic support of the Paul Ramsay Foundation enabling the commissioning of this paper.

Tracey extends her sincere appreciation to Jonathan Sharples and Nora Révai for their review of this paper and to Nora Revai providing Figures 2 and 3 from her most recent publication. Tracey is also grateful to Annette Boaz for sharing previous versions of Figure 3, which allowed Tracey to build on Annette's and her colleagues' trailblazing work. She also thanks Sylvia Su at the National Center on Education and the Economy (NCEE) for her assistance.

Finally, she would like to thank Vicki Phillips for her ongoing support and leadership and Anthony Mackay for his endless energy and contributions to the global debate. Special thanks to the CSE team for their exceptional work in making this paper look so good.

CSE CENTRE FOR STRATEGIC EDUCATION
Leading educational thinking and practice

ISSN 1838-8566 ISBN 978-0-6457476-6-9

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Mercer House, 82 Jolimont Street,
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Produced in Australia by Centre for Strategic Education.

Editorial Team: Anthony Mackay, Keith Redman, Andrew Miller

Introduction

In this paper I set out a series of personal reflections on the evolution of evidence-informed policy and practice in education, and suggest some future directions for the development of better evidence ecosystems. The paper was developed by following international discussions, policy decisions and literature across time and systems; the numerous efforts and investment in countries; and interacting with key players and institutions over time. The aim of presenting them is to spark discussion and reflection, and to help identify opportunities for action on both the local and international level.

Evidence and decision making

The COVID-19 pandemic was only the most recent of a number of public crises that required rapid responses from governments to ensure the health and safety of the public and maintain their confidence in policy makers. Public health decisions to close schools are estimated to have affected more than 1.5 billion students and youth, with the most vulnerable learners hit hardest.

This real-life example demonstrates the challenge facing decision makers of all stripes who must make time-sensitive decisions based on the information available. This urgency sometimes means that decisions are taken that are later reversed or revealed to be less effective than had been hoped. In the COVID pandemic, the emerging nature of the virus meant that the rigorous research relevant to policy and practice needs had not been conducted. In other situations, relevant information exists but might be overlooked by the policy maker due to a disjointedness between policy, practice, and research communities, and/or different sectors (in the case of COVID, health and education). In some cases, the available research is contradictory or inconclusive and does not suggest a single course of action.

Yet clearly it is crucial that decisions be made with the best available evidence, as the choices made can have far-reaching impacts on all members of society, as the ongoing debate about the impact of school closures on learning demonstrates.

Growing importance of evidence in education

Policy makers are increasingly interested in what education delivers – both immediately, in terms of student achievement, and in the longer term, eg, later life outcomes. A significant force behind this shift to outcomes has been the greater interest shown by treasuries and finance ministries in the effectiveness of educational expenditure, as a major component of public expenditure generally. This is sometimes referred to as the 'return on learning' or the 'learning dividend'.

The challenge is to gather evidence that is both appropriate and convincing (OECD, 2007), and which can be trusted to help improve educational excellence and equity. This has led to

- a growing concern with accountability in respect of educational expenditures, and
- a concern about the quality and relevance of current educational research.

See Box 1.

The evolution of evidence-informed policy and practice in education

In 2007 my colleague Tom Schuller and I published the report *Evidence in Education: Linking Research and Policy* (OECD, 2007). In the decade and a half since its release, a critical revisiting of its arguments for the importance of using evidence, and the barriers and challenges therein, reveals that it is surprisingly up to date.

However, time has not stood still. In the decade and a half since our volume was published, the arguments have evolved in at least three domains, which are

- the changing notions of what counts as evidence,[1] fuelled by the ubiquity of social media and the explosion of information, including fundamental questions about the nature of knowledge and expertise itself,
- the increased understanding of the complexity of evidence use and the acknowledgement that simply providing access to research is not enough to make sure it is used, and
- an increasing focus on education practice and practitioners (complementing, and in many cases supplanting, an initial focus on policy).

In the following sections I explore these three shifts more closely.

Box 1. Systemic educational R&D

Although the key role of knowledge-based innovation in education has long been known, OECD reviews of educational R&D highlighted three common challenges characterising systems (OECD/CERI, 2003), which are

- low levels of investment in educational research
- generally low levels of research capacity, especially in quantitative research
- weak links between research, policy and innovation*.

Further work (OECD, 2007) highlighted low system capacity in linking educational research to policy and practice, with consistent weaknesses in

- methodological capacity
- strength of knowledge networks and brokerage
- scaling up and sustainability.

* Like any sector, educational R&D also includes innovative blue-sky research that is meant to push the boundaries of knowledge and generate scientific breakthroughs. Although real-world applications of this type of research are not always obvious, it is an important element in the full R&D system.

Shift One: The changing notions of evidence

Over the last few decades there has been an explosion of evidence of different kinds resulting from two concurrent trends, which are

- the rise of standardised tests (both national and international, for example TIMMS, PIRLS and PISA) and the resulting proliferation of available evidence of one kind, and greater emphasis on testing and assessment, and
- the increased access to information via the Internet and other technologies. The ubiquity of social media has in turn accelerated the twin effects of greater access to information with less quality control.

> ... instant access to information online has ... effectively removed many of the established gatekeepers and quality controls for this information.

Increased access to information (including the easily digestible and publicity-friendly information from testing and assessment, research syntheses, open access research papers, blogs and briefs written in accessible language etc) is potentially a great animator and equaliser, allowing a multitude of actors to bring their own informed opinions to the discussion (OECD, 2007).

However, instant access to information online has also effectively removed many of the established gatekeepers and quality controls for this information. More information is available, yes, but is it good information? Is it presented accurately and in an understandable fashion? Can the reader use it in a comprehensible and useful manner?

In a world where online algorithms sort search results to prioritise those most likely to interest the user (based on their past search history and online behaviours), the decline of formal quality controls is crucial. This optimisation of search result content for individual users can unintentionally serve to amplify our views while leaving us uninformed of opposing arguments.

Given greater information, less quality control, a more informed public and a greater diversity of actors, the need for high-quality, accessible evidence, and strong institutions and procedures to inform policy and practice decisions, has become more important than ever before.

Indeed, given emerging generative AI, questions about the nature of objectivity and expertise, what counts as a cumulative knowledge base and how this knowledge base is updated over time, become increasingly essential.

Questioning the nature of knowledge and expertise

One additional point: the conversation about and efforts to strengthen evidence in education is based on trust in a generalised respect for research and objectivity of science. However, there are worries that this respect and trust is being deliberately eroded. Recent elections continue to demonstrate the traction of claims that are demonstrably wrong; and, although some erroneous claims are simply well-intentioned mistakes, others are deliberately misleading. Importantly, the aim of a deliberate misinformation campaign is not to logically challenge the science; rather, it is to confuse and erode trust to the point where science no longer matters. This allows

> *… people to choose their own reality, where facts and objective evidence are trumped by existing beliefs and prejudices.*
>
> (Lewandowky et al, 2017)

These are alarming trends. If there is a deliberate devaluing of science and expertise, then the lack of use (or deliberate misuse) of evidence cannot be understood simply as failures of individual or group cognition. As such, they will not be fixed by providing more access to evidence, or even by building processes and capacity to ensure its use. Rather, the nature of the challenge has changed, and prospective solutions need to look at the issue from behavioural, cognitive and technological as well as political perspectives.

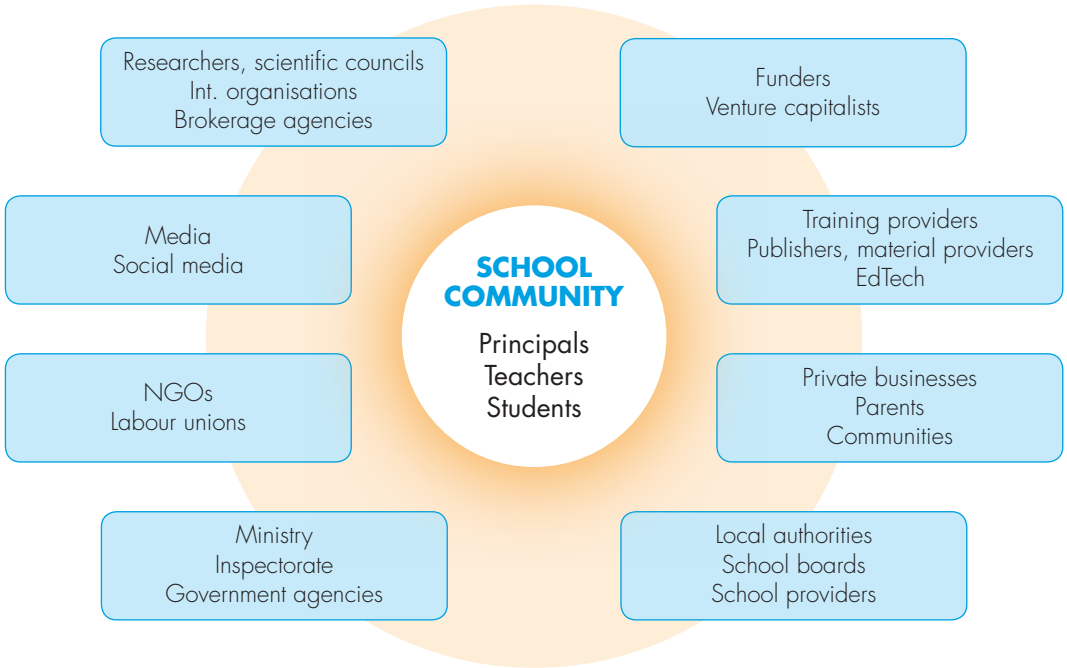
Shift Two: The complexity of evidence use

Education systems are on average increasingly decentralised, involving a large number of actors, from local-level and state-level authorities to school leaders and practitioners. Relevant stakeholders now include not only the traditional research-policy-practice trio and extended vertical and horizontal governance actors, but also, as examples: funders of research; textbook publishers and EdTech platforms; think tanks and networks of researchers and practitioners; the media; parents and students etc (Burns and Köster, 2016).

The links between these multiple actors are fluid and more open to negotiation and political pressures. In addition, these groups are overlapping and individuals can be in more than one group at any given time (Best and Holmes, 2010; Levin, 2011). This broad diversity of actors – who are more informed and empowered, due to the availability of performance data and other measures of education excellence – has in many countries reshaped the power and control of the education system (Burns and Köster, 2016).

Access to available evidence helps empower this diverse set of actors. However, the push to increase the availability of data to support transparency and accountability has had an unintended

Figure 1. Emergence of new actors



Source: updated from Burns and Köster, 2016

consequence: potentially too much information. More than twenty years ago, O'Day pointed out that the abundance of information may be counterproductive, as 'teachers and schools may metaphorically and literally close the door on new information, shutting out the noise' (O'Day, 2002). The challenge – and volume of information – has increased exponentially since that time.

Traditional models of research production and use failed to take these realities into account, and there has been a growing recognition that *promoting* the use of evidence is not the same thing as *ensuring* its use. The limited time and capacity of policy makers and practitioners to engage with research; the time and effort required to learn new habits and behaviours; and the interaction among different forms of knowledge when determining the best course of action; all serve as obstacles to the use of evidence (Burns and Köster, 2016; OECD 2023).

> ... there has been a growing recognition that promoting the use of evidence is not the same thing as ensuring its use.

From linear to relational to systems models

Efforts to strengthen the use of evidence for policy and practice have thus been moving beyond traditional linear models, where increasing access is seen as the main solution to improving the impact of evidence in education.

As a first step, the focus has been on relational models that go beyond access to also include capacity and nourish interactions between and within groups. These three important dimensions can be captured as follows (adapted from Langer et al, 2016, and can be additionally applied to other actors (eg, parents, media, etc).

- ***Access*** (Do policy makers and practitioners have access to evidence in a form that is useable and understandable?)
- ***Skills*** (Do policy makers and practitioners have the skills needed to make sense of the evidence and the capacity to use and implement it?)
- ***Interactions*** (Is interaction and collaboration between relevant actors facilitated?).

The final point on interactions is crucial. Research use is social and relies on expertise and relationships at least as much as it does on access. According to Yanovitzky (2020), users are much more likely to use evidence that is

- responsive (to their needs),
- routinised (as part of existing organisational procedures), and
- relational (from a trusted source).

Interactions and collaboration, especially over the long term are key to developing and sustaining changes in behaviour. Uptake of research is based on trust and personality as much as practical usefulness – networks, direct contacts and brokerage are important (Maxwell et al, 2019).

The relational models and resulting efforts are important additions to the access to research provided by simple linear models. However, just as changes to individual behaviour are necessary but not sufficient, relational approaches also have their limitations. There is still a further step to go: the system (Best and Holmes, 2010).

Developing a systems approach is an opportunity that can be explicitly developed, and we will return to this point later in the paper.

Shift Three: A focus on practice

A third major change has been the shift in focus from policy to practice. When our OECD volume came out in 2007, the focus was almost exclusively on policy and its supporting actors, processes, structures and institutions. This does not mean that there was not a lively field of study in the area of practice (eg, Cordingley et al, 2003). The Centre for the Use of Research and Evidence in Education (CUREE), for example, was one of the early centres that focused explicitly – and solely – on teachers and teaching. The Evidence for Policy and Practice Information Centre (EPPI-Centre) in the United Kingdom, New Zealand's Best Evidence Synthesis program, and the What Works Clearinghouse (WWC) in the United States, among others, were established to address both policy and practice.

Rather, the heavy focus on policy in the 2007 OECD publication reflected the preoccupations of the time and, to some extent, the areas of targeted funding.

A focus on policy is essential for building a system of evidence generation, mobilisation and use in education.

While this has now clearly changed, the shift to foreground practice took some time. For example, in 2010, the European Commission funded the Evidence Informed Policy in Education in Europe (EIPEE) project as a state-of-the-art initiative. It was only a year later that it was renamed to the Evidence Informed Policy and Practice in Education in Europe (EIPPEE) project, as an explicit acknowledgment of the importance of teacher practice.

Since then, there has been a huge shift away from policy and towards practice.

The UK's Education Endowment Foundation (EEF), for example, was established in 2011 to help, among other things, summarise 'the best available evidence in plain language for busy, time-poor teachers and senior leaders'.[2] Their Toolkit is aimed at practitioners, and a key measure of impact is uptake in schools and school networks. This focus on practice has facilitated the development of deeper relationships between research and practice, spurring change in schools and classrooms in England.

Numerous other examples of the shift towards practice can be cited across countries, systems and institutions. Research funders have supported thoughtful study, which has helped advance our knowledge on a multitude of topics, from frameworks and decision making to the quality use of evidence to models for school improvement (to cite just a few examples, eg, Cain et al, 2019; Campbell et al, 2017; Farley-Ripple et al, 2018; Rickinson et al, 2022).

The excellent work being done on evidence use in practice is important. However, the shift is so complete that I am tempted to ask whether policy makers have let themselves off the hook. Judging by the policy documents, funding priorities and the set of initiatives emerging across the world, the policy side of the equation is no longer a prime focus, even though many of the thorny policy issues from 2007 have only gained in importance (Hopkins et al, 2021). This is not just a convenient shift in attention; it is also a strategic error. A focus on policy is essential for building a system of evidence generation, mobilisation and use in education.

Opportunities to support better use of evidence in education policy and practice

Continue to invest in evidence in education and knowledge mobilisation

My first observation is that, in general, there is a lot to be optimistic about in the world of evidence use for practice and policy. There is sustained effort and increasing investment to strengthen the impact of educational research across the globe, and this should continue. Many different jurisdictions are more active than previously: in the most recent OECD policy survey, responses were received from 37 education systems representing 29 countries (OECD, 2022; 2023).

Box 2. The Dutch Knowledge Roundabout

The Netherlands Initiative for Education Research (NRO)'s knowledge portal for practitioners provides access to research and summaries of key research in accessible language. Their 'knowledge roundabout' [*kennisrotonde*] is a free service that delivers tailored help to specific questions about education and youth research.

Users can ask their question and receive a 'research-based answer about what works and what doesn't', review the answers to questions asked by others, and read about how education professionals have applied the knowledge they receive to inform their practice. Aimed at practitioners, they also have specific resources for teacher educators, PhD students, and post doctoral researchers.

www.nro.nl/en/knowledge-practice

In addition, the efforts are building on the experiences of others. Similar initiatives across countries to 'push' knowledge mobilisation are emerging, for example, in the case of the Dutch Knowledge Roundabout and University of York (England)'s Evidence for the Frontline (see Box 2).

There is also serious 'pull': needs-driven connections to and use of research by individuals, schools, municipalities, regions and actors outside of formal research producers. This process is not automatic. The strongest incentive for policy makers and practitioners to engage with research is its promise to help them address their challenges. Changing attitudes and building trust in research, and between policy and practice communities, is all part of the development of a culture and mindset of research engagement (OECD, 2023). This takes both time, energy, and specific understanding of context.

For practitioners, evidence use involves a dialogue between formal research knowledge and the local, practical knowledge of teachers (Révai, 2020). Importantly, teachers acquire and develop their own knowledge individually but also collectively, sharing and co-constructing knowledge with their peers. One open question is to what extent these patterns, of contextualising and co-constructing knowledge, map across practice to policy; and conversely, which do not.

Focus on explicit skill and capacity building

In addition to changing attitudes and building trust, research use and engagement requires a specific set of skills and capacities. These can be roughly broken down into three areas, which are

- research literacy,
- use, and
- production.

Although a recent OECD policy survey (Figure 2) found that a majority of policy makers believed that these skills were present in their system for both policy makers and practitioners, a strong minority did not. This was particularly true for skills related to research production.

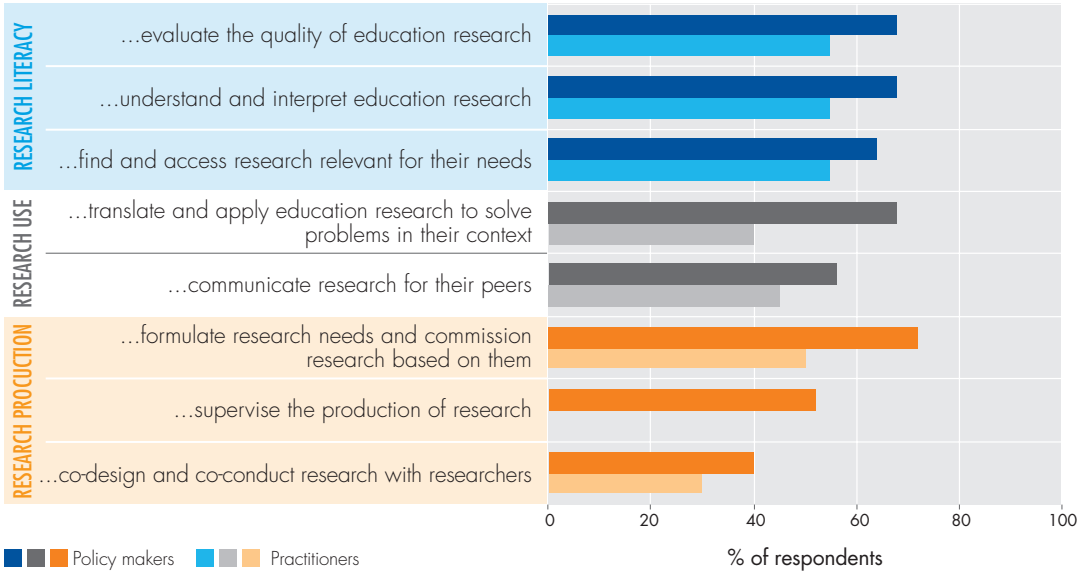
It is important to keep investing in these skills and capacity, for policy makers and practitioners alike. One key opportunity is moving beyond the *use* of evidence to the *quality use* of evidence, with the intentionality and intensiveness required (Rickinson et al, 2022).

For practitioners, one question is whether and to what extent high-quality opportunities to build these skills are present in initial teacher education and ongoing professional development. For policy makers, the same questions exist, but with the additional challenge of diffuse and various pipelines into the public service and limited quality assurance for skill building (OECD, 2020; Oliver et al, 2014).

Although our evidence base is growing, we must extend the existing research on practice and practitioners to policy – for example, understanding quality research use in policy, policy makers' capacity building and professional learning, and mechanisms and barriers to the use of evidence in policy (and politics, eg, Rouw and van der Hoeven (2023); Gomendio and Wert (2023)).

Figure 2. Mapping research engagement skills

Percentage of respondents agreeing or strongly agreeing with 'Policy makers/Practitioners have the skills and capacity to…'



Notes
The statement '… supervise the production of research' was only asked in relation to policy makers.
Data from a policy survey administered to Ministries of Education. N = 25 for responses on policy makers, 20 for practitioners.
Source: OECD, 2023

Improving the generation of evidence: Combining different types of evidence and knowledge

Fifteen years ago, my then-co-author and I stated the basic proposition that 'there is no single best method for or type of evidence-based policy [and practice] research' (OECD, 2007). Using different methodologies for different questions – and combining methodologies to understand not only *whether* something works but *how* and in *which contexts* – is key. Although the question of 'what counts as evidence' and the methodological debates from decades years ago are still alive and well (Walter et al, 2003; Cook and Gorard, 2007), there has been increasing effort to solve the difficult methodological challenges involved in combining different types of evidence and knowledge.

> ... it is a profound and open question how an eventual generalised artificial intelligence would interact with the constant updating, critical review and potential retraction of findings that takes place as part of the self-correcting nature of science.

The UK's EPPI-Centre has long been conducting systematic reviews that combine qualitative and quantitative evidence, developing a structured methodology for combining input into the reviews. The EEF, a major champion for the randomised control trial, is addressing these questions on a number of fronts, for example by inviting research schools and individual practitioners to be involved in early-stage development and design programs, and providing resources to support the development of feedback tools and on-site delivery. This work also incorporates evidence around behaviour change and effective intervention design (Michie et al, 2011).

Other efforts to better connect practice and research include the work of the Norwegian Knowledge Centre, which engages a broad set of additional actors in parallel review processes (ie, parallel to the traditional research review) to make sure the views and priorities of practitioners are included in their summaries of evidence.

Most uniquely, the Swedish Education Act considers 'teacher knowledge' as separate but equal to knowledge derived from formal research processes – and requires that education be based on both sources of knowledge. However, the mechanisms for combining these disparate sources of evidence are not clearly specified.

Digital technologies, including AI, can be used to help with many of these questions, for example, by automating aspects of literature searches to be able to scan multiple languages, methodologies, sectors and databases, as well as grey literature, review abstracts for inclusion/exclusion, and coding content and findings for human review. They are also part of the solution to combatting misinformation and fake news, building on current efforts to combine cognitive science with technological solutions (eg, information campaigns with algorithmic fact checkers and alerts for suspected disinformation, adjusting filter settings to open up bubbles etc). They can additionally be used to reach a broader set of actors, capture multiple voices and build capacity across the system.

However, opportunities come with risks, and when and what aspects of synthesis can be automated or not, and how best to ensure the quality and objectivity of algorithms, especially when combining evidence across methods and from multiple language sources, are all questions that need careful reflection. In addition, it is a profound and open question how an eventual generalised artificial intelligence would interact with the constant updating, critical review and potential retraction of findings that takes place as part of the self-correcting nature of science.

Running across these examples is a transversal imperative: the need for a more inclusive evidence base; one that reflects a broader set of contexts and languages; one that asks and answers hard questions about both human and algorithmic bias in research funding, framing, design, conduct and interpretation. The more we seek to build a cumulative knowledge base, the more we must ensure that evidence is democratised so that it is comprehensive and inclusive (Tseng, 2022).

Building a cumulative knowledge base

Unlike medicine and other social sciences, education is conspicuously weak in its ability to continuously develop and refine a body of knowledge that is quasi-universally acknowledged as well-founded. This is an essential step, necessary to avoid continuously re-inventing the wheel, or moving from one policy/practice to another without taking account of the overall picture. Brokerage agencies and networks (formal and informal) can play a major part in designating the most recent authoritative additions to the knowledge pile and connecting between them.

While ensuring the quality and effectiveness of individual agencies and initiatives is important, it is not enough.

On the level of individual brokerage agencies, we must continue to ensure that

- the quality and effectiveness of brokerage efforts can be sustained and improved (building knowledge, capacity and relationships in the local community and language takes time and sustained effort, and so too does change in behaviour),
- outreach and interactions must be increasingly scaled up to include more actors, with multiple needs and in diverse contexts (ie, going beyond the early adopters and the excited champions to support a broad set of actors, and covering both practice and policy), and
- the methodologies and processes of brokerage must continue to evolve and improve, addressing thorny questions (eg, how best to combine disparate sources of information; what aspects of synthesis can be automated or not; and how to go beyond engagement to quality use of research, etc).

While ensuring the quality and effectiveness of individual agencies and initiatives is important, it is not enough. Just as research synthesis itself has moved beyond a focus on individual research papers to systematic reviews of reviews, so too do the structures and processes of brokerage need to work together across institutions and systems to support a cumulative effort. Brokerage agencies and networks thus need, collectively, to

- link to and build on the work of other brokerage agencies and networks, connecting across different languages, research traditions and contexts to the extent possible,
- work together to continue to advance the science of evidence synthesis, quality use of research in policy and practice, and longstanding methodological and relational challenges, and
- think through measures of impact and effectiveness of their interconnections and joint collaborations.

Box 3. Brokering the brokers

Brokerage agencies (both formal and informal) play a vital role in mobilising knowledge and supporting its use. Despite the investment that has gone into their creation and support, the monitoring and evaluation of the work and impact of these efforts is limited (Gough, Maidment & Sharples, 2022; Powell, Davies & Nutley, 2018). There is even less work on understanding how they might work together to create a cumulative knowledge base (although see Gough, Maidment & Sharples (2018) for an example from the United Kingdom).

Efforts to bring brokerage efforts together on a regional level include the European Commission-funded *Evidence Informed Policy in Education in Europe (EIPEE)*/ Evidence Informed Policy and Practice in Education in Europe (EIPPEE) initiative, which brought 36 partners from 23 different countries across Europe between 2010 to 2013. A further seven organisations from four countries outside Europe joined the project as international affiliates. Many of the lessons learned from this initiative still resonate today, including (Gough et al, 2011)

- despite the high level of interest and activity, very little empirical research on which brokerage interventions worked (and in what context) was identified
- most of the activities were concerned with producing or communicating research, with little focus on the use of the research itself and even less on the 'entire evidence to policy system'
- most brokerage initiatives were governmental in nature and focused on the national system. Very little collaboration and co-ordination existed at trans-national level.

Understanding how and when brokerage works (individually and collectively) is both an opportunity and a key research priority.

Develop a systems approach

Education systems – and the systems of evidence generation and use within them – are in fact complex systems (Burns and Köster, 2016). A complex system has the following core components (Sabelli, 2006)

- behaviour is not explained by the properties of the components themselves, but rather emerges from the interaction of the components
- the system is non-linear and relies on feedback to shape its evolution.
- the system operates on multiple timescales and levels simultaneously.

The emergent nature of complex systems means that individual elements cannot be examined in isolation. Rather, the various interconnections must be studied to understand how they can form a coherent whole. As flagged earlier in this paper, these characteristics make linear and relational models of research use and engagement only part of the solution.

Developing a systems approach to evidence mobilisation and use requires explicit connections between governance and knowledge, with coordination mechanisms at the system level (Burns and Köster, 2016; Maxwell, Sharples and Coldwell,

Figure 3. Linear, relational, and systems approaches

Source: adapted from Mouthaan and Révai, 2023 and Boaz, 2021

2022). These coordination mechanisms allow for the incentives, infrastructure, leadership and system design that can support and drive coherent knowledge mobilisation strategies that bring together linear, relational and systems-level approaches. As set out in Figure 3, the three approaches co-exist and build on each other.

A mature evidence use ecosystem involves all three of the approaches, layered together and mutually reinforcing. Multi-stranded knowledge mobilisation efforts bring together linear, relational, and systems approaches, integrating them together and across different parts and levels of the system.

Who is responsible for developing such an ecosystem? Answering this returns us to our earlier discussion about the importance of bringing policy back into the discussion and rethinking what it means. For it is policy (and politics) that provides strategic leadership, establishes accountability structures and works with professional bodies to enact standards and requirements for the certification and licencing of practitioners. Policy also plays an essential role in setting priorities, developing appropriate incentives and guiding funding for research. It can also play a key role in coordinating across processes and organisations (eg, facilitating brokering the brokers).

Effecting meaningful change in the use of evidence across an education system requires both deep penetration and impact on practice, as well as broad systemwide incentives, structures and mechanisms in policy. The kind of steering mechanisms used depends on governance structures, context and tradition. 'Hard' steering mechanisms include explicit regulatory requirements and targeted funding tied to specific themes and methodologies. 'Soft' mechanisms are more open and indirect, seeking to influence rather than dictate. See Box 4 for more on Systems thinking.

Box 4. Systems thinking: Governance and knowledge

Just as there is no one 'right' methodology for educational research, there is also no 'one size fits all' approach to how systems govern their knowledge mobilisation and use. Different traditions exist across time and systems. Different approaches can also co-exist at the same time, particularly within diverse and decentralised systems.

Here are just three examples of the different types of approaches that can be identified across systems (adapted and extended from Burns, Köster and Fuster, 2016). Although these are general profiles that do not capture the full richness of activity within any specific system, they are useful food for thought that illustrate the complex interplay between governance and knowledge.

- US: Delivery and Demand

  A classical focus in a system with formidable research and data collection capacity, the use of explicit declarative knowledge and in particular quantitative knowledge is a cornerstone of US policy. An emphasis is placed on improving access and awareness of the importance of using high-quality research. The What Works Clearinghouse is an immense repository of research evidence that has been reviewed and deemed to meet a clear set of rigorous standards. A legal obligation that restricts funding to qualified evidence places the focus on rigour, within a rational learning model.

- England: Holistic Promotion

  A diverse and active system with a long history of evidence centres with a traditional 'push' focus. The last decade has seen a shift to focus on the needs of users, particularly teachers and school leaders. The Education Endowment Foundation is noteworthy for the development of an explicit evidence ecosystem (connecting, for example, evidence generation, use and training within its network of research schools). Here the focus is holistic, insisting on rigour, but crucially including relevance and the needs of users as part of the definition of rigour. This approach combines traditional rational learning with collaborative learning, and an acknowledgement that evidence is also constructed by the individuals and organisations that use it.

- The Netherlands: Partnering

  In governance systems where power is shared, the embedded knowledge of societal actors is an important element in decision making. In The Netherlands, for example, the National Initiative for Education Research focuses on stimulating reflective practitionerism. Here the focus is on relationships, working together with different colleagues and integrating different sources of knowledge. This approach combines collaborative learning and the co-construction of knowledge with social learning, which is characterised by a set of core beliefs and paradigms shared within communities and networks.

Ongoing challenges

How the system values and creates a culture of evidence use

I have argued – and do believe – that we have witnessed substantial positive change in mindsets and attitudes to the importance of evidence use over the last decades. However, it must be noted that the following challenges continue to limit the work.

- Too often the initiatives are the result of the efforts and dedication of individual champions, rather than a reflection of more general culture change
- We are still struggling with sustainability and scaling examples within systems and within groups of actors, and many initiatives remain scattered and small scale, with multiple barriers and challenges shared across systems (OECD, 2022).

Addressing these challenges will not be easy. Shifting mindsets and changing attitudes takes time and must be accompanied by strong and sustained leadership that works to mobilise both legitimacy for the use of evidence as well as ownership among the broad set of actors involved. This in turn must be accompanied by explicit capacity-building measures at all levels of the system, with a 'whole-of-system' approach – that is, one that acknowledges the complexity and interconnectedness of the system itself.

... even when seated at the same table there are difficult questions about whose voice counts, and when: education voices, and the evidence by which they are informed, must be respected and considered as relevant and rigorous as the other voices present.

The reputation and respect for education and education research

Returning to the public health decisions taken during COVID-19, it is troubling that those decisions, including those specifically impacting education, like school closures, were often made by those outside of the education system, with limited consultation with education actors.

Ensuring education has a seat at the table in the event of any future shock hinges critically on two elements. The first is difficult and requires challenging tradition and building the capacity of governing authorities, from ministries to local administrations, to work across their silos with a clear plan for areas of overlapping responsibility. The second is equally difficult and perhaps more awkward, for even when seated at the same table there are difficult questions about whose voice counts, and when: education voices, and the evidence by which they are informed, must be respected and considered as relevant and rigorous as the other voices present. In its current form this is simply not the case.

Are we victims of our own success?

Since the early 2000s the 'evidence-based policy' (and later evidence-informed policy and practice) movement has made huge inroads in shaping education policy discourse and public expectations across many countries. To those of us who have spent considerable time and effort working on the issue, this shift is exciting.

However, it is concerning to note that 'evidence-informed' is now also a buzzword, at times disconnected from its original intended meaning. Policy often prioritises specific forms of evidence (for example, media-friendly rankings, achievement and assessment data) that are important politically but do not represent the depth and breadth of information necessary for making strategic choices for the long-term development of education. It must be acknowledged that practice is also not a politics-free zone.

It is increasingly important to question how and when these terms are used and for what purpose. Is the ultimate goal improving student learning? If not, what is? Also, who (or what) benefits? Questioning the aims for both the production and use of evidence is especially relevant with the increasing presence of private interests in our systems (including but not limited to EdTech, and now AI).

So what can be done? Just as there are calls for 'real evidence-based medicine' (Greenhalgh et al, 2014), it is time for education to insist on a return to the original intended meaning of evidence-informed educational policy and practice. This requires demanding stronger evidence that is better explained and used without vested interests. It involves funders of research insisting on relevance, quality and useability – with a focus on both policy and practice. Objective, independent and trusted brokers – both formal agencies and networks as well as informal relationships – play a key role in making this possible.

Concluding note

In this paper I set out to reflect on the evolution of evidence informed policy and practice from an international perspective. I have argued that although there have been many impressive advances in the field in the last decade and a half, many of the same challenges remain, and there are important opportunities for systems to support the better use of evidence in policy and practice.

The increasing power of AI opens exciting new possibilities at the same time as it raises a host of questions about quality, objectivity, trust and how an eventual generalised artificial intelligence would interact with the self-improving nature of science.

In addition, new challenges have arisen, including quality control on social media and a perceived disdain for 'experts', as well as a worry that science and research are being deliberately devalued. Addressing this challenge – and other future challenges as yet unknown – will require new forms of intervention. Current efforts to combine cognitive science with technological solutions to combat misinformation (eg, information campaigns with algorithmic fact checkers and alerts for suspected disinformation, etc) will need to be adapted along with technological change. The increasing power of AI opens exciting new possibilities at the same time as it raises a host of questions about quality, objectivity, trust and how an eventual generalised artificial intelligence would interact with the self-improving nature of science.

If we are to build a cumulative knowledge base of quality education research to inform policy and practice, we must systematically address both existing and emerging challenges. On a fundamental level we must

- continue to learn from the successes and failures of the work that has been done across the globe,
- insist that the 'evidence-informed' quality mark is used to support better education and improved student learning, not misappropriated by vested interests, and
- continue to fund and deliver high-quality research that is inclusive, useable and accessible, and which can be synthesised across individual studies.

As part of this, we must solve the difficult methodological challenges involved in combining different types of evidence and knowledge. Despite my optimistic words earlier in this paper, we struggle to integrate different methodologies and different knowledge sources in a coherent fashion. How to do this in a way that insists on the rigour of evidence and the quality of the research (including its relevance to the specific policy or practice question) is still hotly debated. How to do this while honouring other forms of knowledge and voice, is a wide-open question.

In addition, we must continue to defend scientific literacy as a basic democratic right (Chalmers et al, 2018), key to asserting the importance of and trust in science and the scientific process in education and beyond. This requires paying attention to the wider context and skills required by

- ensuring that policy-makers, including politicians themselves, understand the importance of evidence and the need to design multi-layered knowledge mobilisation strategies that combine linear, relational, and systems approaches,
- broadening our understanding of how this process plays out in different contexts and better understanding the role that different types of organisations and actors can play in prioritising and supporting research quality and synthesis, including funders, the media, professional organisations and training institutions, quality assurance agencies, consultancies and think tanks, and more, and
- continuing to focus on efforts to understand quality research use for policy makers and practitioners alike. This includes, but is not limited to, designing teacher education and public servant training to hone the capacity to critically engage with and use research of various kinds and from multiple methodologies.

Lastly, while we continue to build a good understanding of effective knowledge mobilisation, we must also insist on

- deepening collaboration to systematically build a cumulative knowledge base,
- pushing for larger efforts to 'broker the brokers', building and scaling knowledge about what works in knowledge mobilisation itself, and
- extending this work beyond Europe and the OECD to include efforts from across the world.

Endnotes

1. This paper uses the standard definition of *information* as knowledge obtained from investigation, study or instruction, intelligence, news, including facts and data. *Knowledge* includes research as well as contextual information and expertise (eg, teachers' knowledge of their students, policymakers' knowledge of the education system). *Evidence* is understood as accumulated knowledge on a given topic. Following OECD (2022), *educational research* refers to any form of systematic investigation of educational and learning processes with a view to increasing or revising current knowledge.
2. educationendowmentfoundation.org.uk

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Tracey's most recent publications for OECD include *History and Evolution of Brokerage Agencies* (2022); *What Schools for the Future? Leadership for Uncertainty* (2022); *Trends Shaping Education* (2022); *All the Lonely People: Education and Loneliness* (2021); *Back to the Future of Education: Four OECD Scenarios for Schooling* (2020); *Education in the Digital Age: Happy and Healthy Children* (2020); and *Educating 21st Century Children: Emotional Well-Being in the Digital Age* (2019). She was also the co-editor and author, along with Tom Schuller, of the seminal OECD publication, *Evidence in Education: Linking Research and Policy* (2007).

Tracey began her career conducting research on language acquisition in children and newborn infants and was additionally an award-winning lecturer on child development. Tracey holds a BA from McGill University, Canada and a PhD in experimental psychology from Northeastern University, USA.

About the paper

Dr Burns sets out a series of reflections on the evolution of evidence-informed policy and practice in education, and suggests some future directions for the development of better evidence ecosystems. She notes that she developed the paper by following international discussions, policy decisions and literature across time and systems, as well as the numerous efforts and investment in various countries; and draws on her interactions with key players and institutions over time. Her aim with the paper is to spark discussion and reflection, and to help identify opportunities for action on both the local and international level.

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ISSN 1838-8566
ISBN 978-0-6457476-6-9

cse.edu.au