

**The Role of Knowledge Brokering in Fostering Connections Between
Educational Research, Policy, and Practice**

Chapter (Part 1) for *The BERA SAGE International Handbook of Research-Informed
Educational Policy and Practice*

May 2023

Revised October 2023

Accepted February 2024

Chapter Authors: Joel R Malin¹, Lucy Rycroft-Smith², & Vicky Ward³

¹Miami University; ²University of Cambridge; ³University of St. Andrews

Accepted version of:

Malin, J. R., Rycroft-Smith, L., & Ward, V. (in press). The role of knowledge brokers in fostering connections between educational research, policy, and practice. In D. Wyse, V. Baumfield, N. Mockler, & M. Reardon (Eds.), *BERA SAGE International Handbook of Research-Informed Educational Policy and Practice*. London: SAGE.

Abstract

This chapter introduces knowledge brokering as a concept and set of practices focusing on its applications, strengths, and challenges in education. The chapter is divided into five sections. First, we consider the sorts of knowledge it is possible to broker. Next, we focus on the various approaches to brokering knowledge, followed by the actors operating in the knowledge brokering landscape. Then, we consider the competencies that knowledge brokers require in order to tighten connections between research, policy, and practice, before concluding with a summary and recommendations.

Keywords: Knowledge Brokering; Knowledge Mobilisation; Research Co-Production

Introduction

As is well-articulated in this Handbook's introduction, there is some consensus of the strong *potential* for research evidence to be beneficial in education. More specifically, there are widely-held assumptions—and some supporting evidence—that improvements to teaching and learning could flow from educators' engagement with relevant research evidence (Malin & Brown, 2020). There is also a long history of discussions regarding how research itself is produced and informed by practice, and how this can influence the relevance and useability of research evidence (Lindblom & Cohen, 1979; Van de Ven, 2007; Whitty & Furlong, 2017). Both strands of discussion speak of a concern with both the potential and actual *connections* between research, policy, and practice which has resulted in a strong global push, and many earnest efforts, to tighten them (Malin et al., 2020; Coldwell et al., 2017; Hammersley-Fletcher & Lewin, 2015).

Scholarship and experience underscore that strengthening these connections is no small task. Early models of 'knowledge transfer' and 'research utilisation' viewed research-policy/practice gaps as issues of failed dissemination or insufficient uptake (Farley-Ripple et al., 2021). This framing prompted a raft of initiatives designed to fix these 'deficits', such as translating research outputs into more digestible formats and building the capacity of practitioners to understand, apply, and conduct research (Rickinson et al., 2022). Alternative framings, such as those by Farley-Ripple and colleagues (2018, p. 235), contend that gaps and disconnects represent a "collective, multi-dimensional problem demanding deeper understanding and coordination of the research and practice enterprises." Indeed, it is now more widely understood that tightening the connections between research, policy and practice involves "understanding of and tending to different aspects of the educational ecosystem, and the undertaking of various efforts through which they might be brought into closer alignment" (Malin & Brown, 2020, p. 1).

The persistent disconnect between research, policy, and practice across fields has been theorised as chiefly stemming from cultural and community dissonance. Bogenschneider and Corbett (2011) describe this as

a lack of communication between knowledge producers and knowledge consumers from a number of disparate communities who engage in different core technologies and operate in distinct professional and institutional cultures. These cultures, in turn, shape the communication styles, decision-making criteria, questions of interest, reward systems, salient constituencies, and time frames of the members of each community (p. 126).

This theory has been echoed within education, with Brown and Allen (2021) speaking of the different professional worlds of researchers and educators “each with its own institutional language and norms, hierarchies, incentive systems, and approaches to solving problems” (p. 21). Garcia (2021) describes equally large dissonance between researchers and educational policymakers.

What appears to be needed, then, are individuals, teams, initiatives, technologies, and organisations operating knowledgeably and comfortably in the connecting spaces between research, policy, and practice, thereby strengthening the connections between them (Rycroft-Smith, 2022). These connecting activities are generally referred to as **knowledge brokering** (Malin & Brown, 2020).

Knowledge brokers are the human face of knowledge brokering and are those who can facilitate the co-creation, utilisation, and mobilisation of knowledge between research, policy and practice communities (Ward et al., 2009). Though these are terms with multiple and inconsistent definitions (Rycroft-Smith, 2022), this chapter draws on Van de Ven’s (2007) model of ‘engaged scholarship’ to conceive of knowledge brokering as centring around the creation of knowledge-in-context¹. Such knowledge can manifest in *products* (e.g., policy brief/research note) or *processes* (e.g., relationships and networks that enable the co-creation of such knowledge) and is distinct from mere knowledge dissemination because of the specialist boundary-crossing expertise required to embed, interpret and mediate such products and processes, not only *for* but *with* the target audiences (Rycroft-Smith, 2022).

This chapter aims to provide an introduction to knowledge brokering as a concept and set of practices with specific focus on its applications, strengths, and challenges in education. To accomplish this, we divide the chapter into five sections. First, and leading on from our discussion above, we consider the sorts of knowledge it is possible to broker. Next, we focus on the various approaches to brokering knowledge, followed by the actors operating in this landscape. Then, we consider the competencies knowledge brokers require in order to better foster the connections between research, policy, and practice, before concluding with a summary and recommendations.

1. What Sorts of Knowledge can be Brokered?

By this stage, readers may be wondering what a chapter on *knowledge* brokering is doing in a handbook about *research*-informed educational policy and practice. Why are we not referring to research brokering or to research dissemination?

¹ The conceptualisation is compatible with the view that what is useful and what is needed and desired varies considerably by context, and that powerful knowledge (in and beyond education) arises from meaningful and sustained connection between differently-situated people, knowledges, and ways of knowing. As the chapter proceeds, we unpack this conceptualisation and others and attend both toward affordances and ongoing challenges and tensions.

What is the difference between knowledge and research? What knowledge is it possible to broker? If you are asking these questions, you are far from alone. The nature of knowledge and how it is manifest has been a source of debate for hundreds of years and these matters continue to take center stage in literature on research- and evidence-informed policy and practice across disciplines and fields of practice (Greenhalgh & Wieringa, 2011; Atherton, 2013; Whitty & Furlong, 2017).

Let us begin, then, by considering the difference between research and knowledge. Research can broadly be defined as ‘evidence that is the result of systematic investigation, regardless of whether or not it emanates from a research setting’ (Boaz et al., 2019, p. 5). This definition implies that research is a product - a bounded set of evidence, facts or results - and that one party (or setting) is primarily responsible for producing it. Given such understandings, it can be difficult to get away from unidirectional, dissemination-focused approaches to addressing the space between research, policy and practice. Knowledge, conversely, can be understood as both an object - explicit, codified and portable - *and* as a process - tacit, embedded in contexts and practices, and inseparable from the knower (Tooman et al, 2016). This understanding demands that we treat researchers, practitioners and policymakers as producers and holders of valuable knowledge that needs to be better connected in order to change educational practice and policy.

If we accept that we need to be talking of knowledge rather than research brokering, our thoughts probably ought to turn to the sorts of knowledge it is possible to broker. Here it is useful to turn to ancient Greece - specifically to Aristotle’s distinction between three very different forms of knowledge (episteme, techne and phronesis). This distinction has been picked up by a number of authors exploring the landscape of knowledge brokering and research- and evidence-informed policy and practice (Tooman et al, 2016; Greenhalgh & Weiringa, 2011; Ward, 2017). We present these forms in Table x below. It is important to stress, here, that ‘knowledge’ is a fusion of these three forms, and that each does not necessarily constitute knowledge on its own.

Form of knowledge	Description	Represented in
Scientific or factual knowledge (episteme)	Content-based subject matter (i.e. ‘know that’) including formal research findings, quality and performance data and evaluation data.	Research/evaluation report; comparative data table

Technical knowledge (techne)	Skills-based capability such as practical skills, experiences and expertise (i.e. know how) that is embedded in practice.	Skills/people directory, staff handbook [institutional logics, routines, rules and norms 'how we do things around here'].
Practical wisdom (phronesis)	The ability to make wise, practical, ethical judgements ('what best to do in this case') using professional judgments, values and beliefs	Professional code of conduct or similar, cultural understanding

Table x: Forms of knowledge (after Aristotle)

This brief section shows that knowledge can mean different things to different people in different contexts and goes beyond the realm of research evidence or results. Researchers, practitioners and policymakers can all be thought of as the holders of valuable knowledge (or knowledges) that can be brought to bear on educational policy and practice. As Gutiérrez (2017, p. 6) argues, “different ways of knowing, different knowers, and different forms of knowledge are all legitimate, partial, and interdependent.” The power of knowledge brokering, then, is its ability to connect these people and forms of knowledge in various ways. We can begin to see, too, how knowledge brokering given such an understanding is more complex and contingent (but also, we argue, more promising) than, for instance, the task of disseminating or translating “research evidence” to practitioners or policymakers. In the following section we explore some of these varying approaches and how they can be best understood.

2. How can we Understand Varied Knowledge Brokering Approaches in Education?

The activities and approaches encompassed by the term ‘knowledge brokering’, both in educational contexts and beyond, are varied, diverse and complex and many attempts have been made to categorise them (Rycroft-Smith 2022). Table X summarises the key models and metaphors used to depict knowledge brokering within education, along with some of their affordances and limitations.

Model/metaphor	Emphasis	Affordances	Limitations
----------------	----------	-------------	-------------

<p>knowledge brokering as mediating</p> <p>knowledge broker as mediator or intermediary</p> <p>(e.g. Levin, 2013)</p>	<p>Facilitating relationships</p>	<ul style="list-style-type: none"> -emphasises social/relational role -recognises emotional and cultural aspects -highlights awareness of potential dissonances between communities -suggests a focus of moving towards shared goals -highlights considerable expertise needed from broker 	<ul style="list-style-type: none"> -expecting tension may create tension -suggests a negotiation focus which may be overly narrow -may minimise role of creating resources and artefacts -may centre the broker
<p>knowledge brokering as straddling</p> <p>knowledge broker as mixed-terrain Colossus</p> <p>(e.g. Cordingley, 1999)</p>	<p>Crossing boundaries</p>	<ul style="list-style-type: none"> -emphasises need to inhabit/understand different terrains -recognises cultural aspects -highlights the boundaries and barriers that may be present between communities 	<ul style="list-style-type: none"> -expecting community dissonance may create community dissonance -may centre the broker -static model -unlike spanning/bridging model, brokers themselves as only conduits -may characterise practice as terrain that is inferred as inferior to research
<p>knowledge brokering as Janusian integration</p> <p>knowledge broker as dual role player</p> <p>(e.g. Lam, 2018)</p>	<p>Being a member of more than one community</p>	<ul style="list-style-type: none"> -emphasises considerable expertise/experience of broker needed 	<ul style="list-style-type: none"> -suggests two or more identities may be incompatible, or non-simultaneous -others may perceive broker as disingenuous or non-authentic
<p>knowledge brokering as boundary blurring</p> <p>knowledge broker as permeable membrane</p> <p>(e.g. Guston, 2001)</p>	<p>Removing barriers</p>	<ul style="list-style-type: none"> -suggests researchers and teachers can have blurred/multiple identities -emphasises dynamic flow model 	<ul style="list-style-type: none"> -suggests broker has control over knowledge flow -may centre broker
<p>knowledge brokering as boundary spanning</p> <p>knowledge broker as bridge between worlds</p> <p>(e.g. Malin & Brown, 2020)</p>	<p>Building connections (geographic)</p>	<ul style="list-style-type: none"> -focus on creating pathways/connections -suggests researchers/teachers can move between worlds -may suggest knowledge broker becomes obsolete over time -emphasises dynamic flow model 	<ul style="list-style-type: none"> -suggests worlds of research and practice are completely distinct -unlike the boundary blurring model, the boundary spanning redraws/emphasises the boundary itself
<p>knowledge brokering as translating</p>	<p>Interpreting</p>	<ul style="list-style-type: none"> -focus on moving knowledge from one language, form, or format to another -highlights the language/discourse 	<ul style="list-style-type: none"> -several possible types of activity may be conflated -may centre the broker

knowledge broker as code-switcher (e.g. Hirschhorn & Geelan, 2008)		accessibility problems between researchers and teachers	-relies on knowledge broker's ability to understand implications of cultural-linguistic decisions
knowledge brokering as matchmaking Knowledge broker as nexus (e.g. Sharples & Sheard, 2015)	Introducing	-focus on building connections within system -emphasis that knowledge broker does not need to know everything	-credibility and trust may be diluted -may feed into self-reinforcing White patriarchal narratives of who is seen/privileged
knowledge brokering as curating Knowledge broker as exhibitor (e.g. Rycroft-Smith, 2022)	Storytelling	-focus on selecting interesting, good- quality and relevant evidence -emphasises that collections of different types of evidence can be complementary -highlights expertise in drawing out ideas of narrative, contrast and themes	-may be interpreted as subjective/biased selection (cherry-picking) -may feed into self-reinforcing White patriarchal narratives of who is seen/privileged

Table X: Models and metaphors of knowledge brokering in education (adapted from Rycroft-Smith, 2022)

Despite this diversity of models and metaphors, there are several common themes and issues across the knowledge brokering literature. These include the importance or obsolescence of dedicated knowledge brokering roles, the significance of boundary maintenance activity, the creation and maintenance of credibility and trust, and the potential for marginalisation.

One issue garnering far less attention is the role of *teacher agency* in the variously described models of knowledge brokering. This is defined by Imants and van der Wal (2020) as capacity to act within a system of constraints that include teacher beliefs, knowledge and skills, available resources, culture, and external drivers of change. Below, we explore how we can use this concept to better understand approaches to knowledge brokering.

There are two main - and almost entirely contradictory - schools of thought on how best to tighten connections between educational research, policy and practice and ensure that research evidence is used (Oancea, 2005). The first involves engineering or mandating the use of research evidence by, for instance, building it into curricula, or making it the subject of legislation (Gorard et al., 2020). This can be categorised as a *low teacher agency approach*: teachers' capacity to act (i.e. to use their own judgement) is limited in order to ensure the implementation of research

evidence. Low agency approaches align with views of knowledge as content-based subject matter (episteme) that is produced by specialists, agreed by policymakers and put into practice by teachers. Knowledge brokering tends to be framed as straddling or translating whereby knowledge brokers bring research evidence to policymakers in such a way that it can be used to inform national and/or local policymaking or curriculum decisions. Whilst such approaches may be useful if the evidence is clear, relatively uncontested, and needs to be widely implemented, they can be problematic. Research mediation by knowledge brokers can further reduce policymaker and teacher agency by removing their opportunities to critically evaluate the research from their own perspective, and reduces the influence of teacher knowledge/s (Rycroft-Smith & Macey, 2021). For teachers, such approaches are likely to result in them being pulled in different directions, leaving them in situations of conflict and compromise (e.g. Pesek & Kirshner, 2000). This also suggests a view of knowledge itself that is technocratic and artificially divorced from the phronesis and techne described in Section 1.

The second school of thought involves giving teachers more professional trust as well as detailed support, time and professional development (e.g. Akkerman & Bruining, 2016). Such *high teacher agency* approaches aim to ensure that teachers *can* make use of research but can also *choose not to* in as informed a way as possible. High agency approaches align with views of knowledge as a blend of research evidence (episteme), practice-based skills and expertise (techne) and practical wisdom (phronesis), with research use depending on greater dialogue and collaboration between researchers, policymakers and teachers (e.g. Carnine, 1997). As such, knowledge brokers tend to be framed as mediators, bridges or matchmakers. Facilitating high teacher agency in the use of research evidence also requires professional development that examines the nature of evidence from research rather than simply how it ‘should’ be used in practice. Such a ‘metaevidential’ approach (Rycroft-Smith & Macey, 2021) would afford policymakers and teachers opportunities to consider the compatibility of the research with their areas of practice, contexts and preferred ways of working, combining the three types of knowledge described in Section 1 in a more blended, fluid and phenomenological manner.

The two categories described here - *low teacher agency* and *high teacher agency* - are very similar to Walter et al’s (2004) three models of research-informed practice in social care: the *research-based practitioner model*; the *embedded research model*; and the *organisational excellence model*. This aligns with the approaches suggested above, where low teacher agency matches with the embedded research model, and high teacher agency with the research-based practitioner model. It also adds a third model: organisational excellence, which explicitly addresses the issue of culture as constraint, where a research-informed culture is seen as the long-term goal, aiming to integrate practitioner knowledge with research knowledge in a cyclical

and dynamic process of co-creation. It is interesting to consider whether this is, in theory at least, the best of both worlds, and whether one model may be considered a ‘stepping stone’ on the way to another, or if they overlap at all. Although there are several other, somewhat related, ways of categorising knowledge brokering, we have chosen to focus on distinct approaches with implications for teacher agency, given our sense that this provides sharp relief and may be helpful to brokers as they self-reflect on their approaches and underlying assumptions. Hence in Figure X the work of knowledge brokers in each model as we envisage it in educational contexts is considered.


 <p>ORGANISATIONAL EXCELLENCE MODEL</p>	<p>Leadership and management are responsible for keeping up to date with research</p>	<p>Research use is supported by developing an organisational culture that is ‘research-minded’</p>	<p>There is local adaptation of research findings and ongoing learning within organisations</p>	<p>Partnerships with local universities and intermediary organisations are used to facilitate both the creation and use of research knowledge in a cyclical process.</p>	<p>Knowledge brokers can/should</p> <ul style="list-style-type: none"> • support integration of research knowledge with organisational knowledge • help forge/maintain partnerships with local universities and with other intermediary organisations • support local experimentation, evaluation and practice development based on research • encourage co-creation of knowledge between researchers and practitioners • help develop a culture that is open to the use of research
 <p>EMBEDDED RESEARCH MODEL</p>	<p>Specific policymakers are responsible for keeping up to date with research</p>	<p>Research use is achieved by embedding research in systems and processes, such as standards, policies, procedures and tools.</p>	<p>Responsibility for ensuring research use lies with policy makers and service delivery managers</p>	<p>The use of research is both a linear and instrumental process: research is translated directly into practice change.</p>	<p>Knowledge brokers can/should</p> <ul style="list-style-type: none"> • support access to research for policymakers • help research enters practice by becoming embedded in systems and processes such as standards, inspection frameworks, national and local policies and procedures, and practice tools • support widespread and consistent adoption of research-informed guidance and tools • adapt research-based tools to local contexts and needs
 <p>RESEARCH-BASED PRACTITIONER MODEL</p>	<p>Individual practitioners responsible for keeping up to date with research</p>	<p>Professional education and training are important in enabling research use.</p>	<p>Practitioners have high levels of professional autonomy to change practice based on research.</p>	<p>The use of research is a linear process of accessing, appraising and applying research.</p>	<p>Knowledge brokers can/should</p> <ul style="list-style-type: none"> • support access to research for practitioners • support the development of practitioners’ critical appraisal skills for assessing the relevance and quality of research for making decisions • improving the presentation of research • support professionals to identify best practice by integrating research knowledge with their own practitioner or ‘craft’ knowledge and with students and parents preferences and views.

Figure X: three models of research-informed practice, adapted from Walter et al (2004)

Meyer (2010) suggests knowledge brokers should have ‘double peripherality’ - the ability to bridge worlds, making them what Lam (2018, p. 1716) calls ‘intentional hybrids’, inhabiting an overlapping third space where difference is negotiated and ideas are deliberately tested and contested. In this space, tension is the norm and the focus, and one central tension for educational knowledge brokers is this: some teachers appear to simultaneously desire easy-to-implement ‘takeaways’ from research and yet retaining their agency is still very important (e.g. Rycroft-Smith & Stylianides, 2022). This clearly underscores the need for clarified thinking

around the place of knowledge brokering in evidence use in education, in particular the assumptions about teacher professionalism, autonomy and agency underlying different models of engagement with evidence.

3. What Actors Comprise the Knowledge Brokering Landscape?

The educational ecosystem – much like other policy and practice ecosystems – includes a range of individuals and entities that sometimes (or, in some cases, regularly) work - or play - “at the interface between the worlds of researchers and decision-makers” (Ward et al., 2009, p. 2), facilitating the co-production, translation, flow, and/or uptake of knowledge-in-context. The goal in this section, then, is to provide a broad sense of the educational ecosystem and the actors that broker knowledge within/across its varied contexts.

Levin (2013) identified three main overlapping contexts in education related to the mobilisation of research evidence: production, use, and mediation. The mediation context is vibrant and significant, composed of diverse actors and activities focused on linking research with educational policy and/or practice. Knowledge brokering also regularly happens within production and use contexts. Indeed, actors sometimes inhabit multiple or cross between domains, moving beyond their primary activities—as when, for example, researchers (primarily “producers”) actively exchange and co-create knowledge with practitioners (Cooper et al., 2020), intermediaries like think tanks or multinational organisations sponsor research and produce knowledge (Verger et al., 2019), and educators produce and exchange evidence beyond their schools. Farley-Ripple and Grajeda (2020), for instance, demonstrated how teachers and school leaders frequently function as knowledge brokers and highlighted schools as key sites where knowledge brokering processes regularly take place. A similar phenomenon is evident in policy; for example, some legislators acquire reputations amongst their colleagues as trustworthy knowledge brokers (Bogensneider & Corbett, 2011).

Two more complexities should be surfaced. First, knowledge brokering often occurs in long, complex chains between research and policy or practice—showing there are multiple participants and technologies contributing to knowledge brokering, and in this process knowledge is integrated, reinterpreted, and otherwise transformed (e.g., Shewchuk & Farley-Ripple, 2023; Malin & Paralkar, 2017; Neal et al., 2015). Second, policy and practice communities are substantially different (Martin & Williams, 2019), and knowledge brokering must be fit to context. There also exist policy and practice sub-communities—for instance, teachers of particular content areas, and legislators, executives, and agency staff in policy—that have distinct interests, cultures, and informational needs.

Consequently, some knowledge brokers in education are quite specialised, focusing on particular subcommunities (for example: the U.S.-based National Association of Secondary School Principals) while others may have a broader remit but still should be able to adjust their products and processes to meet varying needs.

We now turn to education's mediation context, for which knowledge brokering is a primary activity. This context is densely inhabited, including many policy- and practice-focused individuals and entities. In the U.S., for example, there has been a "proliferation of [non-state actors] in the political arena" (Horsford et al., 2019, p. 77), including an ever-expanding array of intermediary organisations seeking to influence education policy (Goldie et al., 2014; Scott et al., 2015). There have also been long-running efforts to strengthen research-practice connections via government-funded intermediaries like the Regional Educational Laboratories (from the 1960s) and the What Works Clearinghouse (WWC; from 2002) (Farley-Ripple et al., 2017). Educators' demand for professionally-relevant knowledge has also driven various individuals and organisations to enter the space—ranging from professional associations to for-profit producers of research summaries to philanthropically-backed platforms for knowledge exchange (Lawlor et al., 2021).

The increasing numbers and influences of intermediaries is not confined to the U.S. Globally, international organisations such as OECD and the World Bank are quite impactful on education policy and practice. OECD, for example, exerts much influence globally flowing from its large-scale educational assessment administration and dissemination of results (Wiseman & Taylor, 2017). The World Bank, meanwhile, finances education systems and reforms, with conditions attached. Both organisations, and many others, have ample resources to produce "attractive knowledge products [and] widely disseminate them," sometimes including direct delivery to policymakers (Edwards, 2018). In other national contexts, too, recent years have seen new education initiatives featuring a knowledge brokering focus in the Netherlands, Scandinavian countries, and in Canada and New Zealand, among others (Rycroft-Smith, 2022; Wollscheid et al., 2019). In England and Scotland, too, are abundant examples of educators' demand for evidence driving grassroots initiatives like researchED and teacher networks like ScotEdChat (Nelson & Campbell, 2019).

Intermediaries' influence can be helpful or harmful. Verger and colleagues (2019) show how some international agencies tactically and selectively use research to reinforce earlier-established policy preferences—by, in effect, cherry-picking evidence to create a misleading impression of consensus around complicated, context-sensitive matters, thereby motivating policy and practical action but unwisely so (see also Malin & Rind, 2022). Such concerns grow, too, when we consider that some nations and governments are less well positioned to resist

such external influence—for instance, those that are more dependent on external financing usually have less control over their policy environments. Accordingly we suggest the potential for knowledge brokers to do harm is positively related to the level of scale/investment: Well-resourced entities with the capacity to collect large-scale data, create slick knowledge products, and organise knowledge exchange events with powerful decision-makers are capable of doing more harm than smaller-scale entities whose work occurs locally and relies more so on voluntariness, goodwill and relationships: in other words, community-based knowledge brokering.

One way to make sense of this mass of actors and activities in educational knowledge brokering is to think in terms of models. Ward et al. (2009), focusing on the health care sector, identified three main models: *knowledge management*; *linkage and exchange*; and *capacity building*. Focusing on education, Bush (2017) detected similar patterns, identifying three main roles being fulfilled by educational knowledge brokers—i.e., those who: 1. create resources to distil and communicate evidence from research (i.e., knowledge management); 2. develop partnerships between researchers and decision-makers (linkage and exchange); and/or 3. support decision-makers as they engage within evidence and test impacts locally (capacity building). Regarding the latter role, for example, Caduff et al. (in press) examined how five US-based, equity-focused organisations (and knowledge brokers therein) support capacity building within educational systems, finding that they employed several context-specific strategies and relied on well-worn approaches like workshops and online tutorials and resources.

It is also imperative to examine the power and potential of technology-mediated knowledge brokerage, perhaps especially in education. To date, researchers have primarily focused on people and organisations as brokers, though some burgeoning literature focuses on technology, examining “how online technologies and spaces can support brokerage” (see Lawlor et al., 2021); this has included attention toward the educational utility and knowledge exchange potential of interactive social spaces like Facebook and Twitter, and—more recently—toward online platforms that focus on educational knowledge brokerage such as *WWC* and *Teachers Pay Teachers* (Lawlor et al., 2021). As we write this chapter, we are witnessing a generative artificial intelligence revolution in real time, with text- and image-generating chatbots like ChatGTP generating both huge hopes and concerns. Suffice to say, we certainly do see these as knowledge - or perhaps *intelligence* - brokering tools with major applications and implications in education, warranting sustained critical examination.

4. What Competencies are Required of Knowledge Brokers?

Now we discuss several competencies knowledge brokers may require in order to tighten the connections between research, policy, and practice. Given the lack of education-specific research in this area, much of the literature is drawn more widely, especially from healthcare and business; it remains an open question whether the findings generalise well to educational contexts or whether there are issues specific to education necessitating further attention.

Several researchers list suggested or expected skills or competencies for knowledge brokers. For example, Boari and Riboldazzi (2014) suggest that credibility and reputation are very important. Others have more extensive lists, such as Frost et al. (2016), who include competencies (“skills of”) developed from healthcare settings:

- **connection:** the ability to bring people together and facilitate interactions
- **location and presentation:** the ability to find research-based and other evidence to shape decisions
- **evaluation and transformation:** the ability to assess evidence, interpret it and adapt it to circumstances
- **communication:** a knowledge of marketing and media and how to use them to shape narratives
- **prediction:** the ability to identify emerging management and policy issues that research could help to resolve

This reflects a general tendency to present knowledge brokers’ skills and competencies vis-a-vis the instrumental activities they may carry out, for example earlier ideas of models and metaphors used in the literature that may include interpreting, translating, introducing, or boundary crossing.

Others, however, have considered not only the skills and competencies of brokers, but their roles and identities. Knowledge brokers play a critical role in the flow of ideas because they filter information (Finnigan, 2023), affording them the privilege and responsibility of gatekeeping in several senses. As such, knowledge brokers require a sound awareness and understanding of the landscape they inhabit, the knowledges they are working with, and the communities they broker between in order to exercise *informed judgement* (Rycroft-Smith, 2022).

Saunders (2006, p. 136) suggests “both teaching and research are intrinsically social and ethical, not just instrumental, undertakings; and that creativity, feeling and intuition, as well as cognition, are crucial to the satisfactory accomplishment of each.” She suggests education is a *moral* enterprise, with the quality of education depending on the quality of teachers’ deliberation and judgement in the classroom, and the quality of researchers’ deliberation and judgement outside it. Accordingly, we might expect knowledge brokers, as key facilitators of such

judgements, require qualities of deep understanding of the processes by which people arrive at decisions and how to co- evaluate and reflect on their ‘quality’.

Knowledge brokers require facility with both qualitative and quantitative data, and the contexts in which it may be (mis)used. One of the most significant dangers facing knowledge brokers (and those who engage with them) concerns the mistaking of mathematics for objectivity, numbers for neutrality, or empiricism for apoliticism. A useful term here is *mathwashing*, which has been used to refer to

- Deceiving people about the objectivity of mathematical models containing baked-in biases (Mok, 2017)
- “a way of lending credibility to an argument or justifying a course of action by appealing to mathematical authority” (Rycroft-Smith & Macey, 2020)
- Hiding “a subjective reality under a thin layer of “objective mathematical processing” (Rycroft-Smith et al., in press)

Providing a useful process and antidote, Saunders (2007, p. 7) describes learning through working with teachers that “the meanings of data are socially constructed: from the data themselves, from their significance in a politicised context of accountability, and also from the values and attitudes, concerns and expectations of individual staff.” One of the most beguiling propositions for the naive knowledge broker concerns *neutrality*: that the processes of finding and presenting research, connecting and representing people, and selecting problems and solutions for focus are objective, ‘empirical’ and non-biased, such that another knowledge broker (human or machine) in the same situation would make the same choices. But of course, we all must exist in spaces both literal and metaphorical - research voices all come from somewhere (Haraway, 2016) - and that confers on every knowledge broker positionality and perspective. In particular, choosing which problems to *call* problems, as Bacchi (2012) notes, is one of the most value-laden activities there is. Some even mistake neutrality for not taking a position - what Rycroft-Smith et al. (in press), in the context of mathematics and mathematics education, have called the *hidden ethics fallacy*: that it is possible “to ‘opt out’ of taking a position at all, by declaring they have made a choice not to engage with ethics (or politics, or social justice, or equity).” Because all knowledge brokering comes with positionality (values and assumptions), we suggest knowledge brokers should be transparent about this, both to themselves and others.

Moreover, as Morrison (2001, p. 77) states, “what works is a matter of discussion and debate, not simply of data; what works is a value statement not simply an empirical statement”; anyone facilitating work in this area therefore requires a deep understanding of not only data and values, but their interactions. Saunders (2007,

p. 8) similarly troubles the “what works agenda,” suggesting that “what works is not self-evident but needs to be held up to full ethical and intellectual discussion.” While we hold out for “the possibility of intelligible discourse between people quite different from one another in interest, outlook, wealth, and power, and yet contained in a world where tumbled as they are into endless connection” (Geertz, 1999, p. 170), we are conscious of the ethical entanglements this connection creates, and ask: who, if not the knowledge broker, should address them?

We see here a conceptualisation of knowledge broker as *judge*, weighing not only evidence but argument, input, ethical considerations and historico-cultural issues to produce trustworthy advice. One difficulty here is that the knowledge broker may also be placed in the position of *advocate*, speaking for those who are silenced or missing from the table of decision-making. This multiroling is extremely difficult for any one person to do successfully and can surface tensions with politics, credibility and authority.

Wenger (2008), in their work examining communities of practice, suggests several key broker qualities or abilities:

- **Multimembership:** being part of more than one community
- **Translation:** seeing and understanding similarities and differences between different communities
- **Legitimacy:** being embedded enough in each community to have influence in them

They also suggest an unwanted side effect of brokering, the discomfort of uprootedness, which may relate to a fourth key quality – *intentionally* staying on the boundaries or margins; as Wenger notes, “their contributions lie precisely in being neither in nor out” (p. 110).

Burt (2004, p. 349) puts it thus: “people who stand near the holes in a social structure are at higher risk of having good ideas”, explaining that homogeneity of thinking, opinion and behaviour happens at the core, and therefore at the margins – what they call the *structural holes* - selection and synthesis from across and within groups (in other words effective knowledge brokering) is more likely to occur. Boari and Riboldazzi (2014) suggest something similar in practice: Actors with brokerage relations have easier access to diverse, contradictory information, which can make it easier to spot opportunities for innovation.

These ideas perhaps lead Auld, Doig and Bennett (2022), in their work comparing knowledge brokering to putting on a stage musical, to suggest that knowledge brokers require a broad range of skills and characteristics, leading to both role conflict and ambiguity. They describe knowledge brokers in the higher

education context performing activities in four main areas: developing stakeholder inter-relationships (know your cast and crew); training and educating stakeholders (train your cast and crew); using evaluative and iterative strategies (rehearse and review); and providing interactive assistance, tailoring to the context, and changing infrastructure (provide hands-on support). They suggest the following skills are required for knowledge brokers, aligned to these four areas:

- initiating, developing and nurturing relationships
- training others, including identifying knowledge gaps
- identifying barriers, evaluating strengths and weaknesses
- tailoring messaging to audience and context, coordinating others

Hence they suggest that the knowledge broker role is so large and varied that, in line with their analogy, this work should almost never be the role of a single person - but a collaborative, team effort making use of multiple skill sets. This flows from their literature review where they found that others had, at various times, suggested that to successfully broker knowledge one must be:

entrepreneurial, trustworthy, a clear communicator (Lomas, 2007), authentic, respectful, approachable, flexible, responsive, reliable and self-confident (Stetler et al, 2011), enthusiastic, creative, a great listener, courageous, tactful, committed, and nimble-footed! (Phipps and Morton, 2013) (Auld et al., 2022, p.151)

It is clear that many qualities have been both described and prescribed for knowledge brokering activity. The implication here is that, to be successful, knowledge brokers *either* work in teams *or* specialise in particular areas (or perhaps both). As described earlier, the concept of knowledge broker as curator (in the sense of creating more than the sum of parts) is applicable here; as knowledge brokers “share knowledge and add value by helping others makes sense of individual pieces in a wider context” (Cherrstrom & Boden, 2020, p.113), bridging people and communities by transforming knowledge structures and well as knowledge.

With great architectural power should come great responsibility. Serious questions remain unanswered in the literature, for example: “*If consensus exists around distinct competencies associated with KB, how are these competencies developed?*” and “*How can the development of KB be supported purposefully?*” This work would also support development of regulation around knowledge brokering, allowing the promotion of activity which does good and the mitigation (and possible sanctioning) of that which does harm.

5. Conclusion

Vexing challenges have met efforts to tighten research, practice, and policy connections in education. This chapter has focused on knowledge brokering as a (partial) solution, given its unique potential to enhance connections between/across communities and create knowledge-in-context. Accordingly, we have provided a conceptual and practical introduction to knowledge brokering, focusing on its applications, affordances, and constraints in education.

We first considered what sorts of knowledge can be brokered, suggesting knowledge takes three basic forms and is most powerful when integrated. Knowledge goes beyond the realm of research evidence. Moreover, what makes knowledge brokering particularly potent is its ability to connect differently-positioned people and their valuable knowledges, which can be brought to bear on policy and practice.

We next surveyed knowledge brokering approaches in education, showing that these (and the attempts made at categorising them) are diverse and complex. We dedicated special focus to clearly distinctive approaches relative to teacher agency (high and low), aiming to help brokers self-reflect on their approaches and assumptions. Brokers' choices clearly can affect teachers, arguably the most important educational professionals; we generally favour the high teacher agency approach, finding it to be better aligned with our conceptualisation of knowledge brokers as powerful connectors of people and forms of knowledge.

We next surveyed the knowledge brokering landscape in education, noting how knowledge brokering routinely takes place in each of three main contexts. We also showed how the mediation context – for which knowledge brokering is a primary activity – is densely inhabited, with increasing numbers and influences of intermediaries. We argued their influences can be helpful or harmful, suggesting the potential for harm is positively related to the level of scale/investment. In this regard, we also discussed technology-mediated knowledge brokerage, recognizing both potential (e.g., the ability of interactive social spaces to foster discourse and facilitate knowledge fusion) and concerns (e.g., the potential of chatbots like ChatGTP to generate deepfake imagery and proliferate misinformation) of such tools.

Lastly, we discussed several skills and competencies and knowledge brokers may require. Throughout, we elected to emphasise ethical aspects of brokering, recognizing that knowledge brokers are positioned to filter information and to otherwise serve as gatekeepers. Education, broadly, is a moral enterprise; we concur with Saunders (2006), who suggests knowledge brokering in education should be fundamentally supportive of teachers' and researchers' ethics-laden

deliberation and judgement. We view knowledge brokers, then, as being importantly positioned to address ethical entanglements while they connect people and knowledge.

References

- Akkerman, S., & Bruining, T. (2016). Multilevel Boundary Crossing in a Professional Development School Partnership. *Journal of the Learning Sciences*, 25(2), 240–284. <https://doi.org/10.1080/10508406.2016.1147448>
- Atherton, A. (2013). Organisational 'know-where' and 'know-when': Re-framing configurations and distributions of knowledge in organisations. *Knowledge Management Research and Practice*, 11, 410-421.
- Auld, M., Doig, E., & Bennett, S. (2022). Knowledge Brokerage: The Musical: an analogy for explaining the role of knowledge brokers in a university setting. *Evidence & Policy*, 1(aop), 1–16. <https://doi.org/10.1332/174426421X16397424861558>
- Bacchi, C. (2012). Introducing the 'What's the Problem Represented to be?' approach. In A. Bletsas & C. Beasley (Eds.), *Engaging with Carol Bacchi: Strategic Interventions and Exchanges* (pp. 21–24). The University of Adelaide Press. <https://doi.org/10.1017/UPO9780987171856.003>
- Bell, M., Cordingley, P., Isham, C., & Davis, R. (2010). *Report of professional practitioner use of research review: Practitioner engagement in and/or with research*. Coventry: CUREE, GTCE, LSIS and NTRP. Retrieved from www.curee-paccts.com/node/2303
- Boari, C., & Riboldazzi, F. (2014). How knowledge brokers emerge and evolve: The role of actors' behaviour. *Research Policy*, 43(4), 683–695. <https://doi.org/10.1016/j.respol.2014.01.00>
- Boaz, A., Davies, H., Fraser, A., & Nutley, S. (2019). *What Works Now? Evidence-informed Policy and Practice*. Bristol: Policy Press.
- Bogensneider, K., & Corbett, T. (2011). *Evidence-based policymaking: Insights from policy-minded researchers and research-minded policymakers*. Routledge.
- Brown, S. & Allen, A. (2021). The interpersonal side of research-practice partnerships. *Phi Delta Kappan*, 102(7), 20-25.
- Burt, R. S. (2004). Structural Holes and Good Ideas. *American Journal of Sociology*, 110(2), 349–399. <https://doi.org/10.1086/421787>
- Bush, J. (2017). *Am I an evidence broker? Reflections on a trip to North America*. [blog post]. Retrieved from <http://www.evidenceforlearning.org.au/news/am-i-an-evidence-brokerreflections-on-a-trip-to-north-america/>

Caduff, A., Lockton, M., Daly, A. J., & Rehm, M. (in press). Beyond sharing knowledge: knowledge brokers' strategies to build capacity in education systems. *Journal of Professional Capital and Community*.

Carnine, D. (1997). Bridging the Research-to-Practice Gap: *Exceptional Children*. <https://doi.org/10.1177/001440299706300406>

Campbell, C., Pollock, K., Briscoe, P., Carr-Harris, S., & Tuters, S. (2017). Developing a knowledge network for applied education research to mobilise evidence in and for educational practice. *Educational Research*, 59(2), 209– 227. <https://doi.org/10.1080/00131881.2017.1310364>

Century, J., & Cassata, A. (2016). Implementation Research: Finding Common Ground on What, How, Why, Where, and Who. *Review of Research in Education*, 40(1), 169–215. <https://doi.org/10.3102/0091732X16665332>

Cherrstrom, C. A., & Boden, C. J. (2020). Expanding Role and Potential of Curation in Education: A Systematic Review of the Literature. *The Reference Librarian*, 61(2), 113–132. <https://doi.org/10.1080/02763877.2020.1776191>

Coldwell, M., Greany, T., Higgins, S., Brown, C., Maxwell, B., Stiell, B., ... & Burns, H. (2017). *Evidence-informed teaching: an evaluation of progress in England*. Research Report. Department for Education.

Cooper, A. (2012). *Knowledge mobilization intermediaries in education: A cross-case analysis of 44 Canadian organizations*. University of Toronto (Canada).

Cooper, A., Rodway, J., MacGregor, S., Shewchuk, S., & Searle, M. (2019). Knowledge brokering: “Not a place for novices or new conscripts”. In *The role of knowledge brokers in education* (pp. 90-107). Routledge.

Cooper, A., & Levin, B. (2010). Some Canadian contributions to understanding knowledge mobilization. *Evidence & Policy*, 6, 351-369. doi: 10.1332/174426410x524839

Cordingley, P., Higgins, S., Greany, T., Buckler, N., Coles-Jordan, D., Crisp, B., Saunders, L., Coe, R. Developing Great Teaching: Lessons from the international reviews into effective professional development. Teacher Development Trust. 2015.

Dagenais, C., Lysenko, L., Abrami, P. C., Bernard, R. M., Ramde, J., & Janosz, M. (2012). Use of Research-Based Information by School Practitioners and Determinants of Use: A Review of Empirical Research. *Evidence & Policy: A Journal*

of Research, Debate and Practice, 8(3), 285–309.
<https://doi.org/10.1332/174426412X654031>

Farley-Ripple, E., & Grajeda, S. (2019). Avenues of influence: An exploration of school-based practitioners as knowledge brokers and mobilizers. In *The role of knowledge brokers in education* (pp. 65-89). Routledge.

Farley-Ripple, E., Tilley, K., Shewchuk, S., & Sheridan, S. (2021). Reframing relevance: Strategies for closing the gap. In A. Urick, D. E. DeMatthews, & T. G. Ford (Eds.), *Maximizing the policy relevance of research for school improvement* (pp. 387–403). Information Age Publishing.

Farley-Ripple, E., May, H., Karpyn, A., Tilley, K., & McDonough, K. (2018). Rethinking connections between research and practice in education: A conceptual framework. *Educational Researcher*, 47(4), 235–245.
<https://doi.org/10.3102/0013189X18761042>

Farley-Ripple, E., Tilley, K., & Tise, J. (2017, April). *Brokerage and the research-practice gap: A theoretical and empirical examination*. In the Annual meeting of the American Educational Research Association.

Frost, H., Geddes, R., Haw, S., Jackson, C., Jepson, R., Mooney, J., & Frank, J. (2012). Experiences of knowledge brokering for evidence-informed public health policy and practice: Three years of the Scottish Collaboration for Public Health Research and Policy. *Evidence & Policy A Journal of Research Debate and Practice*, 8, 347–359. <https://doi.org/10.1332/174426412X654068>

Garcia, D. R. (2022). *Teach truth to power: How to engage in education policy*. MIT Press.

Goldie, D., Linick, M., Jabbar, H., & Lubienski, C. (2014). Using bibliometric and social media analyses to explore the “echo chamber” hypothesis. *Educational Policy*, 28(2), 281-305. <https://doi.org/10.1177/0895904813515330>

Gorard, S., See, B. H., & Siddiqui, N. (2020). What is the evidence on the best way to get evidence into use in education? *Review of Education*, 8(2), 570–610.
<https://doi.org/10.1002/rev3.3200>

Geertz, C. (1999). *Works and lives: The anthropologist as author* (Reprinted). Polity Press.

Greenhalgh, T., & Wieringa, S. (2011). Is it time to drop the 'knowledge translation' metaphor? A critical literature review. *Journal of the Royal Society of Medicine*,

104, 501-509.

Gutiérrez, R. (2017). Living Mathematx: Towards a vision for the future. *Philosophy of Mathematics Education Journal*, 32(1), 1–34.

Hammersley-Fletcher, L., & Lewin, C. (2015). *Evidence-based teaching: advancing capability and capacity for enquiry in schools: interim report*. Retrieved from <https://core.ac.uk/download/pdf/74379584.pdf>

Horsford, S. D., Scott, J. T., & Anderson, G. L. (2019). *The politics of education policy in an era of inequality: Possibilities for democratic schooling*. Routledge.

Imants, J., & Wal, M. M. V. der. (2020). A model of teacher agency in professional development and school reform. *Journal of Curriculum Studies*, 52(1), 1–14. <https://doi.org/10.1080/00220272.2019.1604809>

Koichu, B., Aguilar, M. S., & Misfeldt, M. (2021). Implementation-related research in mathematics education: The search for identity. *ZDM – Mathematics Education*, 53(5), 975–989. <https://doi.org/10.1007/s11858-021-01302-w>

Lawlor, J. A., Hammond, J. W., Lagoze, C., Huynh, M., & Moss, P. (2021). Platformed knowledge brokerage in education: Power and possibilities. In M. S. Weber and I. Yanovitzky (Eds.), *Networks, Knowledge Brokers, and the Public Policymaking Process* (pp. 315-350). Palgrave Macmillan.

Leonard, D., & Sensiper, S. (1998). The role of tacit knowledge in group innovation. *California Management Review*, 40(3), 112–132.

Levin, B. (2013). To know is not enough: Research knowledge and its use. *Review of Education*, 1(1), 2–31. <https://doi.org/10.1002/rev3.3001>

Lindblom, C.E., & Cohen, D.K. (1979). *Usable Knowledge: Social science and social problem solving*. New Haven: Yale University Press.

Lomas, J. (2007). The in-between world of knowledge brokering. *BMJ*, 334(7585), 129–132. <https://doi.org/10.1136/bmj.39038.593380.AE>

Malin, J. R., & Brown, C. (Eds.). (2020). *Connecting the dots between research and practice: The role of knowledge brokers, mobilizers and boundary spanners in education*. Routledge.

Malin, J. R., & Brown, C. (2020). Joining worlds. In J. R. Malin & C. Brown (Eds.), *Connecting the dots between research and practice: The role of knowledge brokers*,

mobilizers and boundary spanners in education (pp. 1–12). Routledge.

Malin, J. R., Brown, C., Ion, G., van Ackeren, I., Bremm, N., Luzmore, R., ... & Rind, G. M. (2020). World-wide barriers and enablers to achieving evidence-informed practice in education: what can be learnt from Spain, England, the United States, and Germany?. *Humanities and Social Sciences Communications*, 7(1).

Malin, J. R., Brown, C., & Trubçeaç, A. S. (2018). Going for broke: A multiple-case study of brokerage in education. *AERA Open*, 4(2), 2332858418769297.

Malin, J. R., & Paralkar, V. K. (2017). Educational Knowledge Brokerage and Mobilization: The " Marshall Memo" Case. *International Journal of Education Policy and Leadership*, 12(7), n7.

Malin, J. R., & Rind, G. M. (2022). Making the case for project-based learning: An examination of research evidence translation and mobilisation in education. *Review of Education*, 10(1), e3330.

Martin, G. P., & Williams, O. (2019). Evidence and service delivery. In *What Works Now?* (pp. 41-60). Policy Press.

Massell, D., Goertz, M. E., & Barnes, C. A. (2012). State education agencies' acquisition and use of research knowledge for school improvement. *Peabody Journal of Education*, 87(5), 609–626.
<https://doi.org/10.1080/0161956X.2012.723506>

Mathieson, S. (2019). Integrating research, teaching and practice in the context of new institutional policies: A social practice approach. *Higher Education*, 78(5), 799–815. <https://doi.org/10.1007/s10734-019-00371-x>

Morrison, K. (2001). Randomised Controlled Trials for Evidence-based Education: Some Problems in Judging "What Works." *Evaluation & Research in Education*, 15(2), 69–83. <https://doi.org/10.1080/09500790108666984>

Moss, G. (2017). Research, policy and knowledge flows in education: What counts in knowledge mobilisation? In J. Bannister & I. Hardill (Eds.), *Knowledge mobilisation and the social sciences: Research impact and engagement* (pp. 71–82). Routledge.

Neal, J. W., Neal, Z. P., Kornbluh, M., Mills, K. J., & Lawlor, J. A. (2015). Brokering the research–practice gap: A typology. *American Journal of Community Psychology*, 56, 422–435.

Nelson, J., & Campbell, C. (2019). Using evidence in education. In *What Works Now?* (pp. 131-150). Policy Press.

Oancea, A. (2005). Criticisms of Educational Research: Key Topics and Levels of Analysis. *British Educational Research Journal*, 31(2), 157–183.

Perry, T., Morris, R., & Asquith, S. (2020). Mind the gap: Using evidence in education. *Research Intelligence*, 144, 28–29.

Pesek, D., & Kirshner, D. (2000). Interference of Instrumental Instruction in Subsequent Relational Learning. *Journal for Research in Mathematics Education*, 31. <https://doi.org/10.2307/749885>

Powell, B. J., Waltz, T. J., Chinman, M. J., Damschroder, L. J., Smith, J. L., Matthieu, M. M., Proctor, E. K., & Kirchner, J. E. (2015). A refined compilation of implementation strategies: Results from the Expert Recommendations for Implementing Change (ERIC) project. *Implementation Science*, 10(1), 21. <https://doi.org/10.1186/s13012-015-0209-1>

Rickinson, M., Cirkony, C., Walsh, L., Gleeson, J., Cutler, B., & Salisbury, M. (2022). A framework for understanding the quality of evidence use in education. *Educational Research*, 64(2), 133-158.

Rycroft-Smith, L. (2022). Knowledge brokering to bridge the research-practice gap in education: Where are we now?. *Review of Education*, 10(1), e3341.

Rycroft-Smith, L., & Macey, D. (2021). Deep questions of evidence and agency: How might we find ways to resolve tensions between teacher agency and the use of research evidence in mathematics education professional development? *Proceedings of the British Society for Research into Learning Mathematics*, 41. <https://bsrlm.org.uk/wp-content/uploads/2021/08/BSRLM-CP-41-2-18.pdf>

Rycroft-Smith, L., & Stylianides, A. J. (2022). What makes a good educational research summary? A comparative judgement study of mathematics teachers' and mathematics education researchers' views. *Review of Education*, 10(1), e3338. <https://doi.org/10.1002/rev3.3338>

Rycroft-Smith, L., Müller, D., Chiodo, M., & Macey, D. (in press). *A useful ethics framework for mathematics teachers* (arXiv:2212.11713). arXiv. <https://doi.org/10.48550/arXiv.2212.11713>

Van de Ven, A. H. (2007). *Engaged scholarship: A guide for organizational and social research*. Oxford, UK: Oxford University Press.

Saunders, L. (2006). Teachers' Engagement in and with Research: Supporting integrity and creativity in teaching. *FORUM*, 48(2), 131. <https://doi.org/10.2304/forum.2006.48.2.131>

Scott, J., Jabbar, H., LaLonde, P., DeBray, E., & Lubienski, C. (2015). Evidence use and advocacy coalitions: Intermediary organizations and philanthropies in Denver, Colorado. *Education Policy Analysis Archives*, 23(124), 1-19. <https://doi.org/10.14507/epaa.v23.2079>

Shewchuk, S. & Farley-Ripple, E. N. (2023). *Understanding brokerage in education: Forward tracking from practice to research*. University of Delaware: Center for Research Use in Education

Stetler, C.B., Damschroder, L.J., Helfrich, C.D. and Hagedorn, H.J. (2011) A guide for applying a revised version of the PARIHS framework for implementation, *Implementation Science*, 6: 99. doi: 10.1186/1748-5908-6-10

Swan, M. (2006). Designing and Using Research Instruments to Describe the Beliefs and Practices of Mathematics Teachers. *Research in Education*, 75(1), 58–70. <https://doi.org/10.7227/RIE.75.5>

Tooman, T.R., Akinci, C., & Davies, H. (2016). Understanding knowledge and knowing. In K. Orr, S. Nutley, S. Russell, R. Bain, B. Hacking, & C. Moran (Eds.), *Knowledge and Practice in Business and Organisations*. New York: Routledge.

Verger, A., Fontdevila, C., Rogan, R., & Gurney, T. (2019). Manufacturing an illusory consensus? A bibliometric analysis of the international debate on education privatisation. *International Journal of Educational Development*, 64, 81–95. <https://doi.org/10.1016/j.ijedu dev.2017.12.011>

Walter, I., Nutley, S., Percy-Smith, J., McNeish, D., & Frost, S. (2004). *Improving the use of research in social care practice*. Social Care Institute for Excellence (SCIE)

Ward, V. (2017). Why, whose, what and how? A framework for knowledge mobilisers. *Evidence & Policy*, 13(3), 477–497. <https://doi.org/10.1332/174426416X14634763278725>

Ward, V., House, A., & Hamer, S. (2009). Knowledge brokering: the missing link in the evidence to action chain?. *Evidence & Policy*, 5(3), 267-279.

Whitty, G., & Furlong, J. (Eds.) (2017). *Knowledge and the study of education: An international exploration*. Symposium Books.

Wiseman, A. W., & Taylor, C. S. (Eds.). (2017). *The impact of the OECD on education worldwide*. Emerald Group Publishing.

Wollscheid, S., Stensaker, B., & Bugge, M. M. (2019). Evidence-informed policy and practice in the field of education: The dilemmas related to organizational design. *European Education*, 51(4), 270–290.
<https://doi.org/10.1080/10564934.2019.1619465>