4 Who is facilitating research use in education systems?

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This chapter describes which actors are active in facilitating the use of research evidence in the education sector at the organisational and individual levels. It develops key dimensions for assessing interactions between ministries of education and relevant actors in order to advance discussion on strengthening the use of research evidence. It also analyses practitioner involvement in research production and the provision of incentives. Finally, the chapter looks at the nature of policy makers' relationships. The discussion is based on a review of the available literature and analysis of the OECD's *Strengthening the Impact of Education Research* policy survey results.

Introduction

Over the past decade, there has been increasing attention on actors who facilitate research use in education systems and the interactions between them. This is the result of a conceptual shift towards relationships and systems thinking, as put forward by Best and Holmes (2010[1]). A systems approach calls for a better understanding of the interactions that govern the production, dissemination and diffusion of knowledge between actors. This chapter aims to understand actors and relationships at the organisational and individual level, which are crucial for the effective use of research evidence.

Interpersonal relationships, whether they are built through formal organisational connections or informal interactions, are key to shaping research use in policy and practice (Levin, 2011[2]; Ion and Iucu, 2014[3]; Wiggins et al., 2019[4]). Catalysing interpersonal relationships supports the efficient mobilisation of resources, both human and financial (Ward, House and Hamer, 2009[5]). Interpersonal relationships are also crucial for facilitating mutual understanding of the different knowledge needs of policy makers, practitioners, researchers and other actors (Burns and Köster, 2016[6]). These two features of relationships, among others, have long been held as a way to enhance the impact of education research (Mitton et al., 2007[7]). Rickinson and colleagues (2020[8]) summarise the reasons why relationships between actors who can facilitate the use of research still require a larger amount of attention from scholars, policy makers and practitioners alike:

- They result in the development of interpersonal skills, making it possible to explore deeper meanings of research evidence.
- They are vehicles for enhanced communication and collaboration to give the breadth of voices needed to use evidence.
- Relationships, when they are built on mutual trust, allow the consideration of appropriate instructional, structural or policy changes.
- Connections between individuals can foster stimulating debates around evidence leading to sustained changes in practice.

The increasing recognition of the importance of relationships runs in parallel with an increasing number of initiatives focused on building these connections within education systems to improve evidence use (Coe and Kime, 2019[9]). Among these initiatives, establishing networks has become a popular tool for building relationships at both individual and organisational levels (Best and Holmes, 2010[1]). However, networks do not automatically facilitate innovation and research mobilisation (Révai, 2020[10]). For such initiatives to be effective, a deeper understanding of the nature, quality and processes of interactions is necessary.

With this in mind, this chapter focuses on two central questions:

- Who are the actors in this landscape and to what extent do they facilitate the use of education research in policy and practice?
- What do the relationships between these actors look like and how do they connect research production and use?

The chapter addresses these questions through international data collected in the *Strengthening the Impact of Education Research* policy survey and follow-up interviews conducted with a number of respondent countries.

The chapter is structured in two parts. The first part looks at different organisational-level actors and their perceived levels of research mobilisation activity. It then assesses the relevance of ministry relationships. The second part looks at the nature of individual actors such as practitioners, policy makers and researchers. Since the survey only gathered data on how policy makers use research, an assessment of the quality of individual relationships is offered from the perspective of policy makers.

Key dimensions

This section reviews a number of dimensions to identify the scope of the analysis of actors and their relationships. Actors do not sit within a vacuum and any analysis must take into account the wider context of structures, incentives and resources that facilitate or hinder research use.

The key dimensions for this chapter are explained below, and have been summarised in Table 4.1. The term "activeness" was purposefully kept open in the survey to allow for richer data, and defined only through a five-point Likert scale ranging from "not active at all" to "very active".

Table 4.1. Key dimensions summary

Key dimensions	Sub-dimensions/Categories	Indicators
System level		
Context (can be at organisation or individual level)	Structures, priorities and resources of organisations	Presence of educational research strategy or other mechanisms/incentives such as salary supplement for a teacher to be involved in research production
Organisational level		
Actor relevance for facilitating the use of research	Policy organisations	Activeness of ministries of education, government funding agencies and policy networks in facilitating research use
	Research organisations	Activeness of universities, public research organisations and academic networks, in facilitating research use
	Practice-oriented organisations	Activeness of teacher unions, school networks, other professional groups, teacher education institutions and professional development providers in facilitating research use
	Intermediary (brokerage) organisations	Activeness of university-school partnerships, education consulting firms, official brokerage agencies and think tanks in facilitating research use
	Other system stakeholders	Activeness of media outlets and businesses in facilitating research use
Relationships of ministry	Size of the ministry's network	Number of actors regularly solicited
	"Strength" of connections between the ministry and actors	Frequency and intensity of interactions
	Relevance of ministry relationships for research use in policy	Strength of ministry connection to actors seen as active in facilitating research use in policy
	Relevance of ministry relationship for feedback loop	Strength of ministry connection to actors seen as active in facilitating research across policy and practice contexts
Individual level		
Actors	Individuals with a research background	Embedded researcher, research fellow, research champion, research advisor, government researchers, academic researchers, independent researchers
	Individuals in the practice context	Teachers, school leaders, teacher educators
	Individuals in the policy context	Policy makers
Individual relationships	An individual culture and mindset which supports relationships for research use	High levels of trust, respect and shared understanding between individuals
	Presence of collaborative activities between individuals	How policy makers access, evaluate and use education research during the policy process

Organisations

The primary stakeholder groups most relevant for research mobilisation are policy organisations, research organisations and practitioner organisations (OECD, 2007[11]). Yet, evidence shows that similar types of organisations can have very different knowledge mobilisation roles in different systems (Powell, Davies and Nutley, 2018[12]). Understanding which organisational actors are key "evidence intermediaries" that bridge research use with policy and practice in individual systems is crucial. Recent research has provided a framework for understanding the variety of organisations that fulfil this intermediary role in different contexts. They are broadly defined as either research-producing or non-research producing intermediaries (Global Commission on Evidence to Address Societal Challenges, 2022[13]).

Organisational relationships

The survey asked ministries about their relationships with other organisations. Taking a systems approach necessitates consideration of both the variety of connections and flows of evidence use between organisational actors (Best and Holmes, 2010[1]). In high-quality organisational relationships, information, materials, resources, services, and social support should flow reciprocally between policy, practice and research (OECD, 2007[11]). Since the survey data contains only the ministry perspective, the reciprocity of organisational relationships and direction of information flows remains an open question. However, the survey data does contain information regarding the size of the ministry's network and the strength of relationships between the ministries of education and different actors in the policy, practice and research contexts.

Taking into account the size and strength of ministry relationships, the relevance of these relationships for facilitating research use must be assessed. Speaking from the perspective of healthcare policy, Brown and colleagues (2018[14]) argue that evidence-informed policy occurs through relationships between policy and research organisations. While this is true, it must be recognised that policy and practice are deeply interdependent and interconnected. While it is essential to map the ministries' relationships with organisations working to facilitate research use policy, it is also crucial to map relationships with those working in multiple contexts.

Individuals

The survey asked a number of questions about specific individuals relevant to research production and use within systems. These included teachers, school leaders, policy makers, embedded researchers, research fellows and advisors. As discussed in Chapter 1, policy makers in the context of the survey refer to the highest level of decision making in education (ministry/department of education), with some variation in survey respondents' interpretation of the term. Those with a research background embedded in different contexts (e.g. policy or practice) are particularly relevant for knowledge mobilisation (Gough, Maidment and Sharples, 2021[15]). The distinction between having a research background and being a researcher is an important one as those who facilitate the use of research can occupy various roles in an organisation, and do not have to be formal researchers (Bednarek et al., 2018[16]). In that sense, they are characterised by their skills more than their title.

Individuals' relationships

At the individual level, scholars have defined relationships in the education context as "the interpersonal processes and connections that are required to thoughtfully engage with and implement appropriate research evidence" (Rickinson et al., 2020, p. 14[8]). Researchers have tried to understand and categorise individual relationships in a knowledge mobilisation context and often regard the culture and mindset of research use as connected to productive individual relationships (OECD, 2007[11]; Oliver et al., 2014[17]). This culture and mindset necessitate high levels of trust, respect, and mutual understanding between

individuals. In addition to culture and mindset, Rickinson and colleagues (2020[8]) argue that the right skills and knowledge are needed to facilitate the collaborative relationships between practitioners around research use. When deploying their framework for a review of evidence use in Australian schools (see also Chapter 9), one of the most common forms of research use was discussing best practices with colleagues (Rickinson et al., 2021[18]). This also shows how tightly intertwined intrinsic factors such as skills, culture and mindset are with relationships for research use.

In addition to these intrinsic aspects of individual relationships, the presence of collaborative activities must also be taken into account. Here, Gough and colleagues (2011[19]) provide three key activities related to research use, based on an analysis of 269 different initiatives in 30 European countries. These activities are: Use of evidence for social influence and/ or persuasion; seeking evidence from others and/or interpreting evidence with external input and; facilitating interaction and/or collaboration with others.

Organisational actors

One of the central questions of this chapter asks who the actors are in the landscape and to what extent they facilitate the systematic use of education research in policy and practice. In the survey, respondent systems were asked which actors were active in their systems on a scale from 1 to 5: ''Not active at all'', "slightly active", "moderately active", "active" and "very active.'' They were asked to provide this rating for each actor in the areas of research production, facilitating research use in policy and facilitating research use in practice. These last two will also be referred to as "research mobilisation" in this chapter.

Education systems vary greatly in terms of the overall levels of activity of organisations. On one end of the scale, Finland perceived its organisations as, overall, very active, with an average of 4.94 (facilitating research use in policy), 4.59 (facilitating research use in practice) and 4.88 (research production). On the other end, Switzerland (Uri) perceived its organisations as only slightly active, with an average of 2.14 (facilitating research use in policy) 1.86 (facilitating research use in practice) and 1.64 (research production). An overview of system-level profiles can be found in Annex 4.A. Most respondents to the survey did not report large differences within the system in terms of average levels of actor activity across the three areas.

Number, type and distribution of organisations

The survey data revealed that a large number of different organisations are seen as active to some degree in producing research and facilitating its use in policy and/ or in practice in each of the respondent systems. The maximum number of actors that systems could report as active in the survey was 17. The average number of actors reported as at least "slightly active" in systems was 14. Just under 1/3 of respondent systems reported that the maximum number of actors (17) were active to some degree in their system. Table 4.2 shows the number of systems reporting each actor to be very active or active (henceforth "active") in each of the three areas.

Table 4.2. Number of systems reporting organisations to be active in facilitating the use of education research and in research production

	Universities/ Faculties of Education	Ministry of Education	Teacher education institutions	Other public research organisations	Academic or research networks	Government funding agencies	University - School networks	Pro. devt.. providers for teachers	Other professional groups	Policy networks	Education consulting firms	Teacher unions	Brokerage agencies	Think tanks	Media	School networks	Businesses
Facilitating research use in **POLICY**	32	32	17	20	21	18	17	12	14	11	13	13	8	10	11		6
Facilitating research use in **PRACTICE**	24	21	21	17	13	16	14	19	13	10	9	12	10	4	2	12	7
Producing education **RESEARCH**	30	26	22	20	22	21	14	13	5	10	8	4	9	6	6	7	4

Note: Data was collected at national and sub-national levels. School networks did not feature as an option when ministries were asked about facilitating research use in policy. This was building on the assumption that school networks are not focused on increasing the use of research in policy.
"Pro. devt. providers for practitioners" refers to professional development providers for school practitioners.
Source: OECD *Strengthening the Impact of Education Research* policy survey data.

Education ministries

Overall, the data suggest that, while ministries often see a wide range of actors as active, certain actors are more relevant when it comes to facilitating the use of research. Universities, faculties of education and the ministries of education themselves were seen as the most active organisations in both the production and mobilisation of education research across the systems. Fourteen education systems viewed the education ministry as the most active overall in all three areas. In four of these systems – Belgium (French community), Switzerland (both Zurich and Uri) and Turkey – the ministry was reported as more active than any other organisation. In terms of facilitating research use in practice, ministries of education often perceive themselves to be as active in facilitating research use as, for example, teacher education institutions. This may reflect ministries' investments in initiatives that facilitate research use in practice. In a small number of systems, the ministries of education perceived themselves to be the most active organisation in the production of research. This was the case in New Zealand and Belgium (French community).

Some scholars maintain that departments and ministries of education remain quite weak in knowledge mobilisation (Levin, 2013[20]; Cooper, 2014[21]). However, the presence of "in-house" brokerage units that support particular ministries in research gathering, translation and communication efforts has been reported for some time (OECD, 2007[11]). This process has become more formalised over the past decade within certain national administrations through the establishment of strategic intelligence units in ministries of education (Gough et al., 2011[19]). The follow-up interviews confirmed the presence of these research and analysis units in several systems (see Box 4.1 for two examples).

> **Box 4.1. Policy and analysis units in ministries of education**
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> **Slovenia**
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> In July 2021, the **Slovenian government** established a new Quality and Analysis Unit within the Department of Educational Development and Quality of the Ministry for Education, Science and Sport. The aim of this unit is to improve the production, analysis and use of data and educational research in policy development and practice. In this way, it operates as an internal knowledge broker within the ministry through the commissioning of educational research and by participating in international studies. Key outputs are expected to be best practices in both policy and practice, and enhanced involvement in international surveys and studies. It also performs a matching function, gathering, translating and disseminating educational research and data in response to questions around education posed by policy makers across government. The unit is staffed by a mixture of professional civil servants and experienced researchers.
>
> **Norway**
>
> The **Norwegian Ministry of Education and Research** has a special unit: Section for Policy Analysis. The section has a specific mandate to provide educational research and data to support policy making in cooperation with all departments at the Ministry. The section works as a "knowledge broker" through dissemination of relevant research, and by offering analytical support to the departments and to the political and ministry leaders. Furthermore, the section works to develop and increase the evidence base for kindergartens, schools, higher education and research in Norway. To this end, it follows international research, facilitates strategic discussions in the field of educational research and works long term to strengthen educational research. It also coordinates research initiatives with the Norwegian Research Council, the Norwegian Directorate for Education and Training, the Norwegian Directorate

for Higher Education and Skills and the Knowledge Center for Education – the allocation of budget means to educational research being one of these tasks.

Source: Follow-up interviews with respondent countries and data submitted in open questions of OECD *Strengthening the Impact of Education Research* policy survey.

Brokerage agencies

Official brokerage agencies (i.e. formal agencies with a specific mandated function to support the use of research in policy/practice) were reported as being active to some degree in 16 systems that responded to the survey. Two systems reported they exist but were not active (Austria and Switzerland [Zurich]). As more brokerage agencies have been established across OECD countries, they have taken a wide variety of forms, with different goals and means (OECD, 2007[11]) (see more on the changing landscape and challenges of brokerage agencies in Chapters 3 and 7).

Although 16 systems reported that official brokerage agencies were active, only one system (England) reported this agency to be the most active organisation across research production and facilitation of use in policy and practice. As outlined in Chapters 5 and 7, England has a particularly well-developed brokerage system. In the other 15 systems, such formal agencies often received much lower overall activeness ratings and were very diverse in terms of the focus of their activities.

It is possible to draw out two distinct activity profiles for these agencies. Some systems report them to be active in producing research and facilitating its use in both policy and practice. This was the case for six systems (Costa Rica, Chile, Finland, Norway, Portugal and UK [England]). While others see them as active in only one or two areas. This was the case in seven systems (Columbia, Denmark, Hungary, New Zealand, Sweden, Switzerland [Obwalden] and Turkey). New Zealand for example reported them as only active in facilitating the use of research in practice. Furthermore, five systems reported the *presence* of brokerage agencies but also reported that they were mostly or entirely inactive in producing research or facilitating its use (Austria, South Africa [Pretoria], Switzerland [Lucerne], Switzerland [Zurich], Switzerland [Appenzell Ausserrhoden]).

The range of brokerage agencies reported in the open questions of the survey indicates that ministries do not perceive a standard model for these organisations (see Annex 4.B). Some have a more traditional set of educational stakeholders (e.g. teachers, educational establishments and decision makers in the promotion of learning and development of education). Others, such as the EDULOG initiative[1] by the Belmiro de Azevedo Foundation in Portugal, have a much broader mandate to build bridges between education, politics and society as a whole. Many have a classical set of brokerage goals, such as the Knowledge Centre for Education,[2] established by the Norwegian Ministry of Education and Research in 2013, or the United Kingdom (UK) "What Works" Centres,[3] both of which carry out and disseminate research syntheses to support the use of research by practitioners, researchers and policy makers. However, others also provide statistical services or access to data, for example Statistics Finland,[4] which produces statistics for the entire education system from pre-primary to adult education. Some brokerage organisations reported in the survey are tasked with the creation of specific educational products, such as the Costa Rican National Dean Council (CONARE),[5] which produces a bi-annual General State of the Education Report. Overall, the diversity in both levels of activity and organisational structures and goals indicates that there is the potential for a large amount of knowledge exchange and shared learning between the different models.

Networks

Education consulting firms, policy networks, school networks and businesses were reported to be active in the fewest number of systems. Looking specifically at **networks**, they were seen as active to very different extents in education systems. In particular, policy networks and school networks are not active in a large number of systems (7 and 8, respectively). This is interesting given the huge investment that has gone into establishing networks across different research disciplines and sectors (e.g. EC (2013[22])). In the survey data, networks with direct involvement of academia, such as academic networks and university-school partnerships, were seen as the most prevalent and active in both the production and mobilisation of education research. However, the specific areas of university-school partnership activity were quite unique to each system. Crucially, a diverse range of education systems (e.g. Colombia and Canada [Quebec]) report that university-school partnerships and networks are not active in facilitating research use in practice, which is not quite in line with their supposed and reported function (Farrell et al., 2021[23]). Some systems also reported that these networks are only active in research production, as is the case in Austria and the Slovak Republic. The varying levels of activeness of such mixed-profile partnerships and networks suggest that these are not yet consistently adopted as institutionalised forms of collaboration across OECD countries. This is in spite of their large potential in strengthening research use in education policy and practice (Farrell et al., 2021[23]).

Looking specifically at school networks, research on teachers' professional relationships has shown that those who have more frequent interactions with other teachers also report more use of research evidence in their schools (Brown, Daly and Liou, 2016[24]). However, school networks as a vehicle to connect evidence and innovation in education have only recently become more widely recognised worldwide (Révai, 2020[10]). These networks traditionally focus more on practice-based knowledge sharing, joint activities for students, teaching and learning-related collaboration and innovation. Harnessing research use is thus not a strong/specific focus of such networks, as illustrated by the example of the European eTwinning network.[6] This may explain why school networks in particular are perceived as less active by the ministries in facilitating the use of education research.

Relationship between research production and mobilisation

As noted in the key dimensions section, evidence intermediaries may be active in both the production of education research and facilitating its use, or may only be active in the latter (i.e. in research mobilisation). This section will uncover those two kinds of evidence intermediaries in the survey data.

There is a large variation in terms of the total number of organisations active across research production and mobilisation across systems (Figure 4.1). On one end of the scale, Chile, Finland and Spain, reported a large number of organisations to be active in all three areas. On the other end, some systems – including Switzerland (Uri and Lucerne), Belgium (French community), and South Africa – reported very few organisations that are active in producing or facilitating research use.

In most of the systems, the number of actors reported as active was different for each of the three areas. Some systems reported very large differences in terms of the number of active organisations in each of the three areas. For example, New Zealand and England both reported significantly fewer actors to be active in producing research (New Zealand also reported far fewer to be active in facilitating research use in policy). Interestingly, research production is the area where most systems have the largest number of active organisations.

When it comes to **research-producing intermediaries**, 13 systems reported one or more actors to be very active across research production and mobilisation in both policy and practice. This was most commonly ministries of education, universities and teacher education institutions. These organisations can therefore be seen as key intermediaries in many systems, often spanning the boundaries between

research, policy and practice. There are some interesting exceptions, such as the Czech Republic, where think tanks were the only actor seen as active in all three areas.

While evidence intermediaries often produce and use research, there are also **organisations** that are **only focused on research mobilisation** and less, or not at all, on production. Overall, 12 systems reported at least one actor to be active in facilitating research use in both policy and practice but with low levels of research production. These systems most commonly reported education consulting firms and teacher unions in this way.

Some actors were only active in facilitating research use in policy: 15 systems reported at least one such actor. These were most commonly media and think tanks but other professional groups, and interestingly, even school-university partnerships, were also mentioned. Even more systems (17) reported actors only active in facilitating research use in practice. The most commonly reported "practice intermediaries" were school networks and professional development providers.

The data also suggest that the profiles of different organisations is highly system-specific. For example, public research organisations other than universities or teacher education institutions were only perceived to be active in producing research in some systems (e.g. Iceland and Latvia) while they were very active in producing and facilitating use in both policy and practice in others (e.g. Austria). An overall trend is that most organisations that were seen as active in facilitating the use of research in both policy and practice were generally also rated as active in the production of education research. In the future, it will be important to better understand how each of these organisations actually facilitates research use and if there are configurations that are more effective than others.

Figure 4.1. Number of actors reported as active in systems
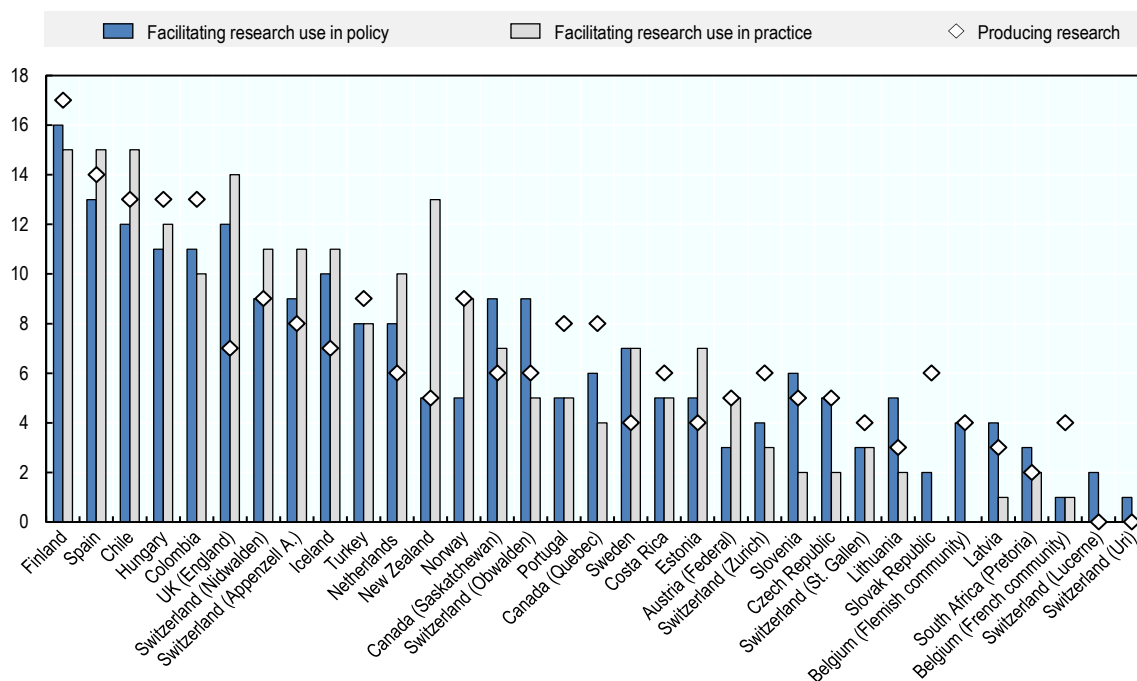
Note: Data collected shows the number of actors reported as active in each of the three areas. An organisation is considered active when the ministry perceives them to be either ''active'' or ''very active'' in their response. Data collected at national and sub-national levels. "Appenzell A." refers to the Swiss canton of Appenzell Ausserrhoden.
Source: OECD *Strengthening the Impact of Education Research* policy survey data.

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## Quality of ministries' relationships

No actor alone can foster the use of research; they must be connected to others to facilitate an exchange of ideas and the construction of knowledge. The policy survey looked at the relationship of ministries with various types of organisations. This section describes the breadth and relevance of these relationships.

Number and strength of connections at the landscape level

In the survey, ministries of education were asked how frequently and intensively they solicited different organisations to facilitate the use of research in policy; for example, by seeking ad-hoc advice on research, commissioning research based on policy needs or coordinating research production. The respondents were given six potential options ranging from ''never'' to ''very frequently''.

While there is some variation in the number of organisations ministries solicit to facilitate research use in policy, over half of the systems indicated they have connections to at least ten types of organisations. On the lower end of the scale, Iceland, Switzerland (Uri) Slovenia and Chile all indicated five or fewer, with a wide range of relationship intensities. Figure 4.2 does not indicate any particular relationship between quantity and quality. Some countries, such as Finland, have strong and extensive relationships. Others, such as Chile and Switzerland (Nidwalden), have fewer but stronger ties.

Figure 4.2. Size and strength of ministries' networks
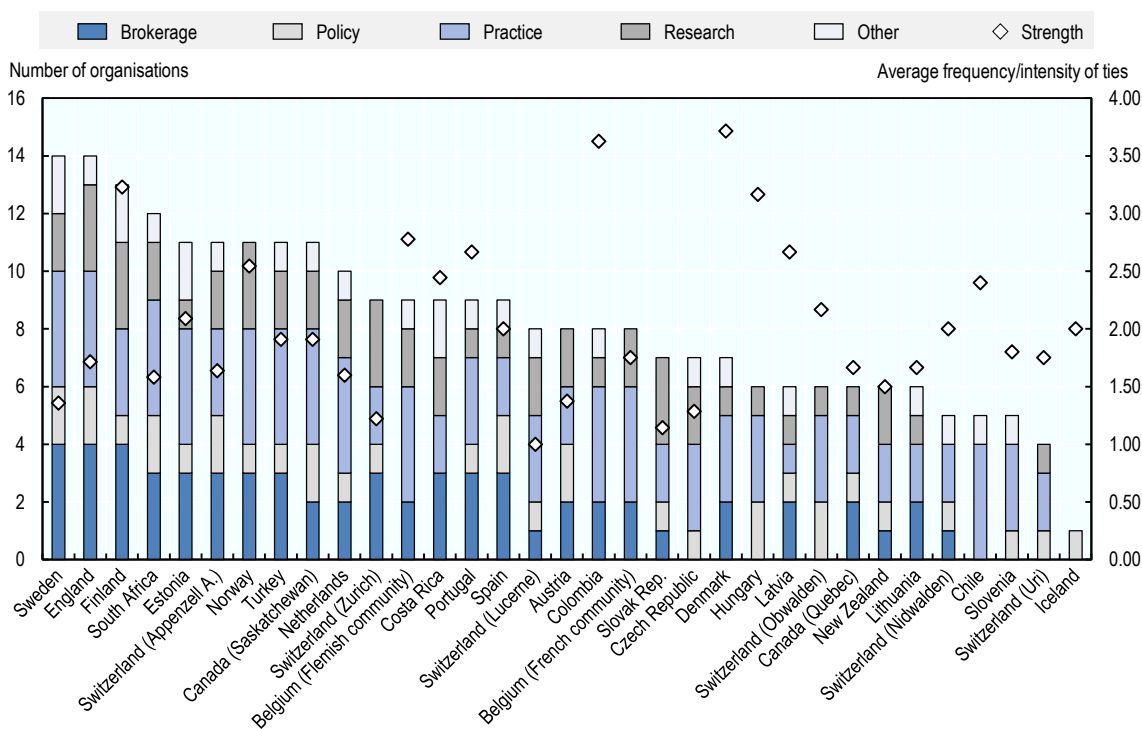
Note: Size refers to the number of organisations ministries reported soliciting to facilitate research use in policy. Strength refers to the average frequency/ /intensity of the interactions with the different organisations that respondents rated on a 6-point Likert scale. Data was collected at national and sub-national levels. "Appenzell A." refers to the Swiss canton of Appenzell Ausserrhoden.
Source: OECD *Strengthening the Impact of Education Research* policy survey data.

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Looking at absolute numbers, relationships with practice-oriented organisations (teacher unions, school leaders' unions, subject teacher associations, teacher education institutions, professional development providers etc.) were reported most often by ministries but were generally the weakest connections. For example, 65% of systems reported having some contact with teacher unions. However, 92% of the systems reporting these connections reported them as "very rare" or "occasional".

The most commonly reported strong relationships were with research actors (universities, public research organisations and academic or research networks). This was most often the case with universities and faculties of education, where 11 systems reported "quite frequently" soliciting their input to facilitate the use of research in policy. Important to bear in mind is that no ministry in the survey reported "very frequently" soliciting any of the organisations to facilitate the use of research in policy.

Relevance of ministry connections

This section looks at the relevance of ministries' relationships, i.e. whether they interact with the actors they see as active in the mobilisation of education research. The section explores the relevance of relationships from two perspectives:

- Relationships the ministry has with organisations most active in facilitating research use in policy.
- Relationships the ministry has with organisations that have a strong research-policy-practice intermediary role in their system.

At the *landscape* level, the activeness of organisations in facilitating the use of education research in policy roughly corresponds to the frequency of the ministry's connections with those organisations (Figure 4.3).

While ministries generally do not have connections to every single relevant actor in the system, many appear to have overall fairly strong connections to at least one of the actors who are active in facilitating research use in policy. This suggests that, overall, the relationships the ministries have with organisations facilitating research use in policy are quite relevant, albeit incomplete. There are some instances where the relationships do not match the levels of activity. For example, think tanks often have much less frequent ties with the ministries despite a number of systems reporting them to be active in facilitating research use in policy.

It appears that, for some organisations, ministry awareness of their activeness in facilitating research use often, but not always, translates into a relationship. This brings in a wider question around the role that an organisations' informal *influence* plays on research use in policy making without an actual relationship being established. In their analysis of relationships promoting evidence-informed policy and practice, MacGregor and colleagues (2022[25]) found that although actors in education systems often had formal networks, many wielded indirect or invisible influence, which can still create the conditions for educational improvement.

The data at the landscape level, presented in Figure 4.3, hides an important nuance at the level of individual systems.

It may be the case that ministries are heavily connected to organisations because they are research producers rather than because they are active in facilitating the use of research in policy. This is difficult to determine because, as already noted, activeness in research mobilisation is often intertwined with research production. For example, Belgium (Flemish community) reported having quite frequent connections to universities and teacher education institutions, both seen as active in facilitating research use in policy but also in producing research. One way of clarifying the interplay between production of research and facilitation of use in policy is to look at individual ministry relationships with organisations who were less active or not active in producing research but still active in facilitating its use in policy (i.e. **policy intermediary actors**).

Figure 4.3. Relevance of ministry connections to organisations active in facilitating research use in policy
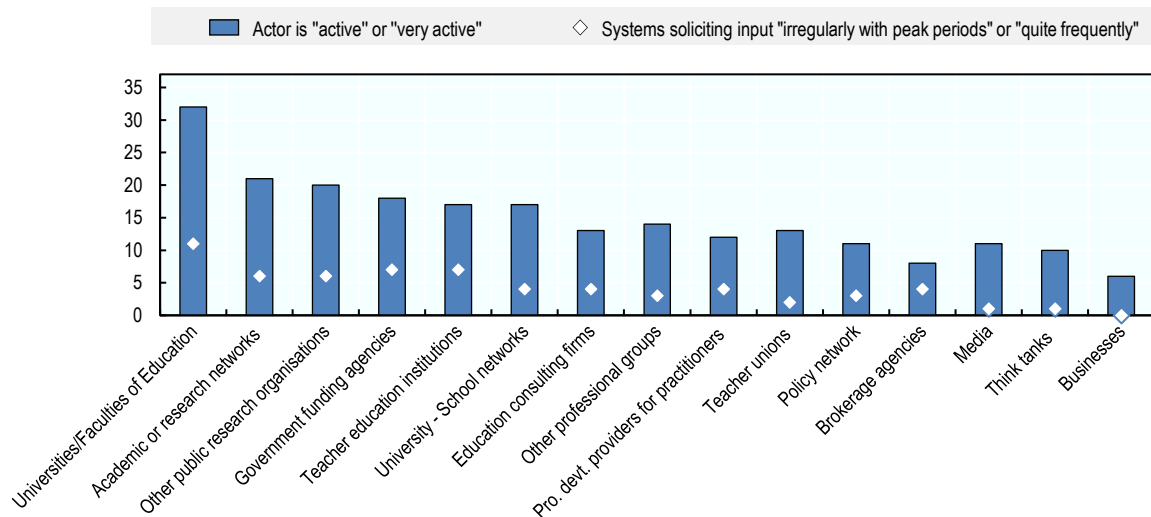
Note: Data showing the number of systems reporting that a given actor was active in facilitating research use in policy compared with the number of systems regularly soliciting input from that actor in the policy-making process. Data was collected at national and sub-national levels. "Pro. Devt. Providers for practitioners" refers to professional development providers for school practitioners.
Source: OECD *Strengthening the Impact of Education Research* policy survey data.

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In the vast majority of cases ministries did not report strong **connections to "policy intermediary" actors**. In a number of cases this actor was the media, where it is natural that ministries solicit them less for research advice or commissioning research. However, the pattern is similar with other "intermediary only" actors, such as think tanks and professional groups. In fact, only two systems reported working "quite frequently'' or "occasionally" with an actor who was active in facilitating research use in policy but with low, or no, activity in research production (Colombia with teacher unions and Slovenia with professional groups).

Given that the purpose of education policy is to improve education practice, policy organisations also need relationships with organisations working across multiple contexts rather than just those focusing on research production for policy making. These relationships can support research use in practice indirectly and reinforce the impact of policy ideas on the practice context. They are also important as practitioners seek and share evidence from multiple sources, including ministries of education. As argued by Bednarek and colleagues (2018, p. 1179[16]), "creating and nurturing this knowledge exchange infrastructure can help actors in the process (including scientists) absorb new information and account for conflicting evidence without derailing an entire [policy] process." In this way, having a "feedback loop" with actors who use research but are active in areas beyond producing it can also be seen as a crucial part of research-informed policy making.

Encouragingly, systems generally reported having connections to actors seen as **the most active intermediaries** working across the research, policy and practice contexts. However, there are some exceptions within ministry networks. For example, Switzerland (Obwalden) reported academic or research networks to be active in producing research and facilitating its use in policy and practice but reported that it never solicits their research-related input to policy making. As previously mentioned, the Czech Republic reported think tanks as key organisations but did not report any relationship with them. In some cases the inverse was true: Ministries reported connections to actors who were not seen as very active in producing

research or facilitating its use. Sweden, for example, reported policy networks to be only "moderately active" in both the production and mobilisation of research in policy. However, the ministry reported very frequent and intense ties with these networks.

The ministries' **connections to brokerage agencies** are also important since these are often intended to be broad evidence intermediaries in most systems where they are active (see Chapters 3 and 7). Of the 16 systems where brokerage agencies are active, only nine reported having connections to them. Generally, the more active these agencies are, the stronger the ministry connection to them is. There is one exception: The ministry of education in the United Kingdom (England) reported having the strongest relationships with universities and faculties of education as well as reporting strong links with other public research organisations. The ministry perceived the most active organisation overall in the system to be official brokerage agencies, yet it only reported occasional interactions with them. The main brokerage agency in the United Kingdom, the Education Endowment Foundation (EEF), was established with a 15-year funding plan and is intended to be independent, autonomous and free from political pressures or influence from the United Kingdom Parliamentary cycle (Education Endowment Foundation, 2012[26]). However, this set up does not mean a strong relationship with the ministry is unnecessary since the purpose of the agency is to influence decision making with evidence.

Seven systems did not report any connection to brokerage agencies despite their being active in the system. In Chile and Denmark, for example, these agencies are seen to be very active in facilitating research use in policy but the ministry did not report a relationship with them. Furthermore, in some systems, the opposite pattern can be seen. The ministry in Colombia reported having the strongest relationship with brokerage agencies. However, actors seen to be the main evidence intermediaries in the system were, in fact, universities, education consulting firms and policy networks. It is remarkable that the ministry did not report having any relationship with these three actors in the survey.

Overall, in looking at the strength of ministry connections to actors with different activity profiles, two conclusions can be drawn.

- Firstly, whether an organisation is active in research production appears to have more bearing on how strong the ministry connection is rather than whether they are active in facilitating the use of research in policy.
- Secondly, actors that have a strong research-policy-practice intermediary role often have strong connections to the ministry but not always. This variance is especially pronounced for brokerage agencies, which often have a unique system context.

Individual actors

Organisations contain a variety of individual profiles and roles, which affect the use of research to different extents. This section looks at a number of individual roles across policy, practice and research to understand the nature of their involvement in facilitating research use.

The landscape of individuals relevant to research use

Three questions from the survey asked systems about the types of individual roles in their context. One question asked whether specific individuals (embedded researchers, research advisors, research champions and research fellows) existed to facilitate the use of research (Figure 4.4). These individuals were perceived to be far more prevalent in policy making than in school practice. Two further questions asked how active different individuals were in research production (Figure 4.5) and at which stages (Figure 4.6).

Figure 4.4. Systems reporting the presence of individual roles to facilitate the use of research
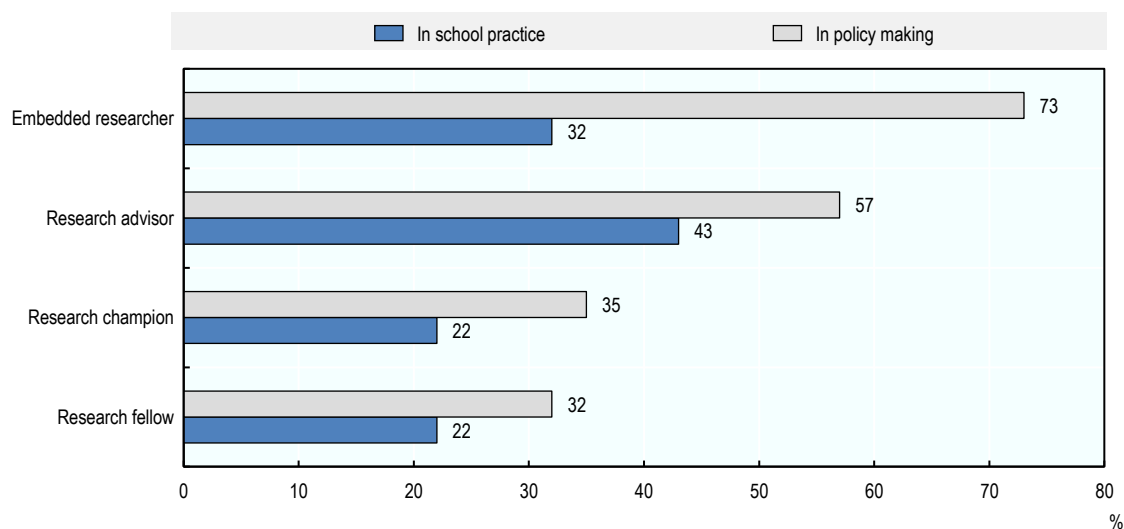
Note: Figure shows the percentage of systems reporting the given role is present in their system. Data collected at national and at a sub-national level.
Source: OECD *Strengthening the Impact of Education Research* policy survey data.

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Some systems maintain or increase the numbers of individuals with a research background through PhD schemes in both policy and practice contexts (see Box 4.2). While research skills are key to increasing the systematic use of research in policy making, data from the survey suggests that there are important variations across systems in terms of research skills in the civil service. Embedding researchers in ministries is often seen as a way of building relationships between the research and policy communities (Gough, Maidment and Sharples, 2021[15]). Data from the survey indicates that the number of these researchers varies depending on the ministry and unit. Latvia, for example, reported in the open questions of the survey that 7.4% of employees at the ministry had a PhD in 2021. Norway stated in a follow-up interview that around 50% of employees in the special unit Section for Policy Analysis have a PhD and/or research background.

Box 4.2. Two models of integrated doctoral training programmes focused on the production and use of educational research

Public Sector PhD Scheme in Norway

In public administration, the **Norwegian Public Sector PhD Scheme (OFFPHD)** has the specific goal of expanding research activities in public sector bodies to increase researcher recruitment within the public sector and promote greater collaboration between academia and the public sector. It is only open to permanent employees in the public sector body. Approximately ten projects have been awarded in the area of education policy and practice on topics including curriculum renewal, inclusive education, English-language teaching, and new pedagogical models in citizenship education, school management and leadership, and sports education.

> **Doctoral Grant for Teachers programme in the Netherlands**
>
> Related specifically to facilitating the use of education research in practice, the **Dutch Research Council** has been organising calls for their Doctoral Grant for Teachers programme since 2010 and awarded almost 500 projects. The grant is aimed at teachers in primary, secondary, vocational, higher vocational and special education. The focus of the studies is very open, and the grant includes the costs of a replacement teacher up to the equivalent of a maximum of 0.4 full time for a maximum of five years.
>
> Source: OECD *Strengthening the Impact of Education Research* policy survey data; Research Council of Norway (n.d.[27]) https://www.forskningsradet.no/en/apply-for-funding/funding-from-the-research-council/public-sector-phd-scheme/; Dutch Research Council (n.d.[28]), *Doctoral Grant for Teachers*, https://www.nwo.nl/en/researchprogrammes/doctoral-grant-teachers#:~:text=The%20Doctoral%20Grant%20for%20Teachers,ties%20between%20universities%20and%20schools.

Regarding the specific levels of activity in research production (Figure 4.5), at one end of the scale academic researchers and government researchers are most frequently reported as "active'' or ''very active''. Policy makers, school leaders, teachers and community members sit at the other end of the scale, and are seen as, overall, less active or not active at all. Teacher educators are the only stakeholder group involved in producing research to some extent in all systems. This is in line with the high involvement of teacher education institutions in producing research and the strong relationships reported by the ministries with them. One further element to consider is that teacher educators are, in many systems, embedded in faculties of education within universities. It is therefore not necessarily straightforward to separate them from academic researchers.

Figure 4.5. Levels of individuals' activity reported by systems in research production.
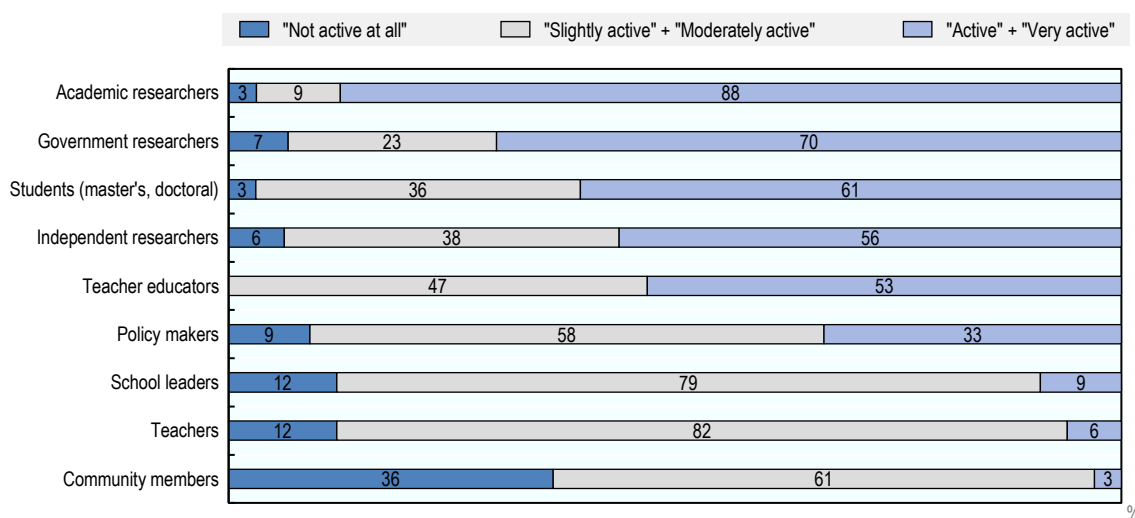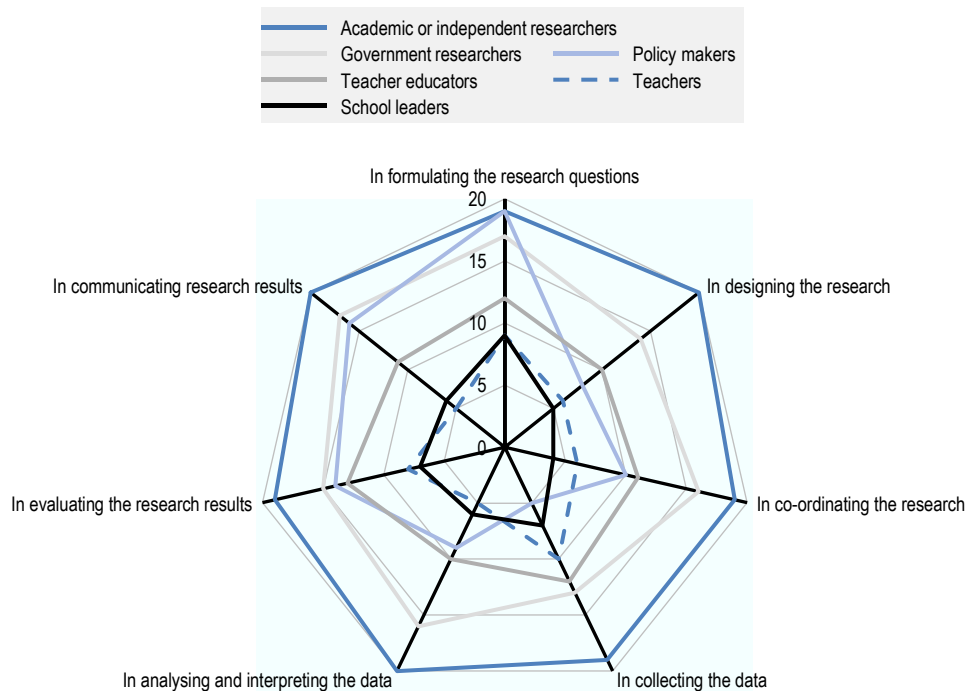

Note: Data showing the percentage of systems reporting a given individual profile was active in research production at a given level. Data collected at a national and sub-national level.
Source: OECD *Strengthening the Impact of Education Research* policy survey data.

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Who is involved in the various stages of the research production cycle is also highly relevant for assessing the impact of research (Figure 4.6). Unsurprisingly, academic and independent researchers are perceived as active across all stages of research production. In contrast, practitioners (teachers and school leaders) were least frequently reported to be involved across the whole research production cycle, and most heavily associated with data collection. This may suggest that practitioners' involvement in the different phases is primarily a passive involvement (as "objects" of research) rather than being meaningfully involved in the production of research. The nature of co-production is also discussed in Chapters 8 and 10 of this publication.

Figure 4.6. Individuals' involvement in the different stages of research production

Note: Data showing the number of systems reporting that the given group is involved in the given stage of research production. Data collected at a national and a sub-national level.
Source: OECD *Strengthening the Impact of Education Research* policy survey data.

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### Incentives for (co-)production?

It has been clear for decades that a strictly "push" approach to research use does not work alone. For research to be relevant for practice and for teachers to have ownership of research, co-producing research has been promoted by many. While co-production is a fundamental form of evidence-use infrastructure (Gough, Maidment and Sharples, 2021[15]), it is still far from being a mainstream instrument in education (Honingh, Bondarouk and Brandsen, 2018[29]). This is also clear from the data.

Incentives are a key tool for driving co-production. A research-engaged school can provide the values, resources and structures to mobilise knowledge (Rickinson et al., 2020[8]). When looking at the incentives for research production, ministries reported more "intrinsic" motivators than "extrinsic" incentives (Figure 4.7). Furthermore, when comparing the total number of incentives for researchers to those of practitioners, researchers have a higher number and far more "extrinsic'' incentives than practitioners.

Systems reporting a greater number of incentives for practitioners to be involved in research production generally also reported that practitioners were more active in producing research. In that sense, incentives do seem to be connected to the deeper involvement of practitioners.

It should be noted that the survey data cannot show whether the involvement of individuals across the different stages of the research cycle indicates actual co-production. It may indicate co-production or it may simply indicate that different stakeholder groups produce research in isolation. What the data does show is that broader practitioner involvement in many stages of the research production cycle does not necessarily mean that practitioners are overall perceived as deeply involved in research production. For example, the Netherlands, Latvia and Spain reported that practitioners were involved in nearly all stages of research production; however, they also reported that both teachers and school leaders were only slightly active in the production of research overall. Furthermore, it must be recognised that incentives may encourage different kinds of practitioner involvement in certain systems although more research is needed to understand how these may work. Mechanisms can be aimed at incentivising research production more intensively with a specific subset of practitioners rather than practitioners on the whole. This is, for example, the case with researcher teachers in Hungary (Box 4.3).

Figure 4.7. Individuals' extrinsic and intrinsic incentives to produce education research
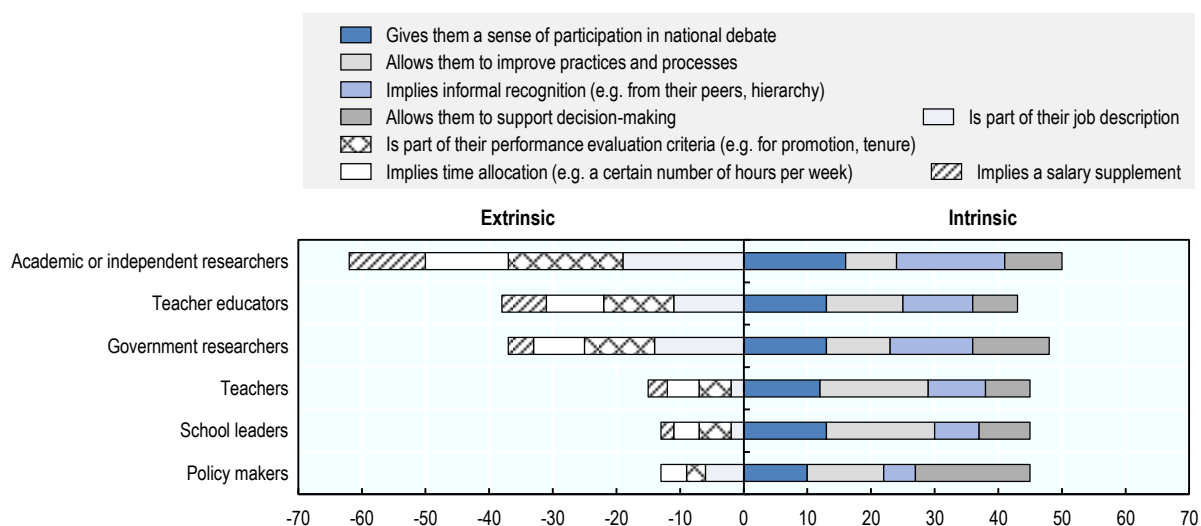
Note: Numbers refer to the number of systems reporting the given incentives are present in their systems for each group of individuals. Data collected at a national and at a sub-national level.
Source: OECD *Strengthening the Impact of Education Research* policy survey data.

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Box 4.3. Researcher teachers in Hungary

Hungary launched the current pedagogical career model and related evaluation system in 2013. The aim of this model is to support the effectiveness of teacher's pedagogical work and identify areas for improvement. In addition to professional recognition, this assessment can lead to career advancement and therefore also has a financial incentive. In this pedagogical model, the following levels exist:

- Trainee.

- Teacher I.
- Teacher II.
- Master teacher and/ or Researcher teacher.

The "Master" and "Research Teacher" categories are not simply a higher degree of a linear progression, they are an invitation to teachers who wish to pursue a specific path. It is possible to be a researcher teacher without being a master teacher, although a researcher teacher requires a PhD.

The research undertaken by these categories can be about a subject matter or about teaching and pedagogy, although teaching and pedagogy is a more common research area. Teachers working under these two classifications are expected to contribute actively and intensively to the development, research, and innovation processes in the public education system.

A researcher teacher is different to a master teacher in that the researcher teacher is tasked with sharing their research results more widely. This can be outside their own school. Researcher teachers therefore offer solutions to improve public education in general while master teachers integrate their innovative practices into their own school.

In 2021, there were 35 researcher teachers in Hungary and 1337 master teachers. Each of these categories has a five-year research programme, which is renewable.

Source: Information provided by National Education Authority of Hungary.

Quality of individuals' relationships

Individuals working in siloes are less able to access research or advocate for its use among colleagues. Understanding the current nature of policy makers' relationships can provide insights into what already facilitates the use of research and what can be improved.

Culture and mindset

A strong culture and mindset of research use requires trust between individuals, a shared understanding of the purpose of research and a willingness to engage with and implement it (Rickinson et al., 2020[8]). As discussed in Chapter 9, culture and mindset are key components not just of using research but of using research *well*.

Willingness - both to use research and to engage in conversations about it - is seen by scholars as a primary precondition of engaging in research mobilisation (Wehn and Montalvo, 2018[30]). Having a shared understanding of what education research is and what it can be used for is also an important predictor for research use. Research has shown that a shared understanding supports the identification of interdependencies and trade-offs, and facilitates negotiating different interests (Best and Holmes, 2010[1]). Levels of trust, which can be facilitated through specific initiatives, are also crucial for greater systematic connectivity between individuals involved in evidence production and use (Oliver, Adie and Boaz, 2022[31]). Research on evidence use commonly recognises that trust is crucial and can be built through sustained individual interactions (Oliver et al., 2014[17]). However, studies have shown that interventions focused on interactions between decision makers and researchers often lack conceptual clarity of what actually constitutes trust, which may limit their effectiveness (Langer, Tripney and Gough, 2016[32]).

Figure 4.8 shows that ministries perceive individual attitudes, practices and processes relatively positively. However, they seem to be less positive about the quality of relationships *between* individuals in the policy

and research communities (highlighted in the figure). This data also shows little variation perceived between policy making and practice.

Figure 4.8. Average degree of ministries' agreement with statements about the culture and mindset of using research in policy and practice
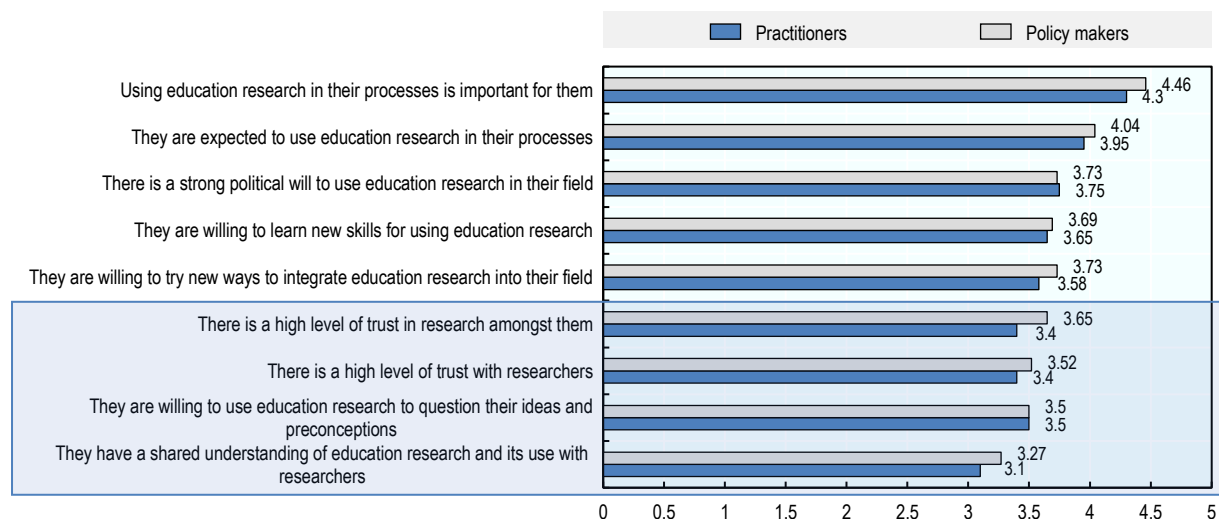
Note: Respondents rated their degree of agreement with the above statements on a Likert scale of 1 to 5. Five indicates strong agreement with a statement and 1 indicates strong disagreement. Data collected at a national and at a sub-national level.
The highlighted responses are those that involve relationships with colleagues or others outside the ministries.
Source: OECD *Strengthening the Impact of Education Research* policy survey data.

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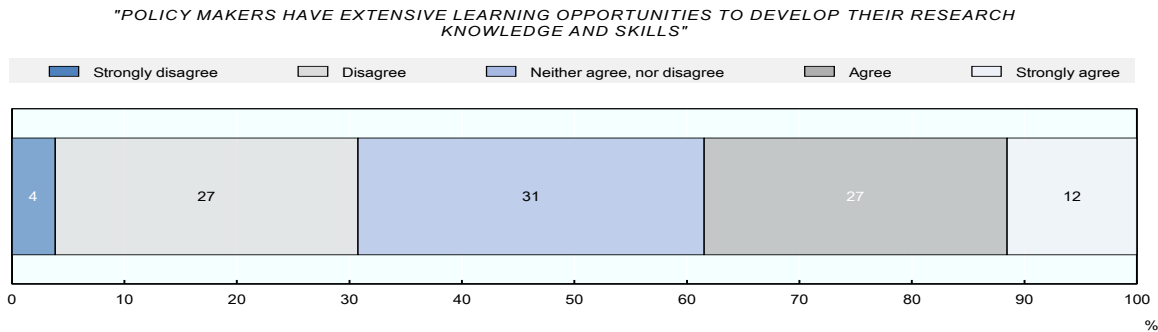
Collaborative activities and research use in policy

Research evidence plays an important role in building and sustaining relationships for many reasons. As outlined by Gough and colleagues (2011[19]), relationships between individuals can improve access to, and interpretation of, quality research evidence. In the survey data, this reliance on others for access appears particularly important. Over half of respondent systems expressed uncertainty or disagreement about whether policy makers have access to the right learning opportunities to develop their own research skills (Figure 4.9).

As shown in Figure 4.10, relationships with external experts and in-house researchers are the primary method of accessing research. This suggests that, on the whole, policy makers do have relationships with relevant individuals who can support the use of education research in the policy process.

The right relationships are needed to access research evidence; however, in order to actually use research evidence in policy making, relationships require certain characteristics. Influencing others, persuading them to collaborate and facilitating new interactions between individuals are seen as key enablers of research-informed policy making (Gough et al., 2011[19]). With this in mind, Figure 4.11 shows the ways in which policy makers use education research. Overall, the data reveals that the use of research to stimulate debate, earn trust and leverage political influence was least-commonly reported by systems. When contrasting this data with how policy makers access research evidence, existing relationships may still be described as rather transactional in nature (i.e. while research is systematically accessed through relationships, it is not systematically used when interacting or discussing policy options with others).

The above discussion suggests that a typical research use scenario in policy involves a policy maker who finds a piece of research, via an academic researcher for example, and validates its usefulness through a discussion with a colleague, possibly a public servant with a research background. However, in many systems, the actual use of this research on an advocacy level to influence, build trust and stimulate debate appears to be weak. Thus, its impact on policy is by no means assured.

Figure 4.9. Overview of policy makers' learning opportunities

"POLICY MAKERS HAVE EXTENSIVE LEARNING OPPORTUNITIES TO DEVELOP THEIR RESEARCH KNOWLEDGE AND SKILLS"

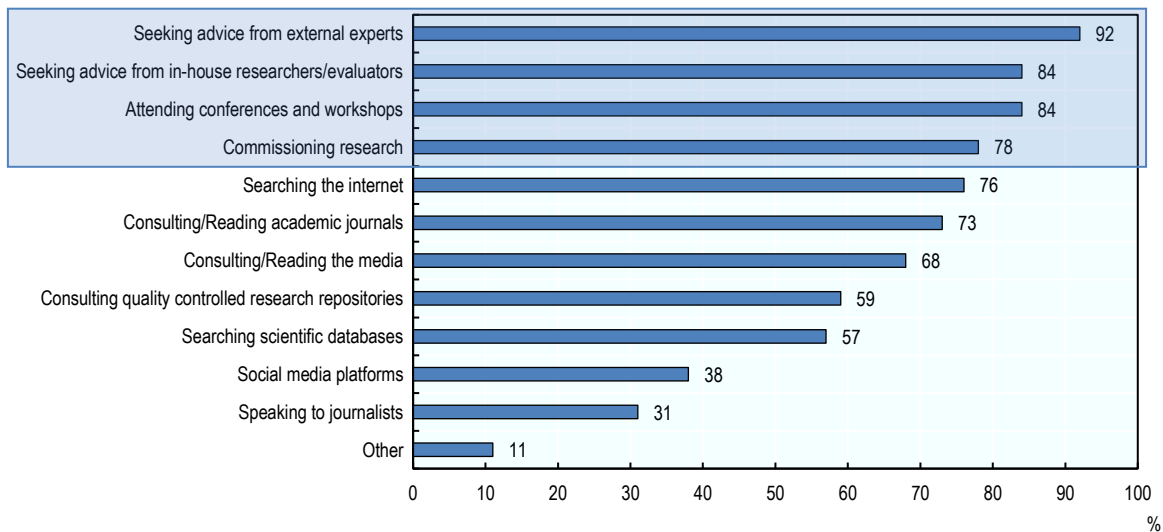| ■ Strongly disagree | □ Disagree | ■ Neither agree, nor disagree | ■ Agree | □ Strongly agree |

| 4 | 27 | 31 | 27 | 12 |

Note: Percentage indicates the number of systems reporting a given level agreement with the statement. Data collected at a national and at a sub-national level.
Source: OECD *Strengthening the Impact of Education Research* policy survey data.

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Figure 4.10. How policy makers access education research

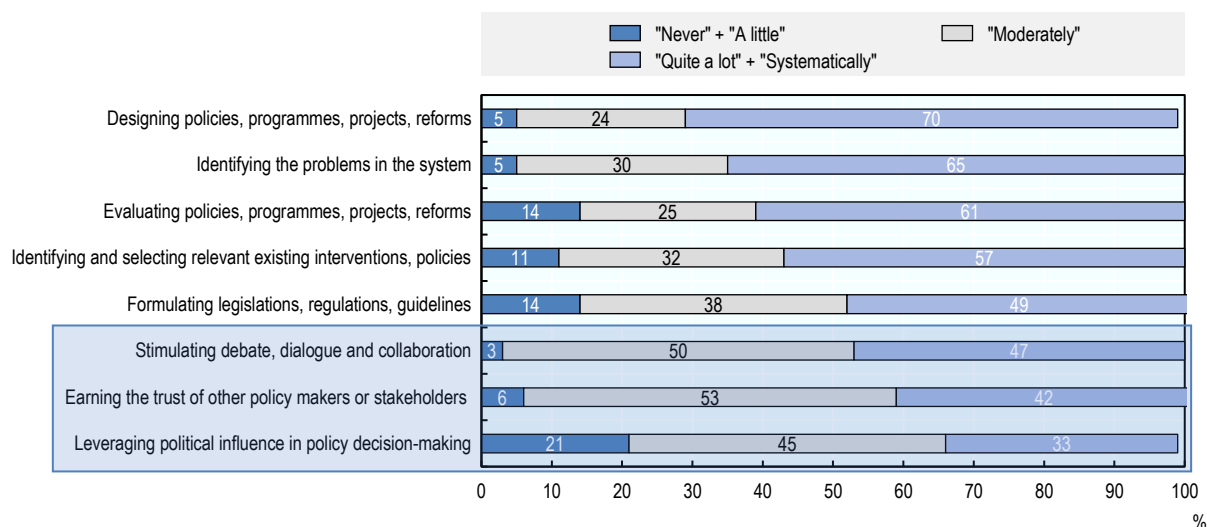|	%
Seeking advice from external experts	92
Seeking advice from in-house researchers/evaluators	84
Attending conferences and workshops	84
Commissioning research	78
Searching the internet	76
Consulting/Reading academic journals	73
Consulting/Reading the media	68
Consulting quality controlled research repositories	59
Searching scientific databases	57
Social media platforms	38
Speaking to journalists	31
Other	11

Note: Percentage indicates the systems reporting that policy makers access education research in a given way. Data collected at a national and at a sub-national level.
The highlighted responses are those that involve relationships with colleagues or others outside the ministries.
Source: OECD *Strengthening the Impact of Education Research* policy survey data.

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Figure 4.11. How policy makers use education research during the policy process

Legend:
- "Never" + "A little"
- "Quite a lot" + "Systematically"
- "Moderately"

	"Never" + "A little"	"Moderately"	"Quite a lot" + "Systematically"
Designing policies, programmes, projects, reforms	5	24	70
Identifying the problems in the system	5	30	65
Evaluating policies, programmes, projects, reforms	14	25	61
Identifying and selecting relevant existing interventions, policies	11	32	57
Formulating legislations, regulations, guidelines	14	38	49
Stimulating debate, dialogue and collaboration	3	50	47
Earning the trust of other policy makers or stakeholders	6	53	42
Leveraging political influence in policy decision-making	21	45	33

Note: Percentage indicates the number of systems reporting that policy makers use education research in a given way. Data collected at a national and at a sub-national level.
The highlighted responses are those that involve relationships with colleagues or others outside the ministries.
Source: OECD *Strengthening the Impact of Education Research* policy survey data.

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Conclusion

A number of overall messages are emerging on actors' involvement in research production and facilitating its use in policy and practice.

The field of actors facilitating the use of research is diverse

Overall, a large number of organisations are active in producing research and, in most cases, also facilitating its use in policy and practice across the OECD. The landscape appears to be dominated by research producers in many systems, most commonly universities and teacher education institutions. Networks with direct involvement of academia such as research networks and university-school partnerships are the most prevalent and active in both the production and mobilisation of education research. This shows how tightly intertwined research production is with mobilisation (i.e. facilitating research use). For this reason, it will be important to better understand how each of these organisations actually operates in a knowledge mobilisation context to uncover concrete configurations or practices in OECD countries that are more effective than others.

While universities and teacher education institutions generally have a consistent role across systems – often active in the production of research as well as its mobilisation in policy and practice – most organisations' activities are highly system-specific. For example, the ministry of education's role was quite diverse within systems. Some are only active in facilitating research use in policy and practice and not production whereas others are the most active research producers in the whole system. The diversity also extends to systems reporting the presence of brokerage agencies.

This diversity in both levels of activity, and organisational structures and goals indicates that there is a huge potential for knowledge exchange and shared learning between the same types of organisations operating in different systems and contexts.

Relationships of education ministries are relevant but there are some missing pieces

In the majority of systems, ministries solicit a large number of different types of organisations in matters of research, although the intensity of these relationships varies. The most commonly reported strong relationships were with research actors (universities, public research organisations and academic or research networks). This again paints the picture that the landscape is dominated by those producing research despite the presence of non-research producing evidence intermediaries.

Interestingly, some systems did not report any connection to brokerage agencies despite their being active in both the production of research and facilitating of its use in policy and practice. Further work is needed to understand the precise role of these brokerage agencies in specific systems, the ways in which ministries work with them and how this can improve research use.

Co-production is not yet a mainstream instrument across OECD countries despite its potential role in facilitating research use

Co-production is a fundamental form of evidence-use infrastructure but it is still far from becoming a mainstream instrument in education. Teachers and school leaders are most heavily associated with data collection and more rarely involved in other stages of research production. This suggests that practitioners' involvement is primarily passive rather than active in the production of research evidence. Encouragingly, systems reporting a greater number of incentives for practitioners to be involved in research production reported that practitioners were more active in producing research.

Policy makers' relationships should be further leveraged to improve research use

There is a large recognition that research use is both important and expected for policy makers and practitioners. Ministries also perceive individual attitudes, practices and processes related to research use positively. However, they seem to be less positive about the quality of relationships between individuals in the policy and research communities. Policy makers appear to already have relationships that could support greater use of research but these relationships remain transactional. As such, the extent to which research is actually used is unclear.

Further research would be useful in understanding how building the capacity of policy makers to become ''research advocates'' and improve the quality of their existing relationships may result in a more systematic deployment of evidence in policies, programmes, projects and reforms. Concurrently, one method of increasing the use of education research in public administration could be linked to a shift in the self-conception of civil servants and policy makers towards being autonomous agents or empowered owners of education research. This may be supported by moving away from the view that research *use* is chiefly the responsibility of those with a research background.

References

Bednarek, A. et al. (2018), "Boundary spanning at the science–policy interface: The practitioners' perspectives", *Sustainability Science*, Vol. 13/4, pp. 1175-1183, https://doi.org/10.1007/s11625-018-0550-9. [16]

Best, A. and B. Holmes (2010), "Systems thinking, knowledge and action: Towards better models and methods", *Evidence & Policy: A Journal of Research, Debate and Practice*, Vol. 6/2, pp. 145-159, https://doi.org/10.1332/174426410x502284. [1]

Brown, A. et al. (2018), "A fragile but critical link: A commentary on the importance of government-academy relationships", *Israel Journal of Health Policy Research*, Vol. 7/1, https://doi.org/10.1186/s13584-018-0247-7. [14]

Brown, C., A. Daly and Y. Liou (2016), "Improving trust, improving schools", *Journal of Professional Capital and Community*, Vol. 1/1, pp. 69-91, https://doi.org/10.1108/jpcc-09-2015-0004. [24]

Burns, T. and F. Köster (eds.) (2016), *Governing Education in a Complex World, Educational Research and Innovation*, OECD Publishing, Paris, https://doi.org/10.1787/9789264255364-en. [6]

Coe, R. and S. Kime (2019), "A (new) manifesto for evidence-based education: Twenty years on", Evidence Based Education. [9]

Cooper, A. (2014), "Knowledge mobilisation in education across Canada: A cross-case analysis of 44 research brokering organisations", *Evidence and Policy*, Vol. 10/1, https://doi.org/10.1332/174426413X662806. [21]

Dutch Research Council (n.d.), *Doctoral Grant for Teachers*, https://www.nwo.nl/en/researchprogrammes/doctoral-grant-teachers#:~:text=The%20Doctoral%20Grant%20for%20Teachers,ties%20between%20universities%20and%20schools. (accessed on 27 June 2022). [28]

EC (2013), *The Role of Clusters in Smart Specialisation Strategies*, Publications Office, European Commission, https://data.europa.eu/doi/10.2777/43211. [22]

Education Endowment Foundation (2012), *Annual Report 2011/12*, https://d2tic4wvo1iusb.cloudfront.net/documents/annual-reports/EEF_Annual_Report_2012_-_printable.pdf?v=1631364429 (accessed on 25 May 2022). [26]

Farrell, C. et al. (2021), *Research-practice Partnerships in Education: The State of the Field*, William T. Grant Foundation. [23]

Global Commission on Evidence to Address Societal Challenges (2022), *The Evidence Commission Report: A Wake-up Call and Path Forward for Decision-makers, Evidence Intermediaries, and Impact-oriented Evidence Producers*, McMaster Health Forum, Hamilton. [13]

Gough, D., C. Maidment and J. Sharples (2021), "Enabling knowledge brokerage intermediaries to be evidence-informed", *Evidence & Policy: A Journal of Research, Debate and Practice*, https://doi.org/10.1332/174426421x16353477842207. [15]

Gough, D. et al. (2011), "Evidence informed policymaking in education in Europe", *EIPEE Final Project Report Summary*. [19]

Honingh, M., E. Bondarouk and T. Brandsen (2018), "Co-production in primary schools: A systematic literature review", *International Review of Administrative Sciences*, Vol. 86/2, pp. 222-239, https://doi.org/10.1177/0020852318769143. [29]

Ion, G. and R. Iucu (2014), "Professionals' perceptions about the use of research in educational practice", *European Journal of Higher Education*, Vol. 4/4, pp. 334-347, https://doi.org/10.1080/21568235.2014.899154. [3]

Langer, L., J. Tripney and D. Gough (2016), *The Science of Using Science: Researching the Use of Research Evidence in Decision-Making*, EPPI-Centre, Social Science Research Unit, UCL Institute of Education, University College London. [32]

Levin, B. (2013), "To know is not enough: Research knowledge and its use", *Review of Education*, Vol. 1/1, pp. 2-31, https://doi.org/10.1002/rev3.3001. [20]

Levin, B. (2011), "Mobilising research knowledge in education", *London Review of Education*, https://doi.org/10.1080/14748460.2011.550431. [2]

MacGregor, S., J. Malin and E. Farley-Ripple (2022), "An application of the social-ecological systems framework to promoting evidence-informed policy and practice", *Peabody Journal of Education*, Vol. 97/1, pp. 112-125, https://doi.org/10.1080/0161956x.2022.2026725. [25]

Mitton, C. et al. (2007), "Knowledge transfer and exchange: Review and synthesis of the literature", *Milbank Quarterly*, Vol. 85/4, https://doi.org/10.1111/j.1468-0009.2007.00506.x. [7]

OECD (2007), *Evidence in Education: Linking Research and Policy*, OECD Publishing, Paris, https://doi.org/10.1787/9789264033672-en. [11]

Oliver, K., E. Adie and A. Boaz (2022), "Mapping the field of evidence production and use", in Derrick, G., A. Oancea and N. Nuseibeh (eds.), *A Handbook of Meta-Research*, Elgar, https://researchonline.lshtm.ac.uk/id/eprint/4664478. [31]

Oliver, K. et al. (2014), "A systematic review of barriers to and facilitators of the use of evidence by policymakers", *BMC Health Services Research*, Vol. 14/2, https://doi.org/10.1186/1472-6963-14-2. [17]

Powell, A., H. Davies and S. Nutley (2018), "Facing the challenges of research-informed knowledge mobilization: 'Practising what we preach'?", *Public Administration*, Vol. 96/1, https://doi.org/10.1111/padm.12365. [12]

Research Council of Norway (n.d.), *Public Sector Ph.D. scheme*, https://www.forskningsradet.no/en/apply-for-funding/funding-from-the-research-council/public-sector-phd-scheme/ (accessed on 27 June 2022). [27]

Révai, N. (2020), "What difference do networks make to teachers' knowledge?: Literature review and case descriptions", *OECD Education Working Papers*, No. 215, OECD Publishing, Paris, https://doi.org/10.1787/75f11091-en. [10]

Rickinson, M. et al. (2021), *Research and Evidence Use in Australian Schools: Survey, Analysis and Key Findings*, Monash Q Project, Monash University Faculty of Education, VIC, Australia, https://doi.org/10.26180/14445663. [18]

Rickinson, M. et al. (2020), *Quality Use of Research Evidence Framework*, Monash Q Project, Monash University Faculty of Education, VIC, Australia, https://researchmgt.monash.edu/ws/portalfiles/portal/320719238/319855344_oa.pdf. [8]

Ward, V., A. House and S. Hamer (2009), "Knowledge brokering: The missing link in the evidence to action chain?", *Evidence & Policy: A Journal of Research, Debate and Practice*, Vol. 5/3, pp. 267-279, https://doi.org/10.1332/174426409x463811. [5]

Wehn, U. and C. Montalvo (2018), "Knowledge transfer dynamics and innovation: Behaviour, interactions and aggregated outcomes", *Journal of Cleaner Production*, Vol. 171, pp. S56-S68, https://doi.org/10.1016/j.jclepro.2016.09.198. [30]

Wiggins, M. et al. (2019), *The Rise Project: Evidence-Informed School Improvement*, Education Endowment Foundation. [4]

Notes

¹ For more information, see https://www.edulog.pt/ (accessed on 24 February 2022).

² See https://www.uis.no/nb/forskning/kunnskapssenter-for-utdanning (accessed on 16 May 2022).

³ For more information, see https://www.whatworksnetwork.org.uk/ (accessed on 16 May 2022).

⁴ For more information, see https://www.stat.fi/til/kou_en.html (accessed on 16 May 2022).

⁵ For more information, see http://www.inie.ucr.ac.cr/ (accessed on 24 February 2022).

⁶ For more information, see https://www.etwinning.net/en/pub/index.htm (accessed on 31 January 2022).

Annex 4.A. Average activity levels reported by systems in survey

The OECD Strengthening the Impact of Education Research policy survey data asked systems to rate the levels of organisational activity in research production and mobilisation for 17 actors on a Likert scale of 1 (not active at all) to 5 (very active). From this, the following averages have been calculated showing the average levels of activity within each system for each area.

System	Facilitating research use in policy	Facilitating research use in practice	Producing research
Finland	4.94	4.59	4.88
Switzerland (St. Gallen)	5.00	4.67	4.50
Iceland	4.27	4.45	4.11
Chile	4.40	4.18	4.18
Colombia	3.88	4.00	4.29
Spain	4.00	4.07	4.00
Hungary	4.07	4.00	3.94
UK (England)	3.88	3.88	3.35
Sweden	3.81	3.88	3.41
Switzerland (Obwalden)	3.92	3.88	3.17
Switzerland (Nidwalden)	3.60	3.69	3.56
New Zealand	3.29	4.19	2.94
Turkey	3.56	3.29	3.47
Netherlands	3.53	3.67	3.00
Canada (Saskatchewan)	3.73	3.13	3.13
Portugal	3.07	3.36	3.47
Norway	3.00	3.35	3.24
Costa Rica	3.06	2.94	3.47
Estonia	3.08	3.62	2.67
Switzerland (Appenzell Ausserrhoden)	3.13	3.35	2.76
Slovenia	3.40	2.55	3.00
Latvia	3.25	2.83	2.85
Canada (Quebec)	3.20	2.64	2.94
Czech Republic	3.23	2.64	2.86
Slovak Republic	2.62	2.55	3.38
Lithuania	3.25	2.50	2.69
Austria (Federal)	2.25	3.29	2.88
Switzerland (Zurich)	2.75	2.59	2.94
Belgium (French Community)	2.30	1.92	3.80
South Africa (Pretoria)	2.56	2.53	2.71
Belgium (Flemish Community)	2.75	2.43	2.50
Switzerland (Uri)	2.14	1.86	1.64

Annex 4.B. List of official brokerage agencies reported by systems in survey

The survey asked systems to describe the brokerage agency(ies) in their systems as part of the open questions. They were also asked to describe the funding, audience and activities. These descriptions can be categorised as follows:

Private organisations

- "Edupreneurs": business actors offering products and services to schools [Sweden]
- Educational consultancy groups [South Africa]

Not-for-profit organisations

- Teacher-trainers not-for-profit organisations [South Africa]
- NGOs and Foundations [South Africa, Colombia, Portugal]

Academy

- Universities and Teacher Education Faculties [Finland, Norway]
- Scholars and students groups [South Africa]

Research bodies

- National institute for educational research [Finland, Costa Rica]
- Centres for research on learning and education [Finland]
- Research units on education [Finland, Norway]
- Centre for social science research [Denmark]
- Government's analysis, assessment and research activities [Finland]
- Economic advisory bodies overseeing education research [Denmark]
- Research institute for economic analysis and modelling, with exploration and development of education projections [Denmark]

Evaluation bodies

- Independent agencies responsible for the evaluation of national education [Finland]
- Centres for educational assessment [Finland]
- Education statistics open sites [Finland]
- System for monitoring the performance of the education system [Costa Rica]

Other government bodies

- Edu-political apparatus (teacher certification, school inspections, new curricula) [Sweden]
- National agencies for education [Finland]
- School leadership centres supported by the Ministry [Chile]

Independent bodies

- Partially or fully public-funded independent brokerage agencies [Denmark]
- Grassroots organisations [Colombia]
- National and international experts [Colombia]