

Bridging the evidence use gap between higher education research and science studies, policy and practice – Notions and functions of intermediaries

Antje Wegner*

*wegner@dzhw.eu

ORCID: 0000-0002-4710-2376

Department Research System and Science Dynamics, German Centre for Higher Education Research and Science Studies (DZHW), Germany

Improving evidence utilisation by non-academic actors such as policymakers and communities of practice has become subject to widespread efforts. Researchers highlight intermediaries acting as an important third community between academic evidence producers and users such as policymakers but deem this an overlooked area of inquiry. This paper aims to encourage a broader discussion about the role of intermediaries in bridging the evidence use gap at the interface between academia in higher education research and science studies, related policy fields, and communities of practice. Based on empirical research identified in a scoping review of studies about evidence use published between 2010 and 2022, it summarises what we know about intermediaries in this specific sector and how they contribute to facilitating evidence use. The paper concludes by discussing desiderata and the potential for further empirical research.

1. Introduction

With the increasing orientation toward new public management and paradigms such as evidence-informed practice and policy (EIPP) (Nutley et al., 2003, 2007, p. 250) and data-informed decision making (DIDM) (Hora et al., 2017; Webber & Zheng, 2020), both the demand for and the supply of research evidence and data increased in recent decades. Consequently, researchers in science and higher education studies have increasingly been expected to generate valid data and empirically grounded knowledge for various stakeholders at universities, research institutions, higher education, and science policy and to communicate this knowledge to these target groups in an adequate manner. However, bridging the gap between evidence producers and recipients remains challenging (Isett & Hicks, 2020; Krücken, 2017).

Improving evidence utilisation by non-academic actors such as policymakers and communities of practice has become subject to widespread efforts in many sectors such as health, social care, international development, and education (Boaz et al., 2019; Nutley et al., 2007). Moreover, substantial effort has been made to create an empirically and theoretically grounded understanding of the reasons for limited evidence use and strategies that might help to close the gap between evidence producers and recipients. The literature from different subject areas identifies large numbers of factors that influence the transfer and utilisation of empirical evidence in local practice and policy (e.g. Alkin & King, 2017; Isett & Hicks, 2020; Johnson et al., 2009; Langer et al., 2016; S. Nutley et al., 2003; Oliver et al., 2014). Studies consistently highlight the accessibility, relevance, and credibility of evidence, the quality and nature of dissemination, and the resources of evidence producers and recipients as relevant factors affecting evidence use (Johnson et al., 2009; Oliver et al., 2014; Isett and Hicks, 2020). These findings are confirmed by a recent scoping review about barriers and facilitators of evidence use in the research and higher education sector (Thiedig & Wegner, 2024).

However, meta-research points to the fact that interventions based on passive dissemination or increasing access to evidence as stand-alone measures are hardly sufficient to foster research

use by decision-makers, but demand more sophisticated intervention designs (Langer et al., 2016). This is in line with a shift from predominantly linear practices of knowledge mobilisation such as communicating evidence, facilitating access to research, or responding to formal evidence requests (Best & Holmes, 2010) towards relational and systemic approaches in fostering evidence use (Breckon & Boaz, 2023; Hopkins et al., 2021; OECD, 2022). In particular, the EIPP-community put strong emphasis on other engagement practices like creating and embedding infrastructure and posts, building professional partnerships and networks, and building researchers and decision-makers skills (e.g. Hopkins et al., 2021; Nutley et al., 2007, 2019). As Hopkins et al. (2021, p. 346) point out, these approaches “have the potential to complement each other [...] However, we know little about what kinds of knowledge or skills are required to support effective relationships, nor how systems-informed practices facilitate better communication and relationships.”

More recently, researchers highlighted different types of intermediaries acting as an important third community between academic evidence producers and users such as policy-makers but deem this a frequently overlooked area of inquiry (Isett & Hicks, 2020). As findings from the educational sector suggest, intermediaries and coordinating actors might play a critical role in establishing an evidence-focussed culture and infrastructure (Malin & Brown, 2019; Nelson & Campbell, 2019; Rickinson et al., 2022; Tseng & Nutley, 2014). However, neither their role in knowledge mobilisation nor the impact of intermediary organisations and activities is well understood on an analytical level and empirical research predominantly focuses on Anglo-Saxon countries (Oliver et al., 2022; Torres & Steponavičius, 2022).

This paper aims to encourage a broader discussion and further empirical research about the role of intermediaries in bridging the evidence use gap at the interface between academia in higher education research and science studies (HERSS), related policy fields, and communities of practice. Thereby I focus on *evidence intermediaries*. Since conceptual heterogeneity is stressed as one of the major challenges in studying intermediaries (Breckon & Boaz, 2023), I first provide a short overview of current (cross-sectoral) research on evidence intermediaries. Secondly, I review present empirical studies about drivers and obstacles of evidence use in the science and higher education sector which have been identified by a scoping review. I address the following questions: (1) What types of evidence intermediaries or intermediary activities have been empirically investigated in these studies? (2) Which (conceptual) notions of intermediaries do they apply and how do these relate to the state of literature about the evidence use gap? (3) How do intermediary activities mentioned relate to barriers and facilitators of evidence use? The paper concludes with a brief discussion of desiderata and highlights the potential for further empirical research in this field.

2. Notions and concepts of intermediaries

The study of intermediaries has gained relevance across sectors and more recently in educational research in particular, as is demonstrated by a growing number of syntheses and reviews (Breckon & Boaz, 2023; MacKillop et al., 2020; Torres & Steponavičius, 2022). The exact definition of what is meant by evidence intermediaries is challenging and deemed a substantial obstacle to cross-sectoral learning effects (Breckon & Boaz, 2023, p. 5). In a broader sense, “intermediary organizations serve a translating function between two principals with different values and perspectives” (Ness, 2010, p. 37) or are defined as a “catalyst for knowledge mobilisation” (Cooper, 2014, p. 30).

Approaches to structure and classify intermediaries refer to two main dimensions: Firstly, depending on the context, they address the *types of actors* since the umbrella term of

intermediaries subsumes a heterogeneous spectrum ranging from individuals (sometimes being researchers at the same time) to professional groups, organisations or even more complex evidence ecosystems and their design. Secondly, the activities of such intermediaries aim at different *target groups*. In the past, the debate on intermediaries was primarily focused on actors operating at the interface between science and politics (Hopkins et al., 2021; Oliver et al., 2022), while more recently professional groups and communities of practice increasingly become the focus of attention.

Nevertheless, recent mappings on intermediary activities still relate to organisations and so-called explicit intermediaries. Breckon and Boaz (2023) list a plethora of typical organisations and examples acting at the interface between sectors such as evidence centres, clearing houses, or knowledge brokering institutes. Despite heterogeneity in nomenclature, they all have in common that evidence is a key priority in everyday work, mission, and practices and they have a focus on knowledge brokering e.g. by setting up structures, practices, and relationships in intermediate positions (MacKillop et al., 2023, p. 951 et seq.). The organisational forms may vary, meaning evidence intermediaries are not necessarily stand-alone entities but might be hosted by universities, public bodies, NGOs foundations (Cooper 2014: 30, Breckon & Boaz 2023: 8f.).

As boundaries between communities have become blurred, the distinction between research producers and users is oversimplified and many entities act in multiple functions (Torres & Steponavičius, 2022, p. 10). Subsequently according to Torres and Stepanovicius (2022, p. 11) the term intermediary “points to a role and its corresponding practices rather than to an actor focussing exclusively on knowledge mobilisation activities”. Intermediaries are expected to enhance evidence-informed decision-making or a research-use culture in policy and practice by different mechanisms such as (1) acting as knowledge managers e.g. by adapting formats and dissemination of knowledge, (2) facilitating relationships and networks, (3) building skills and capacities and (4) utilising “transversal” activities like designing interventions, providing direct assistance, evaluating and scaling-up activities mentioned above (see Torres & Steponavičius, 2022: 12 et seq. for an overview based on key literature).

The recent OECD synthesis (Torres and Stepanovicius 2022: 23) therefore argues that further studies should:

- refer to organisations as well as individuals as both cannot be dissociated,
- incorporate explicit as well as implicit intermediaries to capture the complete range of potentially relevant actors,
- and account for distinct profiles of organisations as they might be involved in research production and mobilisation to different degrees.

Following this, the subsequent analysis seeks to include explicit as well as implicit intermediaries and will especially pay attention to specific actors and activities relevant to using evidence from HERSS.

3. Methods

The analysis builds upon a systematic scoping review of empirical studies which has been conducted in 2023 to identify factors facilitating and hindering evidence use in the science and higher education sector (Thiedig & Wegner, 2024). This research is part of an ongoing project which investigates how research managers and decision-makers at German higher education institutions make use of process- and survey-based data.

The scoping review has been conducted according to the PRISMA guidelines (Tricco et al., 2018). It included studies on factors influencing evidence use in higher education and research institutions and higher education and research policy published in English and German language between 2010 and 2022. To be included, the studies should explicitly address evidence use and report on factors influencing evidence use in the above-mentioned sector based on their own empirical results (or a review of those). There was no restriction on study design, countries studied, or type of literature. To ensure broad coverage, the project team used Scopus and ERIC as interdisciplinary and subject-specific databases for query-based search, a manual screening of six German-language Higher Education journals¹, and added eligible publications known to the review team (see <https://zenodo.org/records/10034216> for scoping review protocol including complete search queries). A total number of 3,325 records had been screened resulting in a set of 77 publications that met the eligibility criteria and had been included for coding and extraction based on full-texts.

To identify relevant studies on intermediaries, I conducted a full-text analysis of all 77 studies included in the scoping review² and an additional search of titles and abstracts of all records included in the initial screening process. Search terms to identify intermediaries have been derived from a synopsis of intermediaries in the field of education conducted by the OECD (Torres & Steponavičius, 2022). This involved variants of the terms “intermediary”, “mediator”, “knowledge broker”, “brokering organisation”, “brokerage agency”, “third party”, “boundary spanner”, “boundary organisation”. Studies that used these concepts exclusively as a theoretical reference and made no substantial empirical contribution to the topic, have been excluded from further analysis. Seven studies explicitly referred to concepts included in the list of search terms and reported about intermediaries’ activities and roles in their empirical findings.

4. Results

4.1. *Types of intermediaries and conceptual references*

Although numerous studies in the review make conceptual references to “knowledge brokers”, “intermediaries”, or “boundary spanners”, only a minority of them elaborates on these ideas with regard to own empirical findings. Table 1 provides a list of studies which explicitly mention intermediate actors and activities in the context of empirical investigations of evidence use. It highlights that intermediary activities are (1) almost exclusively studied in the context of policy-making, (2) have primarily been investigated in an Anglo-Saxon context, and (3) focus on organisations rather than individuals acting as boundary spanners or knowledge brokers. Even if individual researchers are investigated, their role as knowledge brokers seems strongly affected by the status of their host institution as “go-to source” (O’Connor, 2022, p. 15).

Studies mention different types of organisations ranging from national or state level agencies and boards, associations, foundations, advocacy groups to research organisations (Gándara, 2019; Gándara & Hearn, 2019; Sá & Hamlin, 2015; Smith et al., 2021) or refer to advisory positions and standing committees within organisations which are explicitly dedicated to foster research use at governments (Sá & Hamlin, 2015).

¹ Additional German language publications have been screened because journals in our specific field of study are not included in the databases and the literature review has been designed to inform empirical case studies in the German higher education system. For detailed information see Thiedig & Wegner (2024).

² The complete list of studies coded in full-text in the scoping review is provided in Thiedig & Wegner (2024, Table 2).

4.2. Functions and mechanisms of intermediaries

Studies point to a range of tasks and roles that intermediaries can fulfil. Intermediaries such as national or state level coordinating boards frequently contribute by providing issue briefs, compiling practical experience from other contexts to support argumentation in decision-making and designing processes (Gándara 2019). Similar applies to research institutes (O'Connor 2017).

Interestingly, in the context of higher education and policy making intermediaries are predominantly analysed as a part of a rather traditional pull-modell of research dissemination. They are considered as means to access and conduct research if capacities of governmental agencies are constrained and are invited and paid for these purposes in the context of contract work (Gándara, 2019; Sá & Hamlin, 2015). This particularly applies to cases where specific expertise and advise is required e.g. to construct funding models (Gándara 2019).

It is striking that despite the general trend towards systemic-organised evidence use (Ricksinson et al. 2022: 140) intermediaries in the higher education and research sector do not appear to be involved in such systematic and structured use contexts. For Ireland, O'Connor (2022, p. 17) even explicitly attributes the low level of evidence utilisation in policy to an "underdeveloped system for the production, mediation and use". Whether intermediaries are involved, varies between federal states (Gándara 2019), depends on the financial capacities of the clients (Sá & Hamlin, 2015) and also appears to be partly determined by geographical proximity and previous relationships to individual intermediaries respectively their staff (Gándara, 2019; Gándara & Hearn, 2019).

Last but not least, intermediaries might create an indirect impact on evidence use by "transversal activities" (Torres & Steponavičius, 2022) such as scaling up evidence-based practices. Kezar (2021) shows by the example of the Association of American Universities how the organisational identity, prestige, and external support provided by a network helped to establish evidence-based practices in teaching.

Analysing the full-texts of the relevant studies suggests that intermediary activities particularly relate to three main factors expected to support evidence use:

- **Credibility:** If intermediaries are prestigious organisations, this is expected to give a guarantee for highly credible evidence (Gándara, 2019).
- **Timing:** Intermediary organisations might play a pivotal role in aligning distinct time horizons of (academic) evidence producers and (non-academic), since they "improve synchronisation between policy making stages, evidence bases and established higher education expertise" (Smith et al., 2021, p. 47).
- **Relationship:** Intermediary organisations help to establish lasting relationships to overcome the volatility of individual contacts (Smith et al. 2021). Moreover, in specific cases, individuals are only entitled to gain access to and feed in evidence to processes such as legislative procedures through their involvement in intermediary organisations (Natow, 2020).

Table 1. Empirical studies of evidence use with reference to intermediaries

Study	Type of Intermediaries	Target community	Conceptual Reference	Context of study	Key Findings
(Gándara, 2019)	Organisation (national level, non-profit organisations, foundations, state level coordinating boards)	Policy	Intermediary	Qualitative study of evidence use by policy actors in designing performance-based funding policies in Colorado and Texas (US)	Prior exposure to research, attitudes towards evidence, institutions financial resources, definitiveness and relevance of research are identified as critical factors for evidence use. In person-interaction between suppliers and demanders is not a necessary condition for fostering use.
(Gándara & Hearn, 2019)	Organisations (state level higher education agencies, foundations, think tanks, advocacy groups)	Policy	Intermediary	Qualitative study about how policy actors in Texas (US) use information in decision-making processes and how intermediaries such as coordination boards enhance or restrict information	Higher education policy makers prefer state-specific data due to quality, accessibility and fit to unique state characteristics. State-level coordination board plays central role in information supply, whereas external intermediaries play a localised supportive role only
(Natow, 2020)	Organisations (higher education associations, advocacy groups)	Policy	Knowledge broker/ intermediary	Mixed methods study about sources of evidence and barriers to their use in higher education rule-making processes in US	Research plays subordinate role in discussion of final regulations compared to other sources of information. Time constraints, unavailability of data, lack of research capacity are barriers for evidence use in rule-making process.

Study	Type of Intermediaries	Target community	Conceptual Reference	Context of study	Key Findings
(O'Connor, 2022)	Organisation and individual (research institutes and researchers)	Policy	Knowledge broker	Survey based study of nature and extent of research utilisation in Irish education policy	Researcher-policy maker collaboration, institutional affiliation, policy-orientation and reputation of researcher predict variance research uptake by policy-makers.
(Sá & Hamlin, 2015)	Organisation and individual (research institutes, standing committees, advisory positions)	Policy	Intermediary	Qualitative study on evidence use in Canadian provincial government responsible for education, higher education, science and technology	Provincial governments' constrained capacity is compensated by leveraging relationships and coordinated initiatives but restricted by financial constraints of smaller provinces
(Smith et al., 2021)	Organisation	Policy	Intermediary	Qualitative study on temporal aspects affecting evidence use in the interaction between higher education researcher and policy in UK	Understanding distinct notions of timeframes, temporality and timing helps to align researchers and policy makers concerns and interests
(Kezar, 2021)	Organisation (university association)	Policy and practice	Intermediary	Qualitative study on the role of the Association of American University as intermediary organisation in scaling up evidence-based teaching	Networks and external support are identified as critical approaches for organisational change. Organisational prestige and identity are strongly related to efficacy in scaling evidence use strategies

Source: Own compilation of author.

5. Discussion and conclusion

The re-analysis of the scoping review confirms that despite occasional conceptual references to intermediaries or knowledge brokers, empirically grounded evidence about evidence intermediaries acting at the interface between higher education and science studies, policy and communities of practice is still limited. Studies identified by the review predominantly consider explicit intermediaries, almost exclusively focus on the role of intermediaries in the context of research use in policy and explore how these moderate which types of evidence are used. Furthermore, these studies convey the picture of culture of dissemination which predominantly follow the logics of the traditional pull-model.

While the analysis of the literature corpus allows me to draw a rough overall picture of roles and functions of evidence intermediaries, the approach comes with some limitations. First, the scoping review aimed to identify empirical studies with a dedicated focus on studies of evidence use. Given the thematic focus of the project, the search strings combined keywords for relevant research strands (e.g. research utilisation, evaluation use, evidence-informed policy) with those specifying the sector. Hence the results might exclude studies or conceptual contributions framed by theoretical lenses not covered by these keywords. This especially concerns contributions referring to the broader fields of knowledge transfer and policy counselling. Secondly, a literature review per se can only provide an incomplete picture of intermediary actors, as their existence and activities only become visible once they are the subject of existing publications. Especially current developments and practices might not be covered. Moreover, intermediary activities that are implicit or located within organisation are difficult to access (and are frequently not necessarily analysed in conjunction with concepts such as boundary spanners or knowledge brokers). Given the results and limitations listed above, I would like to highlight three overarching aspects which demand further conceptual and empirical work about (evidence) intermediaries.

5.1 *Implicit intermediary activities and the increasing relevance of professional groups*

In contrast to explicit intermediaries acting at the interface between HERSS and policy, intermediary activities directed to evidence use *within* organisations are underinvestigated. This is especially relevant as research about evidence and data use at higher education institutions and research organisations suggests, that field-specific actors such as institutional research and quality management units or research managers might act as intermediary entities as well (Ansmann & Seyfried, 2018; Derrick & Nickson, 2014). As frequently mentioned, institutional research by definition is supposed to fulfill „a critical intermediary function that links the educational, managerial, and information functions of higher education institutions and systems“ (Peterson, 1985, p. 5). Hence, studies about professional groups and their practices make important contributions to understanding whether and to what extent data and evidence are used in decision-making. However, findings also indicate that the influence of professional groups (and probably other implicit intermediaries) is moderated by country-specific governance regimes (Jappe & Heinze, 2023) and that therefore variation in governance regimes should be taken into account in future studies.

5.2 *Neutral evidence brokers or advocacy-oriented strategic actors*

Studies point to the fact that intermediaries do not only process and communicate evidence as neutral brokers but can also act as advocacy-oriented strategic actors. Furthermore, agencies might serve as buffer e.g. to alleviate the effects of data-driven regimes (cf. Rabovsky, 2014, p. 265). The empirical analysis of the work of the German Council of Science and Humanities in the German university system (Heinze et al., 2019) exemplarily shows that the role and self-

conception of such mediating actors can change over time. Moreover, the study also illustrates how incomplete the knowledge is, on how and why certain data is included, or benchmarks are used. These findings suggest that future studies on intermediaries should not only consider their role in the respective systemic context but should also take a closer look at which data and evidence are incorporated and in what form. Future studies might also draw on established concepts such as the distinction between the symbolic, conceptual, and instrumental use of evidence (Amara et al., 2004).

5.3 Products of intermediary work

In addition, future studies should consider products of intermediary actors such as decision-support systems, dashboards or guidelines, systematic reviews since those might increasingly mediate access and interpretation of evidence and data by policymakers and communities of practice in higher education and research organisations.

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Competing interests

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