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## **Brokerage and the Research–Practice Gap: A Theoretical and Empirical Examination**

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### **Abstract**

A potentially powerful lever for connecting research and practice is brokerage, a concept rooted in organizational theory. However, there has been little *theoretical* attention to the concept of brokerage in the context of research use in education and therefore limited contribution on this issue to organizational theory. Further, there has been little discussion of what differentiates types of brokers or brokerage activities. In this paper we unpack the concept of *brokerage*, using preliminary qualitative data collected from researchers, practitioners, and intermediary organizations to unpack empirical dimensions of brokerage, then and compare and contrast emergent dimensions against theoretical frameworks to evaluate and improve models generally as well as within the context of the research-practice gap in education.

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## **Background**

Scholars and practitioners have long acknowledged the disconnect between research and practice in the area of social policy, and in particular, education. Concerns about the underutilization of social science research in social policy resulted in studies that investigated the barriers to using research in policymaking and local decision processes. The findings of these studies consistently reveal weak ties between researchers and practitioners (Backer, 1993; Broekkamp & van Hout-Wolters, 2007; Davies & Nutley, 2008; Landry, Amara, & Lamari, 2001), that the characteristics of research evidence may present challenges for uptake (March, 1994; Hannaway, 1989; Birkland, et al, 2005) and that the characteristics of both educational organizations and decision-makers may constrain or support research use (see Author, 2012 for a discussion). However, this problem - and attempts to address it - are not new.

Beginning in the mid-1960s and lasting more than two decades, significant investments were made in bridging the gap between research and practice. The federal government – at that time the Office of Education in the Department of Health, Education, and Welfare (later the Department of Education) and its research arms —were deeply engaged in developing infrastructures and experiments to stimulate the use of research by educational practitioners. This engagement began with the “Great Society” initiatives of the 1960s, which pointed to education as one of the means to decrease poverty. It ended in the late 1980s as questions were raised about the value of a “top down” federal improvement model (Marsh & Huberman, 1984; Sabatier, 1986) and interest shifted toward the idea of “restructuring” rather than “research use” as a lever for improving schools (Hutchins, 1989).[1]

The U.S. government recognized that the gap between research and practice in education was serious and unlikely to close without some coordinating action and systems and rapidly took a variety of steps to address the issue. Most of these were developed on the premise that rich research resources already existed but they were not reaching practitioners in a form that they could use. As part of the focus on making use of research, the Educational Research Information Centers system, initiated in 1966, was designed to provide an accessible system for archiving research, including conferences papers, research reports and other materials. The Regional Educational Laboratories system was proposed in the early 1960s as “ a vital link in the chain of knowledge generation and diffusion” (Guthrie, 1989) and was shortly therefore included in the initial ESEA legislation. During the 1970s and 80s, the Regional Laboratories were evaluated on many occasions and by multiple studies (Hemphill, 1970; Louis, Dentler, Kell, Corwin, & Herriott, 1985; Stalford & Stern, 1990; Turnbull, 1994; U.S.O.E., 1969), every study concluded that they performed significant brokering functions that were valued by the agencies and educational professionals that made use of their services. Their brokering role continues, although currently somewhat narrower than previously (<https://ies.ed.gov/ncee/edlabs/>).

A second infrastructure project initiated by the federal government was the National Diffusion Network, which began operations in 1974. It also focused on brokering, but with a very different model. The “research” consisted of validated (rigorously evaluated programs) that were developed by schools and districts: practitioner-based research. The “Developers” were linked with other potential adopters through State Facilitators, who served as disseminators and arranged for the developers to provide additional technical assistance to interested schools (where necessary) (Neill, 1976, 1981). The NDN was enormously popular, and was positively evaluated both early in its life (Emrick & Agarwala-Rogers, 1978) and later through a larger multi-method project carried out in the 1980s, which credited its popularity and success as a result of its emphasis on implementation assistance (Crandall, 1989; Huberman & Miles, 1984).

The Office of Education’s Bureau of Research dove more deeply into the problem of research use by commissioning an influential report by the Center for Research and Utilization of Knowledge at the University of Michigan that elaborated on the problematic gap. The report proposed a broad systems perspective, captured as “RDDU” or Research-Dissemination-Diffusion-Utilization, where dissemination was viewed as a responsibility shared by universities and brokering agencies, while diffusion and utilization were largely natural processes within the school system but that required support (Havelock et al., 1969). The federal government responded to the report by designing several large-scale experiments to develop the idea of brokering using the Education Resources Information Center (ERIC) and existing state and local structures further.

The first of these was the Pilot State Dissemination Project (1969-1972), which funded three states and affiliated regional centers within them to determine whether demand for the “rich store of information” in ERIC could be created, and whether modest levels of technical assistance at the local level would affect the application of research. The answer was a qualified “yes” to the first aspiration (creating demand) but more limited support for the role of short-term technical assistance (Louis, 1983; Sieber & Louis, 1974 ; Sieber, Louis, & Metzger, 1972). Instead, the Pilot State Dissemination Project points to the importance of internal diffusion activities inside the school. A second program that built on the Pilot State Dissemination Project was also a demonstration rather than as a permanent system initiative. Seven field-based projects were funded to start by working with schools to match locally defined problems with “research based solutions” and to work with schools to build internal capacity for change. It was differentiated from its predecessor in several ways: there was no “product push” or “selling” of information to individuals but rather a tailored “matching” of resources to school-defined needs. In other words, it was an organizationally-focused intervention (Louis, 1983). The three-year evaluation, which was also multi-method, revealed a number of important features of research-use and brokering (Louis, 1981; Louis, 1983; Louis & Kell, 1981). Specifically, local “generalist” technical assistance was preferred by schools, but specialized training from program developers or other brokers was more important in achieving longer-term change: “the degree to which

there were broader improvements in the functioning of the school were all profoundly affected by the presence of a significant training program dominated by specialists” (Louis, 1983, p 76).

Although the accumulating evidence of multiple evaluations and research studies suggested that (1) brokering was central to research utilization and that (2) systematic professional development was essential to organizational change. There was much to build on to adjust both the work of the Regional Laboratories and the National Diffusion Network. However, by 1989, some skepticism settled in, with one unpublished report raising the question of how often we should expect practitioners to make use of research (Stalford & Stern, 1990). A federal effort to fund a research center to study knowledge use in schools foundered in the mid-1990s, with no funding allocated and funding for the National Diffusion Network was eliminated in 1995, as part of Newt Gingrich’s “Contract with America” with focused on cutting unessential programs. By the end of the 1990s, the federal role in promoting an “RDDU” system was largely invisible.

In the context of accountability in the United States, beginning with No Child Left Behind (NCLB) and reified through Every Student Succeeds Act (ESSA), there are renewed and rising expectations not only for the use of research in decision-making, but also that practitioners understand and apply evidence in particular ways. In this context, there has been increased attention to bridging or otherwise connecting research and practice communities, broadly construed. Some of these efforts focus on dissemination of high quality research. One well-recognized mechanism for making rigorous research available is the What Works Clearinghouse (WWC), established by the Institute for Education Sciences (IES) in 2002 to review, critique, and synthesize evidence of impacts of education interventions. Other examples originate in demand from practice. For example, EdNC, an online daily newspaper focused on sharing research, policy, and practice, grew from a collaborative effort of 78 superintendents who needed a trusted source of information but lacked their own resources to generate that information.

Still other strategies involve directly linking research and practice. Research-practice partnerships, for example, are increasingly popular, taking multiple forms but fundamentally shifting relationships between researchers and practitioners and more tightly coupling their goals and work (Coburn, Penuel, & Geil, 2013). Similarly, The U.S. Department of Education, in an effort to improve the translation of research evidence into schools nationally, launched a Regional Educational Laboratory (REL) program, sponsored by the Department’s Institute of Education Sciences (IES). In 2012, the REL program launched a new effort to establish “alliances” – partnerships with state and local agencies across region – to inform the approaches and research undertaken by the RELs but also serve as a mechanism to build capacity to ask and study important questions.

A potentially powerful lever for connecting research and practice is brokerage, a concept rooted in organizational and network theory. Scholars in education and in other disciplines have

increasingly sought to understand the role of brokers as intermediaries between research and practice communities. Brokers, by definition, facilitate transactions (e.g. sharing of resources, information, etc.) between otherwise unconnected (in terms of access or trust) people, groups, or communities (Marsden, 1982). In the field of education, as Neal and Neal (2015) note, these roles have been described as brokers, intermediaries, and boundary spanners, and research has found them to serve an important role in addressing the research practice gap.

For example, Kochanek, Scholz, and Garcia (2015) reported some important activities that brokers perform in addressing the gap, such as: identifying common goals, negotiating a research agenda, organizing alliance meetings, and facilitating alliance communication. Brokers also build and maintain relationships, while staying well informed and up to date in their area of expertise. They also translate research jargon into ordinary language that is more accessible to those who might put the research findings into action (Jackson-Bowers, Kalucy, & McIntyre 2006). As can be seen, brokers/intermediaries/boundary spanners/etc. fill a crucial role that researchers often do not have the time to fill, and practitioners often do not have the requisite skills or training to fill.

In spite of this recognition, there has been little recent theoretical attention to brokers in the context of research use in education and therefore little contribution on this issue to organizational theory. Further, there has been little empirical exploration of what differentiates types of brokers or brokering activities. In this paper, our focus is identifying and unpacking the location, roles, and functions of brokers. Specifically, we take exploratory qualitative data collected from researchers, practitioners, and intermediary organizations to unpack empirical dimensions of brokerage. We then compare and contrast these emergent dimensions against theoretical frameworks to evaluate and improve models both generally as well as specifically within the context of the research-practice gap in education.

## Research Perspectives on Brokers and Brokerage in Education

*Structure vs. function.* Most literature on brokers and brokerage in education stems from structural explanations, such as the work of Burt (1995, 2004) related to structural holes. This lens views brokers as a bridge or connector between actors in a network. The defining characteristic therefore is the broker's location, or position, between individuals, groups, organizations, etc. that are otherwise unconnected. In the context of research in education, brokers would be those who communicate between researchers and practitioners, for example as

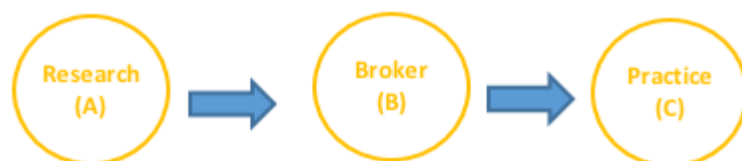


Figure 1.

illustrated in Figure 1. While the origins of brokers in network theory is widely recognized, the growing body work in this field has a more expansive definition that draws more on *function* than structural role, and that permits a more complex set of relationships than indicated in Figure 1. For example, Cooper (2014) identifies research brokering organizations based on the extent to which such a role was part of their organizational mission. Neal and colleagues (2015) observe a diverse network of brokers between research and practice, including longer chains of brokers and the existence of more than one path from (A) to (C). Nonetheless, both a structural and functional approach use similar language to describe brokers, which makes it difficult to articulate a common approach or definition for the concept. For instance, Bornbaum, Kornas, Peirson, & Rosella (2015) note brokers have been referred to as knowledge managers, linkage agents, and capacity builders. Long, Cunningham, & Braithwaite (2013) provide a succinct table of references that outlines various definitions and conceptualizations of brokers, including: boundary spanner, bridge, broker, broker in structural fold, consultant/cosmopolitan/itinerant broker, gatekeeper, liaison, and others.

*Organizational type and association.* As described above, brokers are commonly referred to as intermediaries and are often conceptualized as occupying a space between research and practice. Cooper (2014), for example, describes them as “third party intermediaries whose active role connecting research producers and users is a catalyst for knowledge mobilization”. On the other hand, Neal et al. (2015), find that brokers can belong to either side of the research-practice gap, as well as in the space in between. In other words, both researchers and practitioners may act as brokers. Similarly, Daly and colleagues (2014) identify central office administrators as brokers of research and data to school leaders in the context of improvement efforts. Relatedly, location in network is tied to the type of organization, including non-profit, for-profit, and governmental organizations, identified as a potential differentiating characteristic by Cooper (2014) and Jackson-Bowers and colleagues (2015). Literature to date has not explored broker differences across the types of organizations and the extent to which they might be considered part of either the research or practice system, nor what those difference mean for research use.

*Role and activities.* Other conceptualizations of brokers place greater emphasis on the types of roles and activities brokers assume. For example, Gould and Fernandez (1989) offer a typology, identifying gatekeeper, representative, itinerant, coordinator, and liaison as roles assumed by brokers. Neal et al. (2015) utilized this typology in their empirical study of brokerage, and identified the presence of all five types of brokers in their sample. However, when only considering instances of brokerage that involved a researcher and school staff, only Gatekeeper, Representative, and Liaison were present in the sample. More recent work expands to focus on the activities or behaviors of brokers. For example, Burt (2004) begins to shift from role to activity, describing brokers as engaging in a hierarchy of behaviors beginning with communication between groups, transferring best practice, drawing analogies between groups, and, ultimately, synthesis. Similarly, Ward (2009) differentiates knowledge brokers in terms of

activities which she categorizes broadly as pertaining to knowledge management, linkage/exchange, and capacity building. Bornbaum, Kornas, Peirson & Rosella (2015) followed Ward's lead and categorized various activities (identifying and obtaining relevant information, connecting stakeholders, facilitating development of analytic and interpretive skills, etc.) into the above three categories. Additionally, Cooper and Levin (2010) identified product creation, activity organization, and forming/maintaining networks as key activities that brokers partake in. Finally, Sebba (2013) notes that three important and common activities that brokers are involved with are problem definition, synthesizing research evidence, and developing/brokering networks.

*Attributes of brokers.* An emerging body of research explores the attributes of effective brokers. Lomas (2007) further identifies attributes associated with brokers, suggesting that among other things, they are entrepreneurial, trusted, credible, clear communicators, understand the cultures of both communities they serve, are able to find and assess research, and understand adult learning. Knott and Weissert (1996) offer a similar list, finding that effective brokers have expertise and understand users' problems. Across studies, trustworthiness seems to be the most important (Lomas 2007; Sebba 2013; Jackson-Bowers, Kalucy, & McIntyre 2006). Additionally, Sebba (2013) as well as Daly, Finnigan, Moolenaar, and Che (2014) identified geographical proximity as important as well.

To date, research on brokers, and research brokers in particular, is limited by varied conceptualizations and inconsistent frameworks, and is complicated by the diverse fields in which this work is contextualized. Most of the work on research brokers has focused on structural location, broker characteristics, or broker activities in order to understand their role in mediating the research-practice gap, yet the picture remains incomplete. There is little exploration in the context of education and research, suggesting other aspects of research brokering are in need of greater attention. For example, Neal and colleagues (2015) find that the chain of brokerage between research and practice is more complex and much longer than theorized in the Gould and Fernandez typology, and is likely to involve multiple kinds of participants with multiple kinds of roles. Taken together, the literature points to a need for further theoretical and empirical exploration, particularly in the context of addressing the gap between research and practice in education.

### **The Present Study**

Our purpose in this paper is to build from existing conceptualizations of research brokers to organize and explain findings from a preliminary qualitative study of research use in education. We therefore engage in exploratory qualitative analysis of interview data to develop an emergent framework for conceptualizing *brokerage*.

### **Sample**

Data were collected as part of the instrument development process for a larger research project on research use in education conducted through the Institute of Education Sciences (IES) funded Center for Research Use in Education. The sample consists of 15 researchers, 15 intermediary organizations and 15 practitioners at the district and school levels across three states. Our sample is purposive in nature and was not selected for generalizability.

For the research sample, we contacted principal investigators of IES grants and other university-based researchers. First, we created a list of IES funded projects at the major research institutions in each state. We then selected project that have ended within the last 5 years to ensure that our sample had recently completed work that would be disseminated to various audiences. From those, we identified those that focused on K-12 educational issues (e.g. not measurement, early childhood unless directly connected to K-12 systems, or post-secondary). If there were more than three, we randomly selected three for initial contact and used the rest for sample replacement. We also then contacted the Deans of the relevant units briefly describing the Center's work and asked for them to recommend four scholars with whom we should speak about the relationship between research and practice. If there was overlap with our first step, we excluded those from the list and randomly selected two for initial contact, using the rest for sample replacement. In spite of the resulting diversity of projects and researchers' level of experience, this sample is limited by its focus on university-based researchers and biased in favor of those receiving external funding, which is often associated with a particular type of research design and focus.

The practitioner sample included districts recommended by our researcher sample or with which we had a professional connection, and district leaders helped us to subsequently identify principals and teachers. We first contacted one district in each state in our sample, and if they were receptive to participating, we asked contacts to recommend a district-level administrator involved in decision-making around district improvement for an interview. This process was repeated until we were successfully able to conduct an interview. We subsequently asked the district administrator to nominate at least two principals, who in turn were asked to nominate two teachers. This process was implemented in one state, and in another we had to move into a second district to achieve a sample of five practitioners. In the third, we were unable to secure participation from practitioners within a district but were able to recruit a district administrator, two principals, and two teachers from across five districts. A limitation to our sampling strategy is inclusion of only a single district in two of the states. This was designed for feasibility purposes, as most districts require researchers to submit to internal IRB-like review procedures prior to conducting research with any staff, precluding us from an expansive search for participants. However, we were able to secure respondents from a range of roles and contexts, which helps offset this limitation.



Intermediary organizations, or potential brokers, were identified through both researcher and practitioner interviews, as well as by the research teams' knowledge of the three state contexts. We generated a list of organizations that are not housed in a University research or academic unit, not part of the K-12 school system, and are focused on providing services for the K-12 school system. From the list, we randomly selected five organizations and use the remaining for sample replacement. The final sample includes foundations, community-based organizations, professional development organizations, media, and translational research and technical assistance centers. In spite of sampling criteria, the final set of respondents include organizations that were engaged in primary research, though the many hats worn by these organizations was not fully known until the interviews were complete.

### **Data**

Interviews were semi structured and covered a broad range of issues and topics related to research use in education. Parallel protocols were used for all three types of participants and focused on a) current issues being addressed by the organization (e.g. district, research institution), b) research use and/or communication practices, and c) the relationship between research and practice. Interviews were conducted by phone between January 2016 and September 2016 and lasted approximately one hour. Interviews were transcribed and entered into Dedoose, an online platform for collaborative research.

### **Analysis**

Practitioner and researcher interviews were initially coded using an a priori framework based on our conceptualization of the relationship between practice and the research questions of the larger center in which this work is situated (see [www.research4schools.org](http://www.research4schools.org) for more information). Our focus here is on excerpts coded under the umbrella of *relationships between communities*. From this set of excerpts, we identified more than 198 references to individuals, organizations, or activities linking research and practice, which were coded as *brokerage* and are further analyzed in this paper. Intermediary organization interviews were examined in their entirety initially. We then used an iterative approach consistent with grounded theory to identify dimensions associated with brokers and brokering.

The first step entailed the research team reading a) excerpts from the researcher and practitioner interviews coded as pertaining to brokerage, and b) interviews conducted with members of intermediary organizations. The research team then engaged in a collaborative memoing process. Analytic memos, according to Glaser (1978), are “the theorizing write-up of ideas about codes and their relationships as they strike the analyst while coding” (p. 83). The research team engaged in a similar process, asynchronously contributing to a set of codes, concepts, and questions using the Google Docs platform, and then debriefed to generate a coding framework which included six parent codes, and more than twenty potential child codes.

Both the researcher and practitioner excerpts under brokerage as well as the intermediary interviews were then coded in paired members of the research team using the newly generated parent codes. The research team then re-read excerpts from all three sets of interviews within each parent code as a check on the initial framework and to identify any new understandings about dimensions of research, again using a collaborative memoing strategy. The revised set of codes retained the parent codes, revised child codes, and added for many child codes a subsequent set of grandchild codes. At the time this paper is written, the research team is still engaging in this iterative process.

The objective of our work is to compare and contrast an emergent set of concepts related to brokerage against existing frameworks to identify areas in need of further theoretical and empirical examination. Therefore subsequent uses of these qualitative data include building of a conceptual framework or model of research brokerage in education through examination of the relationship between concepts. This will be pursued with a larger sample that is more representative of the organizations engaged in research brokerage as part of the Center's larger work. For the purposes of this paper, we engage in a descriptive comparisons of existing frameworks – specifically structural, role, and activity-based theories briefly summarized in the prior section – as part of the development of a conceptual and measurement framework for brokerage.

## **Results**

Our analyses resulted in a complex conceptualization of dimensions of research brokerage observed in our data. In this section, we present the parent and child codes generated, as well as illustrative examples of these codes to clarify the distinctions among these dimensions (Table 1). We emphasize here that our goal is *not* to quantify the prevalence of any particular dimension identified, as our sample is far too limiting to make such assertions. Rather, we seek to identify a range of dimensions and provide illustrative examples to help operationalize them as a basis for further consideration.

*Organizational characteristics.* Perhaps the most straightforward of our dimensions pertains to organizational characteristics. We noted differences in both the type of organization, its location or association relative to research and practice, and in organizational capacity, which seems to be tied to size, funding, and skills.

*Function.* One of the dimensions of the data we observed pertained to function - that is, what brokers do. Initially this encompassed any type of function or behavior, but was ultimately broken into two major child codes: activities, or the work that brokers engage in when connecting research and practice, and strategies, or the ways in which they approach that work. Activities were more easily defined, whereas the research team continues to work through operational definitions of strategies in the data.

*Purpose and motivation.* We noted in the data that individuals and organizations serving as research brokers had a range of motivation or purposes for engaging in that work. Some seemed to engage in advocacy around a particular issue or program. This included encouraging practitioners to adopt a program and raising awareness about problems, issues, or solutions. We also noted that some focused on building capacity. In particular, capacity building seemed to focus on improving decision-making. Yet others were simply focused on connecting research and practice more broadly and without articulating a goal beyond that, suggesting such a connection in and of itself worthwhile. Lastly we noticed some distinctions based on what we might consider a reactive and proactive continuum. For example, one intermediary viewed itself as investing ideas and innovation, while others sought to respond to problems of practice. This seems to suggest a subtle distinction in framing about the work of brokers.

*Directionality.* Excerpts pertaining to brokering research almost entirely focus on creating connections or interactions through which research is communicated to practitioners or policymakers. While no excerpts explicitly addressed the reverse - ways in which practice-based ideas might influence researchers, its absence was dually noted in our analytic memos. Relatedly, we did notice that the target audience of brokering activities could be differentiated. In our data, we heard about policymakers and practitioners, inclusive of district, school, and classroom level educators, and noted comments that suggest differences in how brokers would approach these groups.

*What gets brokered.* We began this process to understand how research moves between communities, but our data revealed that “research” is very broadly construed and that ties between researchers and practitioners communicate a range of things. We categorized our observations in terms of products (e.g. briefs, articles, videos, etc) by which research is communicated and research-based professional development -formats one might anticipate as being brokered. However, we also found that brokers worked to build relationships between researchers and practitioners (e.g. so that (A) and (C) in Figure 1 would also have a tie between them) and to influence organizational capacity through shifting culture and building skills to use research.

*Challenges.* Lastly we noted the challenges brokers face. Whereas other codes capture features of brokers and their work, challenges captured the dynamic nature of the space between research and practice. Challenges fell into four categories, or child codes: internal - pertaining to the actual work of brokers, external to researchers, external to research, external to practitioners, external to the disconnect between researchers and practitioners. Illustrated in the results table, challenges made visible the complexity of the space in which brokers work - negotiating not only their own institutional and practical challenges, but negotiating those of *both* research and practice as well.

*Insert Table 1 Here*

## **Discussion and conclusions**

The iterative coding and analytical process described above provide rich data to explore the range of ways research and practice are connected, and given the limited sample, we presume that our findings underestimate actual diversity in the broker landscape. We find this work supports, extends, and challenges prior research in this area in a few important ways.

Our results support findings from prior research on brokers. We do not have network data to confirm the role of brokers as bridging structural holes, but our data include examples of how individuals and organizations serve as primary resources for linking research and practice. Relatedly, findings confirm recent research suggesting that brokers exist not only between communities but within as well. Another finding complementary to prior research is the set of activities and strategies (though the latter is still emergent in our analysis) that our data revealed. Discussed earlier, the literature to date presents multiple frameworks for the activities and roles that brokers play. The range observed here seem to fit within multiple categorizations (e.g. Ward, 2009; Bornbaum, et al, 2015, Cooper and Levin, 2010), which may mean sufficient similarities exist across fields and contexts to begin to develop a common framework to drive future research. Lastly, our data reiterate that attributes such as trustworthiness and credibility are important for brokers.

While our findings support prior work, they also extend and challenge the field. First, our data suggest that brokers' motivation and purpose may be an important dimension to consider. While our data are inadequate for exploring the effects of motivation given constraints on our sample, we suspect that motivation shapes activities and roles and may be influenced by organizational location and type (e.g. whether a broker is within the research community or for-profit). Motivation was among the more difficult codes to articulate and identify, and our child codes under motivation are preliminary at best. Nonetheless, this is an important avenue for further investigation.

We also note that directionality should be considered moving forward. Our approach to the data is influenced by the larger work of our Center, which attends to bidirectional relationships between research and practice. The prevalence of "to-practice" directionality is largely consistent with prior research and reflects the dominant view of the field - that research inform practice. We caution that the gap between research and practice can be partially explained by the lack of practice-to-research ties and structures, resulting in widely cited concerns about relevance and timeliness.

An additional outcome of our work was a need to understand *what* gets brokered and *how*. Data provide examples of different content that is brokered. We find research and research-based products, but also other content. Brokered content such as skills and capacity for using research as well as relationships that might improve ties between research and practice seem to fit within prior frameworks for broker activities. For example, Ward (2009) categorizes some activities of brokers as pertaining to capacity-building and Bornbaum and colleagues (2015) describe connecting stakeholders as part of brokers' work. However, other content, such as influencing the culture of an organization or delivering research-based professional development, are less clearly connected to prior findings and broadens the scope of *what* gets brokered.

Similarly, attention to the *what* raises the question of what happens to research as it moves through brokers. Prior research, and ours as well, elaborates on the activities of brokers, but a singular focus on *brokers* limits our understanding of what happens to research in this process. This slight reorientation of the issue may provide important insights to understanding and leveraging brokers in addressing the gaps between research and practice.

Lastly, we unearthed a substantial set of challenges faced by brokers. There is limited attention to these issues in the literature to date, though they are suggested in some case studies. Our data reveal not only challenges internal to broker organizations but features of the education and research systems that throw up additional barriers. We acknowledge our researcher sample favors higher education institutions, and that a different or larger set of challenges may pertain to other research institutions. Therefore, this may be an underestimation of challenges but nonetheless establishes the multi-dimensionality of brokers' work and highlights the resources and skills required to successfully navigate this complex terrain. Understanding the full set of challenges helps identify not only malleable conditions for strengthening brokers as a mechanism for connecting research and practice, but also for identifying the skills and capacities required for successful brokers.

Overall, this process revealed a messiness and complexity we did not anticipate based on prior literature. Network location, organizational characteristics, activities and motivations exist and are related in ways that were not anticipated based on prior literature and which demand substantial further inquiry independently and collectively. But our results suggest a different approach to the field may be needed. Literature to date has primarily focused on *brokers* as organizations or individuals, but our analyses suggest that understanding brokers provides a limited perspective on the ways in which research and relationships between research and practice occur. We propose that our work unearths a need to focus on *brokerage* - a dynamic and complex set of actors, activities, motivations within which research is exchanged, transformed, and otherwise communicated. Our work is just a step towards defining brokerage but opens the doors to broader conversation.

In summary, findings from this process confirm the value of current frameworks for the conceptualization of brokerage. We found in our data examples of structural locations, roles, and activities that confirm ideas empirically developed by others. However, analyses also raised a number of issues specifically in the context of the research-practice gap in education that we were unable to reconcile with existing literature. Further, none of the theoretical models we explored addressed all of the characteristics of brokerage that emerged from our analysis. This paper therefore extends current conceptualizations of *brokerage* and directs future organizational research to consider not only a more comprehensive typology but also to explore how different forms function to address, and ideally alleviate, the disconnect between research and practice in education.

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**Table 1. Coding framework with examples**

| Parent   | Child      | Grandchild  | Example codes  |
|----------|------------|---|--|
| Function | Activities | Evaluate the quality of research  | we tried to go for things that are broader than single studies. So meta-analysis I think the rise higher than – well done meta-analysis rise higher than single studies. But in general, I think we look for the sample of the rigor of the methods, so for instance something that actually accounts for nesting of data when data are nested, the generalizations that are claimed at the end whether they fit with the methodology and whether the sample that we are going to be applying it to is consistent with the sample that the research supports. (Broker 9)   |
|          |            | Evaluate needs of schools, teachers or others so that you select the most relevant research | But we created a list of projects that we were interested in, and the hopes that we could actually have more of a connection to someone out there who wants the research could find that and say, okay, I can do my research, but I can do it in a way that’s really beneficial to this district, and so the results will both benefit me and benefit the district. So I think that the more that we can – that individual nuance discipline specific kind of interests can be aligned with things that districts are trying to understand and work better with (Broker 9)   |
|          |            | Deliver formal learning opportunities (e.g., professional development, training)            | So what ends up happening is I'll show them the strategy first. We practice it in professional development. I'll get them to think about where they are going to embed it in their own instruction, and then after they do that and they've tried it and are reflecting, I'll say – and by the way, that work that you're doing on argumentation, look at all these publications that that strategy is based on. (Broker 2)<br><br>Unless you have training, going on it’s not going to work. A manual can work, but it’s not enough. People want training, they want technical assistance and then beyond that what we've done is, we've created new training materials and I think that's such an important point for you. (Researcher 25)   |
|          |            | Offer or provide support or technical assistance  | We have established a group here called Systems Improvement Group, which is really review policy evaluation, training technical assistance, consultation, helping states implement aspects of federal special education law. (Researcher 27)<br><br>I've been increasingly been asked to provide support for integrating engineering instruction into K through 12 teachers. (Broker 2)<br><br>And we are the technical assistance center for the US Department of Education as it relates to the Education of Homeless Children and Youth program. And so, in that capacity, our task is to work with each state, and in many cases, local school districts as well in implementing the homeless education program in states and districts across the country. We provide technical assistance on-site and as well as webinars and other supports, such as briefs and workbooks and those types of things that can be used by practitioners in the field. (Broker 27) |

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|  | Publish (i.e., produce or release for distribution)                         | Instructional programs, we've published instructional programs and screeners. I also have a grant to develop a more extensive number sense screener that will be useful for teachers... Now we're going to extend out to preschool and then up to first grade and then when we also published our number sense interventions is like a supplemental curriculum. (Researcher 17)  |
|  | Develop products or programs based on research                              | <p>And then just one more thing I would add is just that we recently built an early warning system. When we did that, we drew a lot upon the Chicago Consortium Research, the work that Bob Alfons does at Johns Hopkins. So I think we try to bring in as much as existed to be a solid foundation for the work. (Broker 9)</p> <p>So on this project, what we've done is developed a lot of products along with other things but that's a major piece of it. So we have assessments for teachers. We have intervention materials, lesson plans stuff with them. We have this whole decision-making framework that has tools that go with that so they can look at data and make decisions using some guidelines. (Researcher 24)</p>   |
|  | Disseminate (i.e., actively distribute research)                            | <p>And the other reason that's I think why I do a lot of the like presentations at state grant at state level things for teachers and things like that because it gives you a chance to sort of put findings from those studies, sort of put that information into the hands of teachers for them to use and apply but it's – I think that's a challenge to figure out how to do that sort of well and in a way that doesn't sort of shoot you in the foot for your own reviews and stuff like that. (Researcher 21)</p> <p>I'm trying to right now go out and rather than go school by school, I've been presenting at all the professionals Association conferences, so I just gave – I think I just gave 14 presentations in three weeks. (Broker 8)</p>  |
|  | Synthesize multiple sources of research about a single topic, program, etc. | How do you decide what research to bring into your work?: Well, I mean, I don't really know how to answer that except that there's sort of a native curiosity around the problems that we're trying to solve, so [colleague] and I are always reading, and it would be anything from Ed Week to The New York Times to the Harvard Business Review, people we talk to, somebody mentions a work, or have you heard of? Our antennae are always up for the specific problems we're trying to solve, and for research, or even notions or advocates who believe something different, and then we would sort of track down, well, what are they basing those beliefs on? Have they done any writing that would have a footnote where we could track down where does this belief come from? (Broker 22) |
|  | Translate research into understandable language and/or format               | <p>I really think one of my strength is how to make things really make it approachable and make it not so scary and intimidating. (Broker 8)</p> <p>...one of the sites that does a really good job is called Reading Rockets and they have short videos with like experts in the field who've done years of research or whatever that are meant for practitioners. So like that's a practitioner website that actually translates research findings has organized by topics and things like that. So I do think a lot of teachers use websites like that. (Researcher 21)</p>   |
|  | Facilitate discussion of research   | Obviously I'm still doing research, but I am more focused on trying to understand how can universities partner with school systems and get school systems to see that we actually have them programmed that they ought to use and that are actually cheaper than what they can get out on the marketplace. (Researcher 2)  |

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|                                      | <p>So what ends up happening is I'll show them the strategy first. We practice it in professional development. I'll get them to think about where they are going to embed it in their own instruction, and then after they do that and they've tried it and are reflecting, I'll say – and by the way, that work that you're doing on argumentation, look at all these publications that that strategy is based on. And the NRC, the Next Generation Science Standards embedded argumentation because of this body of work. It's in there because of that. So bringing that all the way back around, circling back around to the research when it's appropriate I think helps teachers make the connection in a way that doesn't sort of confront their really pretty strongly held beliefs that educational research is not worth anything (Broker 2)</p> <p>Exactly, in the same and it's not that we're trying to say yours isn't good or the others is better or vice versa but this is what we do, we're neutral and I think that notion and neutrality is really important as you are brokering anything. (Broker 6)</p> <p>But the other part of it is I will often be asked by the district or school or unit who is asking me to come in to provide the professional development. They'll say we need our teachers to do X, right, so the professional development always has a set of goals. So I always start with the set of goals, what do I want teachers to know be able to do just like we expect teachers do with students. And then that's when I often go to the literature and see what we know to be good practice based upon the research and then that structure is how I approach the professional development and the teachers (Broker 2)</p> <p>So we were trying to give them sort of research 101 in a very special way, but in a way, again, that's practical and applicable to their specific problem. (Broker 26)</p> <p>You typically do a mid-cycle check-in, make sure everyone's still on the right page, make sure the programs are working the way they should, make sure everyone's progress monitoring and things like that. And then at the end of each cycle, you kind of have your big meeting. (Practitioner 24)</p> <p>I do a lot of evaluation...in my evaluations I try to always, again, balance the rigor with also the utility to the client and trying to make sure that it's – that there's always a strong formative component in the work and always really trying to provide input so that they can modify and improve their program as they're going along. (26B) So you can now do your own little, informal evaluation along the way and affirming what the reports might say as you go out and talk to teachers and schools who might have had similar experience. (Broker 1))</p> |
| <p><b>Purpose and Motivation</b></p> | <p><b>Issue/program Advocacy</b><br/> [Program] that focused on getting disadvantaged students ready for post-secondary work. [Program] is now in 80 high schools in [state].<br/> 'there's some mission driven pieces to the work which is you've got a director who really wants to make - put [state] on the map in terms of its capacity to house schools, deal with assessment (Broker 8)</p> <p><b>Building capacity</b><br/> 'what it means to us is making sure that all the different education stakeholders have good information to make the decisions they're making. (Broker 13)<br/> I try very hard never to implement something if I don't know that is not research-based, because I want to model what I think administrators in schools should be doing all of the time. (Broker 2)</p>   |

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|                                       | <b>Connecting research to practice</b> | So, our overall mission has and remains to really do this translation of research to practice. And so what we try to do is do work that is really important to practitioners, so that answers kind of hard – those hard – hard and important questions that people wanna know the answers to and do it in a way that's rigorous, but also really kind of collaborative. (Broker 26) |  |
|                                       | <b>Responsiveness-Innovation</b>       | So [organization] is a private independent foundation. We're located in [city] but we work across that geography that I just described. And I would say our focus and our goal is really to invest in great ideas and the people who power them across this region. (Broker 1)  |  |
| <b>Organizational characteristics</b> | <b>Organizational type</b>             | Government  | <p>[Who is most influential in connecting research and practice?]: The who is just – well, it would be the state. I think it would be the state, and it would probably be the superintendent and the board of education. It's the hierarchy of your school district in combination with the SEA, the state education agency. Because, I mean, that's really where those decisions are made. Way above my pay grade. (Practitioner 2)</p> <p>I think there is some good stuff there, I know they did a search for us, they didn't actually write a study but they did a, they [REL] did do a literature review for us... (Practitioner 8)</p> |
|                                       |  | Non-profit  | <p>So we do have a Board of Directors because we function much more like a newspaper than a non-profit. In addition to being the CEO, I'm the editor-in-chief and I make all the decisions regarding content proof that we have journalistic independence (Broker 13)</p> <p>So our organization is a non-profit, so we are mission based and mission driven (Broker 5)</p>  |
|                                       |  | For-profit  | <p>Like recent studies have shown that the current textbooks don't even really take advantage of for teacher training of findings that of good practices that have been shown in the cognitive and developmental sciences, so there's kind of a disconnect there. Because there's always the making money and getting things there. (Researcher 17)</p>  |
|                                       |  | Membership/network driven   | <p>Now they had a different model and so their model was they asked for member school districts to join the membership, the in-member joining fee was \$25,000. But for that they had sort of unlimited access to researchers and people they help write surveys and it was sort of like service cost if you will. (Broker 6)</p>  |

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|                |                  | Structural location within/between research and practice communities  | <p><i>Within research community:</i> the institute began originally as an offshoot of [college] as a way to support research with the [college] (Broker 19)</p> <p><i>Within the practice community:</i> Well again, the district has been really good with providing us with stuff [research materials/products] (Practitioner 18)</p> <p><i>In between:</i>CEC does it pretty well. So CEC has three or four different initiatives that share and translate their research and CEC is a little bit more critical so a lot of their practices they'll, I forget what its called, but they have different ratings for practices. So things like cooperative learning, no labels, use with confidence, use with caution, buyer beware, kinds of, I forget exactly what those ratings are but sorts of things like co-teaching, highly popular practice they've labelled that as use with caution. Because the research and the practice don't necessarily line up. (Researcher 15)</p> |  |
|                |                  | Capacity and resources  | Size  | Because I mean in some cases we look at priorities and we call out to the competition by forming a consortium you should take little less that is fine. You're still in the game and you're in the front and center. Other times we basically partner on something and we know we can take because we have the that strength and we're able to go after it. (Researcher 27)  |
|                |                  |   | Funding   | Well, I think what we need is, I need to say we need – we need people who have lots of experience at the upper levels of school systems to work with us in getting school systems to buy in to something like the [program]. I don't know – the only place we've been able to get any money, we have – we just got a grant from [agency] to do this in [state]. It's like \$300,000 but I think we can – we can probably have some impact.(Researcher 2) |
|                |                  |   | Experience  | I was so comfortable in schools I started collecting members to bring into [university] and to say hey, I'm a school person, I think this is really going to be valuable and believe me because I'm one of you. And that made a huge difference. I was believable... (Broker 6)  |
|                |                  |   | Skills  | So to have the capacity to be a convener and the capacity both in terms of the physical space, but also in terms of the acceptance from those who might need a convening space, that's a huge part of what we do. (Broker 19)  |
| Directionality | Target community | Yes, and I'll tell you what because they don't always have the time to find the research and I'll give you an example. It's that one of the districts I'm working with now the teachers, it's a lot of white teachers, with a large minority population and they really don't know how to work children of color. And so what does the research say? ... They don't have the time to go and really research what the strategies or the techniques. (Broker 3) |   |  |
|                | To practice      | his idea for [organization] was a reciprocal relationship, where research fed into school and community development, but that the applied technical assistance work should feed into a research framework and agenda. (Broker 7)  |   |  |

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|                           | <b>To research</b>                  | None found  |
| <b>What gets brokered</b> | <b>Culture/ environment</b>         | So that's often what we are not, I want to say, fighting against but we are trying to create a more nuance culture of research consumers among all of these different constituents, and there is signs of progress. (Broker 19)   |
|                           | <b>Products</b>                     | <p>We provide technical assistance on-site and as well as webinars and other supports, such as briefs and workbooks and those types of things that can be used by practitioners in the field. (Broker 27)</p> <p>People say, oh, [organization is] so good about building decks on specific topics and compiling the research on things, or oh, yeah, I refer to your At A Glance publication all the time, or I've used your brief for such and such topic. (Broker 12)</p> <p>Yeah the PD and the book, it's really written for teachers to use so we write practitioner articles and that's all very well and good, I mean we all might not read them but it's a pretty big leap to go from an article about something to actually using it takes a lot of initiative on the part of the teachers. So I'm not really taking that as that much impact (Researcher 18)</p> |
|                           | <b>PD</b>                           | It's, there's a lot of things to learn how to do as an instructor to make it work, so we have some sense of the range of, the amount of professional development that's needed for teachers with varying levels of existing expertise and knowledge and some instructors require quite a bit of support. So the professional development is really important. (Researcher 18)   |
|                           | <b>Relationship s/ partnerships</b> | <p>...it was intended to be sort of a one stop shop to a nexus point that people could come to through the schools to get access to research and by the yet turnaround that researchers at the university in particular in the college could share their research out with the schools and it was to be that kind of brokering relationship between the two entities. (Broker 6)</p> <p>As a foundation, much of our resources are around funding, connecting people, providing information and connecting information across different sectors, different groups of communities. (Broker 1)</p>  |

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|                                     | <b>Skills/capacity/<br/>strategies</b>   | <p>'we're being really strategic about – thinking about what are problem as a practice and how would we approach them and document those – around the activities that we think are addressing problems of practice. And do that in a way with good research practices, like what's your theory of change here, right? And really kind of tease that apart and get smart about what it is you're studying, I think is really important. And I think – this is not really answering your question, but I've always sort of had a bias that if we don't do that, then we may just continue doing practices that don't work and not understand why, and to help other people continue to do that, too. (Broker 21)</p> <p>And then also where possible, I really press teachers to gather data. So I think one of the things about teaching that it's easy to fall into, and I know I did it too as a K-through-12 teacher is teachers fall into the practice of just going on instinct or their impression of what's happening in the classroom and not using actual data to drive their decision-making. So just going by – well, the students seem to get what I was saying today, so I'm just going to move on, without really looking at data to ensure that that impression is actually grounded in reality. (Broker 2)</p>   |                      |  |                                     |  |                              |  |                |   |
| <b>Challenges</b>                   | <b>Internal</b>  | <table border="1"> <tr> <td data-bbox="331 505 604 732">Scaling/prioritizing</td> <td data-bbox="604 505 1896 732"> <p>' I get that we also need to think about sort of – are there ways of doing it more effectively on a broad scale that doesn't require sort of that one-to-one touch? And it is something I've kinda been playing around with in my mind – like are there ways of making the research more accessible through technology? So more – and I haven't gotten there yet – but it's – making the policy briefs more interactive, for example, so that people can go in and go in more depth. (Broker 26)</p> <p>We don't want to expand so much that we get into areas where we don't have expertise or staffing to support it, but we also want to be responsive enough so they continue to rely on us to help them with things like that. (Broker 19)</p> </td> </tr> <tr> <td data-bbox="331 732 604 927">Inadequate resources (incl funding)</td> <td data-bbox="604 732 1896 927"> <p>[What would you or your institute need to better connect research and practice?] Funding. I mean, that's the bottom line. We maximize our funding on the intellectual end of things. So we have support staff but it's relatively skeletal based on the scale of what we do. We don't have a huge communications department for instance. If I'm converting one of our research papers into a series of publicly digestible memos or fine presenting at the legislature, I'm doing that work and that's fine but it means we don't really have the funding to support the quality work we want to do and the operational support that would make our dissemination and our impact even broader. (Broker 19)</p> </td> </tr> <tr> <td data-bbox="331 927 604 1235">Difficult skill set required</td> <td data-bbox="604 927 1896 1235"> <p>'It's still really hard. I mean, I still have a foot in that research world when I'm publishing in the caveat, caveat conclusion sort of way, and I think that way. So it's really hard sometimes to just say, here is my conclusion, you know, our superintendent will ask for the one on researcher answer, which is don't give me the other hand and just tell me reason... and so I'm getting better at it, but I think I've been in this district now for almost 10 years and it's still hard. (Broker 9)</p> <p>Until they've have some real experience working in schools they don't know the entity of schools. You just don't know how hard they are to work in and their dynamics until you either live the work, lived it as a teacher or spent some time. And I can't imagine any organization trying to set something up where they want to be a broker relationship with schools and universities without having at the core people who know schools as organizations and how they function. (Broker 6)</p> </td> </tr> <tr> <td data-bbox="331 1235 604 1395">Building trust</td> <td data-bbox="604 1235 1896 1395"> <p>They wanted to make sure that we were neutral or unbiased enough that they could count on us to do good work for them just like we had for the previous administration and that we weren't just the retainer researchers for the previous administration. So maintaining trust in an environment where the players change a lot is the most challenging piece. (Broker 19)</p> </td> </tr> </table> | Scaling/prioritizing | <p>' I get that we also need to think about sort of – are there ways of doing it more effectively on a broad scale that doesn't require sort of that one-to-one touch? And it is something I've kinda been playing around with in my mind – like are there ways of making the research more accessible through technology? So more – and I haven't gotten there yet – but it's – making the policy briefs more interactive, for example, so that people can go in and go in more depth. (Broker 26)</p> <p>We don't want to expand so much that we get into areas where we don't have expertise or staffing to support it, but we also want to be responsive enough so they continue to rely on us to help them with things like that. (Broker 19)</p> | Inadequate resources (incl funding) | <p>[What would you or your institute need to better connect research and practice?] Funding. I mean, that's the bottom line. We maximize our funding on the intellectual end of things. So we have support staff but it's relatively skeletal based on the scale of what we do. We don't have a huge communications department for instance. If I'm converting one of our research papers into a series of publicly digestible memos or fine presenting at the legislature, I'm doing that work and that's fine but it means we don't really have the funding to support the quality work we want to do and the operational support that would make our dissemination and our impact even broader. (Broker 19)</p> | Difficult skill set required | <p>'It's still really hard. I mean, I still have a foot in that research world when I'm publishing in the caveat, caveat conclusion sort of way, and I think that way. So it's really hard sometimes to just say, here is my conclusion, you know, our superintendent will ask for the one on researcher answer, which is don't give me the other hand and just tell me reason... and so I'm getting better at it, but I think I've been in this district now for almost 10 years and it's still hard. (Broker 9)</p> <p>Until they've have some real experience working in schools they don't know the entity of schools. You just don't know how hard they are to work in and their dynamics until you either live the work, lived it as a teacher or spent some time. And I can't imagine any organization trying to set something up where they want to be a broker relationship with schools and universities without having at the core people who know schools as organizations and how they function. (Broker 6)</p> | Building trust | <p>They wanted to make sure that we were neutral or unbiased enough that they could count on us to do good work for them just like we had for the previous administration and that we weren't just the retainer researchers for the previous administration. So maintaining trust in an environment where the players change a lot is the most challenging piece. (Broker 19)</p> |
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|                              | Time                          | <p>They'll never going to have time to go and scour the journals, find an article that they think can make a difference in their lives, take that, create some PD for themselves and others that would teach what to do with it (Broker 13)</p> <p>So you know I guess I published you know set that book out about the college curriculum and tried to provide professional development to as many people as we could, I don't know how you make it, so there ought to be some while we're fantasizing, some organization takes it on and is willing to support by providing materials and people that do the training, a publisher or some organization like National Association Developmental Ed or something like that. Get connected with some organizational support to make things happen and to probably a principle constraint is my own time and effort. I mean I could imagine doing that but it's really a lot of work.</p> |
|                              | Need to engage in longer term | <p>that helps get people in the project but it doesn't help foster this sort of long-term, ongoing relationship that feeds the work back into the schools once it's done. So I realized that's something I have to do. (Researcher 24)</p> <p>I think if you don't have long-term relationship, it can be really hard to figure out if people are actually using the information that you have. (Broker 26)</p>  |
|                              | Sustainability                | <p>So I think that's something that matters to us, is researching the quality impact and sustainability of our own work, and engaging with researchers to do that because I think that's a story that will affect our business model, frankly. (Broker 22)</p>   |
| <b>External: K-12 driven</b> | Turnover                      | <p>I mean you're not the only person here I think that is kind of like I want to work in partnership with districts but I don't know how to create that except on a project base and then that person leaves and they go someplace else.(Researcher 24)</p>  |
|                              | System alignment              | <p>'I think that there are challenges sometimes when people who have more authority than our office does have an interest in the outcome and have the capacity to shape it, and we would argue for a certain approach but there may be a vested interest in a different approach or a different outcome. (Broker 9)</p> <p>'We have to piece that from all different areas because the education system from pre-K, K 12, and then [Inaudible 0:26:42], they're all in different parts, they live in different agencies. And different people take snapshots of different pieces along that spectrum. And there are information that could really inform our strategy needs but sometimes it's hard to get it. (Broker 1)</p>  |
|                              | Mistrust of outsiders         | <p>So, some of it depends on the trust that they have in me, so the opinion that they're gonna have of my work. (Broker 26)</p> <p>they just see me as an outsider who is bringing in some abstract information and she may or may not be successful in showing us how it's useful. (Broker 2)</p>   |

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|                                    | Value placed on research                                    | <p>the other bitter thing I have experienced is people that come out of their training programs with those skills and end up in a culture and they are in and where those skills aren't always valued. (Broker 8)</p> <p>I often hear teachers say that educational theory stuff isn't worth anything, right, like especially there is often – and the way that comes out often is, I didn't learn anything from the theory or I didn't get anything out of theory I had to learn in my pre-service education is what they'll say. (Broker 2)</p>  |
|                                    | Workload/overload   | <p>schools are just overloaded. I'm sure you're hearing this from everybody that the schools are just overburdened with everything and I think they see so many opportunities come that they participate in and they're sort of probably one shot deals or something else comes along they have to do and I think the teachers feel that the most. (Researcher 3)</p> <p>Too many voices, both in writing and verbal. That I think we maybe in some ways have crippled the practitioners, overloading them with information but not really because it's not something they can act on. (Broker 1)</p>  |
|                                    | Access to school/identifying key contacts                   | <p>More recently it's just been hard and I didn't really have a person there that I was working with and that's one thing I need to do a better job of with all of my districts is have that relationship with a person (Research 24)</p>  |
|                                    | Conflict among what asked to/supposed to/want to/need to do | <p>And really, the – and the questions that policy makers and practitioners wanted answers to were not the ones that the feds felt like could be answered with any sort of rigorous level of response. So, they were like, well, no, you can't actually ask that question – answer that question that they really wanna know the answer to. You have to reframe it and ask this other question that may be related in some way and that you can actually answer using research methodologies. And so, what would happen sometimes is that then, there wasn't an opportunity to provide information back to the policy makers and the practitioners because people got so caught up in only answering questions that could be answered with this really rigorous methodology. (26B)</p> |
| <b>External: Researcher driven</b> | Lack of mutual respect                                      | <p>So, I think there's some arrogance and unwillingness to listen on that end...So both those folks, I think, could benefit from sort of an increased respect for the other side. (Broker 26)</p>  |
|                                    | Faculty willingness   | <p>'it was almost impossible to do is to get college faculty to come into the same room and talk with school people. (Broker 6)</p> <p>I was believable and school people then and now are distrusting generally of getting involved in higher education research projects because they've been so, I think used and abused in the past. (6B)</p>  |
|                                    | Institutions are big and disconnected                       | <p>That was one of the things that we had lunches, the idea that universities are so difficult to access especially one that is big and difficult. (Broker 8)</p> <p>because one of the things that is just a big problem of the university is the large places, say well that's not us but you can go and you might get into five different phone people before you get any even answer at all if at all (Broker 6)</p>   |

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|                                  | Lack of skills, capacity           | You know it's important to me that my work impact policy that I've been pretty underwhelmed by that connection and that's partly probably because I haven't done enough to try to make more of an impact to be honest. I'm pretty busy. And by the time I get a paper published I'm pretty sick of it and I want to do something else.   |
| <b>External: Research driven</b> | Lack of accessibility/availability | ' I think is just access to the databases that – and access to the articles that we would need to do the research that way. So I think that challenge with it being harder to access academic content when you're not in school and at a university is real one.   |
|                                  | Need for translation               | I think part of it is that people in the research community and people in the practitioner community speak different languages. And so, there is a brokering that needs to happen – a translation that needs to happen around the language (Broker 26)<br>So there is a bit of a communication gap, but it just requires, okay, time out. Break this one down for me. (Broker 23)<br><br>Yeah, too distant. Speaking different languages, not concrete – research is not concrete enough for practitioners to use it. It's not readable enough for policy makers to use it. And there aren't too many of us in the middle translating and applying it to try to bring those two worlds together. (Broker 12)   |
|                                  | Packaging                          | His own preference would be to have educators grapple more with research based ideas, although he is sensitive to all of the demands that make that difficult. (Broker 7)  |
| <b>External: Gap driven</b>      | Differences in timelines           | the timeline – the people we need quick turnaround are legislators and funders. Everybody else is okay. Most folks who are in schools understand that it takes a while to understand results. Our State Department of Public Instruction has a better sense for how long things take. They are often under great pressure from the legislature to provide right now answers too. (Broker 19)<br><br>But schools have there's so many different considerations in schools than for us at the university. And often they really because they're busy, they don't want to, they want to have things that are good, that work that okay we can use now quickly. (Researcher 17)  |
|                                  | Differences in language            | She gave them one of her articles – AERJ, on CBOs – they took an hour to read 10 pages and couldn't understand it because of all of the theoretical language. She realized that she needed to communicate differently. (Researcher 26)<br><br>I think one of the things that I'm learning as I hear our evaluation and research folks talk, they use vocabulary – I don't really even know what you're talking about. You need to break it down for me. So there is a bit of a communication gap, but it just requires, okay, time out. Break this one down for me. What is that about? So I mean, they have a knowledge that I don't and vice versa. So just making those opportunities to like, okay, we're just gonna sit down and we're gonna talk about it. We even went as far as, we actually had a meeting to say, what do you actually do? Answer that question for me. And we did it for both teams. So that – and it was impactful. I mean, it sounds really simple, like you should know what we do, but when we actually dug in deep, we realized how much further we could go. (Broker 23) |