



THE CENTER FOR RESEARCH USE IN EDUCATION

Survey of Evidence in Education for Researchers (SEE-R) Descriptive and Technical Report

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February 2024

Acknowledgments

The authors would like to thank those who have contributed to this study.

This study would not have happened if it were not for the willingness of the educators and researchers who participated in the exploratory and cognitive interviews and the 532 researchers who participated in one of the pilots or completed the field trial of the *Survey of Evidence in Education for Researchers*.

Dr. Lynn Okagaki of the University of Delaware, Dr. Rebecca Maynard of the University of Pennsylvania, Dr. Karen Seashore Louis of the University of Minnesota, and Dr. Ronald Gallimore have advised this project throughout. We greatly appreciated the guidance provided by the Advisory Committee composed of Atnre Alleyne, Dr. Robert Granger, Ben Herold, Dr. Karen Kolsky, Dr. Jonathan Supovitz, Dr. Lisa Thomas, Dr. Elliot Weinbaum, and Dr. Russell Whitehurst.

Dr. Allison Karpyn, Layne Humphrey, Kalyn McDonough, and Dreisen Heath provided support in the beginning phases and assisted with developing the conceptual framework and pilot surveys.

Graduate students who have supported the activities of this project are Rui Wang, Joseph Tise, Scott Sheridan, Liu Liu, Cara Cuccuini-Harmon, and Hilary Mead.

Undergraduate students who have assisted us in the project activities are Samantha Lester, Rosymar Magana, Nikita Patlolla, Nicole Mejia, Connor Morgan, Darnelle Evans, William Cavin, Mia Mazal, Mia Siebold, and Angelina Calandruccio.

The research reported here was supported by the Institute of Education Sciences, U.S. Department of Education, through Grant R305C150017 to the University of Delaware. The opinions expressed are those of the authors and do not represent views of the Institute or the U.S. Department of Education.

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Executive Summary

Funded by the Institute of Education Sciences (IES) at the U.S. Department of Education, the Center for Research Use in Education (CRUE) is tasked with expanding the study of knowledge utilization in the K-12 system. In this technical report, CRUE presents the methodological design of a large-scale quantitative investigation of 1) the production and dissemination of research by researchers and 2) assumptions and perspectives held by researchers using the *Survey of Evidence in Education for Researchers (SEE-R)*. This report also provides descriptive results from the *SEE-R* Field Trial. Through developing and validating multiple survey measures, this study aims to deepen the field's understanding of the differences in the assumptions and perspectives between the research and practice communities, the core processes associated with research production, and the relational dimensions that influence research production and mobilization.

Survey Development and Administration

Development of the *SEE-R* began with interviews conducted with a small set of researchers, research brokers, and school-based practitioners, including principals and classroom teachers. CRUE researchers used information from the interviews to generate synthesis documents regarding key themes aligned with the study's framework. The documents were then used to draft an initial set of items. The items underwent refinement through multiple rounds of cognitive interviews with practitioners, brokers, and researchers. Items were evaluated for construct and content validity. A pilot test of the *SEE-R* was also conducted in the first quarter of 2018, with 57 people completing the pilot survey. After the feedback from the first pilot regarding the length of the survey, the survey was organized into two segments for the next round of piloting. Participants were recruited by Twitter messages and emails to listservs. The Twitter messages and emails provided a universal link to the survey. The survey platform alternated offering each of the survey segments to those who clicked the link to pilot the survey. This strategy resulted in 134 people taking one segment of the survey. This enabled CRUE to make improvements to the survey by assessing scale reliability. Results from the field

trial, in which 341 researchers completed at least one section of the *SEE-R*, are presented in this report.

Scaling and Reliability

A major component of the survey involves a battery of items intended to assess researchers' perceptions of how much the findings of their own studies are aligned with helping school-based practitioners use research in their work. Thus, we include survey items intended to measure how researchers designed, implemented, and disseminated their research in ways that could maximize the likelihood that the findings could be useful to practitioners (the "Depth of Production" section of the *SEE-R*). In "Perspectives and Assumptions About Research," we examined how researchers' perceptions and assumptions about research are aligned with (or different from) the perceptions and attitudes of school-based practitioners who were respondents to the *Survey of Evidence in Education for School-Based Practitioners (SEE-S)* (Farley-Ripple et al., 2022b). To better understand how researchers engage in research brokerage practices, including the types of materials they share and the activities they carry out to help research inform practice, a series of brokerage items were included that also made it possible to compare the responses of practitioners with the responses of participants in the *SEE-S*. Details about the development of the *SEE-R* and participant recruitment are included in Tables A1-A3 of the Technical Appendix; the details of the construction of the survey scales and their fit statistics are included in Table A4. The factor loadings for the manifest items for the scales are included in Appendix B.

Comparisons of Responses to Common Items on the SEE-R and SEE-S

We compared researchers' and practitioners' scores on survey scales that were composed of the same items used in both the *SEE-S* and the *SEE-R*. Table A4 includes information about the scales for which we could compare responses from practitioners and researchers. These comparisons aimed to examine how much respondents from these two communities were aligned in their perspectives and assumptions of research and their participation in brokerage activities. Data for the *SEE-S* was from more than 4,000 respondents to a national survey of

school-based practitioners. Details about the survey sample and the items used in the *SEE-S* can be found in the [SEE-S Technical Report](#) (May et al., 2022).

Introduction & Background

Despite multiple policy efforts to increase the use of research by education practitioners, significant barriers to research use by practitioners still exist. The *No Child Left Behind Act* (2001) and the *Education Sciences Reform Act* (2002) both included clear expectations for how research should inform decisions related to educational practice. However, it is still unclear how much these new expectations and tools (such as the What Works Clearinghouse) have caused schools to increase their use of evidence in decision-making. These policy efforts have been grounded in the assumption that there is a simple path from producing research to implementing evidence at the school or school district level. However, research and the products of research may not be implemented without additional effort to translate the products into usable materials for practitioners (Cordingley, 2008; Penuel et al., 2018).

This report aims to broadly portray how a sample of education researchers conduct research and disseminate research findings and how much their practices align with systemwide goals for making research relevant to practitioners. This report investigates eight key questions relevant to how researchers design and implement research that may inform educational practice and what connections researchers have with the community of school practitioners.

1. What kinds of research evidence did researchers produce in the research studies?
2. Who do researchers engage as participants in different stages of the research process?
3. How do researchers disseminate the findings of their research studies?
4. How do researchers intend for their findings to be used in different stages of the decision-making process?
5. What are researchers' perspectives and assumptions about research, and how do they compare to those of practitioners?
6. How do researchers connect with the community of educational practitioners?
7. How confident are researchers in our sample about engaging with practitioners and connecting research and practice?
8. To what degree do researchers in our sample engage in research brokerage activities?

The research presented here was conducted by the Center for Research Use in Education (CRUE; the Center), a knowledge utilization center funded by the Institute of Education Sciences. The Center seeks to expand the understanding of how to improve the relationship between research and practice in the K–12 educational space. In addition, CRUE aims to describe and disseminate information on practices that improve knowledge mobilization - or the active and intentional process of sharing knowledge among research production, mediation, and use contexts (Levin, 2013) - from the production of research to the uptake and application of strategies derived from research. This report documents descriptive results from the *Survey of Evidence in Education for Researchers* (SEE-R) and also includes a technical appendix that details aspects of the development, administration, and data analyses for this survey.

This report is one of a series of [research reports and journal articles](#) from the CRUE project. Other publications include an article about the conceptual framework, [Rethinking connections between research and practice in education: A conceptual framework](#) (Farley-Ripple et al., 2018), and a summary of the findings from the SEE-S, a companion document to this report [Survey of Evidence in Education for Schools \(SEE-S\) Descriptive Report](#) (Farley-Ripple et al., 2022). Please see the [CRUE website](#) for other publications and more details on the mission of the center, CRUE’s conceptual framework, and findings from other aspects of the center’s work.

Framing the Study

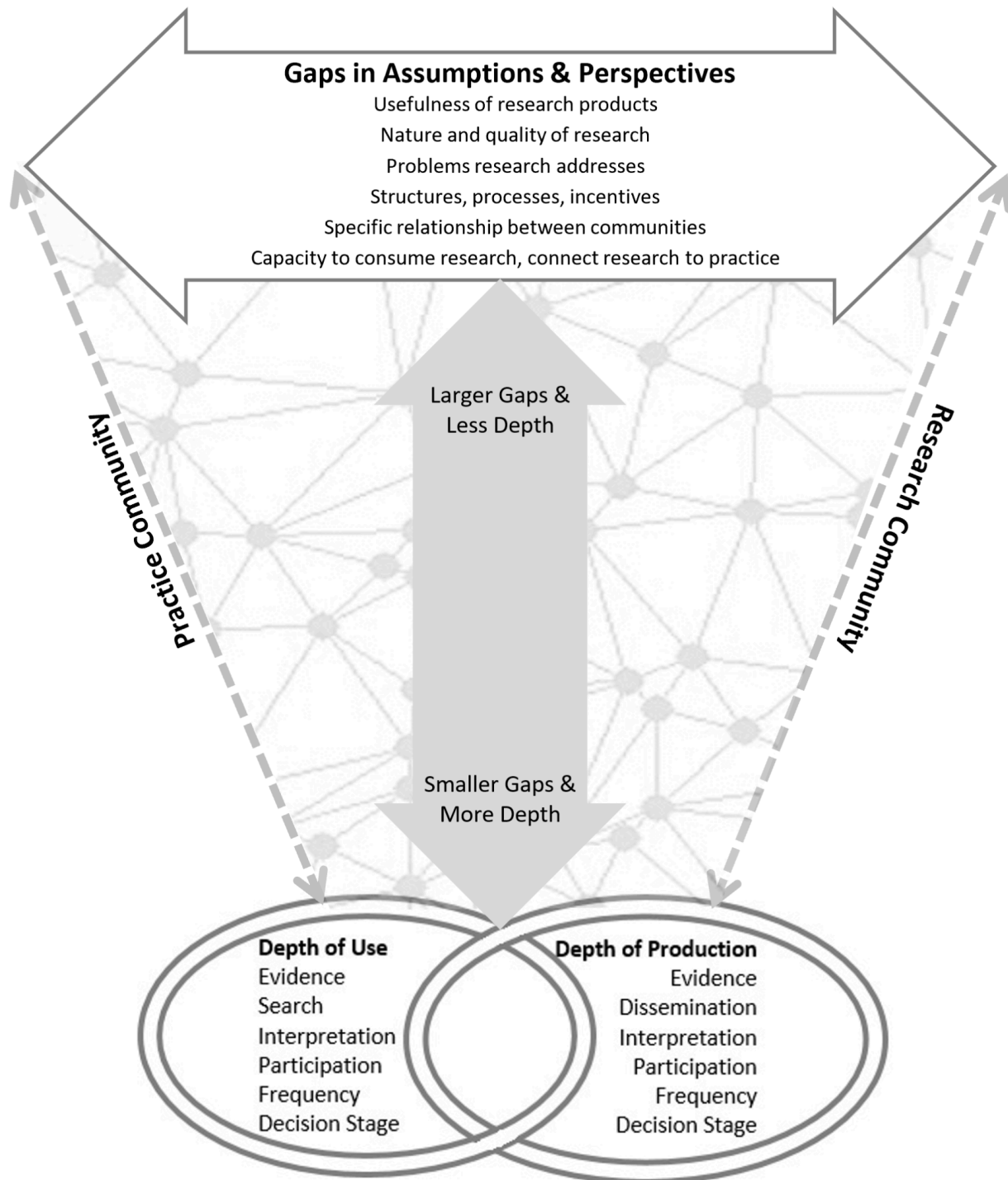
In this section we describe the conceptual framework that guided the development of the *Survey of Evidence in Education for Researchers* (SEE-R). The conceptual framework encompasses different activities that, together, can lead to greater alignment of the researcher and practitioner communities to promote greater depth of use of research.

Conceptual Framework

The work of the Center is guided by a conceptual framework (Figure 1) that links the practices and perspectives of both researcher and practitioner communities to more holistically understand and improve the relationship between research and practice. Figure 1 presents a detailed visualization of our conceptual framework. At the bottom of the figure are interrelated

processes associated with a) research use in decision-making and b) research production. Each process features a parallel set of dimensions, and we describe variability in those processes in terms of depth, a concept we explore elsewhere (Farley-Ripple et al., 2018). At the top of the model are six key assumptions and perspectives of the research and practice communities represented by the horizontal arrow. This arrow denotes the size and scope of potential gaps in those assumptions and perspectives between the research and practice communities, larger at the top and becoming smaller toward the bottom. Nested between the research and practice communities, the network image represents relational dimensions that support or constrain research use, including networks that support access to resources and knowledge brokerage within and between communities. We hypothesize that both perspectives and assumptions, as well as relational dimensions, influence research use and production, as indicated by the central vertical arrow. We hypothesize that where gaps between those communities are largest, we will see the least research use or research use that lacks “depth,” as indicated by the widening of the arrows as we move up. In addition to being influenced by differing perspectives and assumptions about research, these gaps may also be widened (or narrowed) by the characteristics of individuals and their organizations. In this report on CRUE’s survey of researchers, we leverage the conceptual framework to 1) focus on the “Gaps in Assumptions & Perspectives” from the perspective of researchers and 2) explore “Depth of Production” to examine what kinds of research is produced and the features of the research and how it is both developed by and shared with stakeholders. Below, we elaborate on the framework dimensions explored in this report.

Figure 1. *CRUE Conceptual Framework (Farley-Ripple et al., 2018)*



Depth of Production

Our construct of “Depth of Production” describes whether the production and dissemination of research evidence are relevant, systematic, and likely to generate improvements in policy and practice. Depth of Production acknowledges the complexity and multidimensionality of the research enterprise. Attending to this complexity, we focus on evidence, dissemination, interpretation, participation, frequency, and its intent for use in decision-making by policymakers and practitioners.

Evidence

The first dimension of Depth of Production, “Evidence,” is primarily concerned with scientific research and the quality and features of evidence produced to inform decision-making. This includes what research questions are asked, research design and methods, sample characteristics, and findings' internal and external validity. This dimension helps to describe the range of types of research evidence that may be available to support policy and practice.

Dissemination

Dissemination in our framework focuses on the nature and extent of how researchers publicize research findings in various formats, both traditional scholarly outlets and avenues that are more likely to find a practitioner audience. Dissemination is conceptualized as a continuum: on one end, researchers may expend limited effort to reach policy or practice audiences and focus on traditional outlets such as peer-reviewed academic journals (see Cooper et al., 2018). On the other end, researchers may utilize multiple strategies to mobilize findings beyond the research community and produce a wide range of resources for policy and practice. Different poles of this continuum are rewarded differently. Traditional dissemination practices (e.g., publishing in journals) for educational researchers may be more valued by institutions than dissemination that measurably affects educational practice (Fischman et al., 2018).

Interpretation

For evidence to impact decision-making, it must be interpreted and transformed into usable knowledge (Bertrand & Marsh, 2015; Coburn et al., 2009; Davies & Nutley, 2008). In research

production, this interpretation happens by constructing conclusions and implications (Beach et al., 2006). Researchers outside the education field have studied and problematized the construction of “implications for practice” (Bartunek & Rynes, 2010). The dimension of interpretation seeks how and the extent to which researchers interpret findings in ways that support their use in policy and practice.

Participation

Increased attention has been paid to how researchers engage policymakers and practitioners in all phases of the research process, assigning promise to models that bring the two communities into conversation with one another, such as research–practice partnerships (Coburn & Penuel, 2016) and design-based implementation research (LeMahieu et al., 2017). Participation relates to who participates in and informs research production and how they are involved (e.g., shaping research questions, conducting research, interpreting results, developing products, etc.). The participation dimension of Depth of Production captures the extent to which research remains exclusively the domain of researchers on one end or the extent to which research production engages inclusive, collaborative teams of researchers and other stakeholders on the other.

Frequency

In describing the depth of evidence production, Frequency is an indicator of the extent to which research production practices are typical and recurrent. Frequency thus captures the extent to which other dimensions of research production—Evidence, Dissemination, Interpretation, and so on—are consistently enacted or, at the organizational level, are institutionalized practices for researchers.

Intended Uses in Decision-Making

Research can inform different aspects or stages of decision-making in policy or practice. Theories on research use, for example, suggest that different types of evidence may be preferred or more useful at different points (Bass, 1983; Farley-Ripple, 2008), such as problem framing or identification of a potential solution (Coburn et al., 2009) or selecting or designing solutions to local challenges (Penuel et al., 2017). Researchers may design or disseminate

research to inform policy or practice in particular ways, which are captured in this dimension of research production.

Gaps in Assumptions & Perspectives about Research

The horizontal arrow in Figure 1 represents our approach to understanding and describing the factors that influence research use in school-based decisions. Dunn's (1980) five categories of culture grounds our work. Here, we look to describe the differences in assumptions and perspectives between the research and practice community across five dimensions: (1) the usefulness of research products, (2) the nature and quality of research, (3) problems that research addresses, (4) the structures, processes, and incentives surrounding research production and use, and (5) the relationships between communities.

Characteristics of research products

One potential gap between research and practice relates to different characteristics of research products that practitioners and researchers believe to be useful for informing practice. Prior research suggests that the characteristics and type of research products influence their use in schools (Corcoran et al., 2001; Cordingley, 2008; Penuel et al., 2018; West & Rhoton, 1994). The usefulness dimension of the gap represents the degree to which the characteristics of products produced and valued by researchers align with those preferred by practitioners. Therefore, this survey section includes factors that may make it easier for research to be accessed and other factors that assist with understanding results or applying them to practice.

Nature and quality of research

Findings from prior work suggest that practitioners and researchers may value the characteristics of research differently, and these different belief systems may affect perceptions of what makes research trustworthy or credible. Credible research is well-grounded in the scientific literature and uses methods that increase the ability to make causal inferences between some intervention and an outcome. The implementation of the What Works Clearinghouse, in which studies are evaluated so that practitioners can use high-quality evidence in decision-making, is a sign that credible research is available for practitioners to use

in selecting strategies. While the research community often places greater emphasis on internal validity for causal inference, practitioners often prefer evidence based on work from organizations similar to their own, suggesting greater weight on external validity (i.e., other schools and districts; Corcoran et al., 2001; Finnigan et al., 2012; Supovitz & Klein, 2003). Educational researchers have less often focused on replicating previous research studies, but recently, some researchers have adopted practices such as pre-registration of studies and data sharing to increase the credibility of research and trustworthiness (Fleming et al., 2021; Makel et al., 2019). Still, assessing the “quality” of research may require not just assessing reproducibility or internal validity but also whether other stakeholders have been able to inform the research process to increase the likelihood that research will inform practice (Ming & Goldenberg, 2021). The extent to which researcher standards and practitioner preferences are similar or different is an indication of the nature/quality dimension of the gap.

Problems that research addresses

Prior literature frequently notes that key challenges for improving research use relate to the timeliness and relevance of research. Currently, no standardized mechanism exists for practitioners to communicate their needs to the research community systematically (National Research Council, 2012). In surveying practitioners with the *Survey of Evidence in Education for Schools (SEE-S)* (May et al., 2018), Farley-Ripple and colleagues (2020) were able to analyze data collected to identify the types of problems schools address in improvement efforts and the decisions schools make or the actions they take to address those problems. Further, the research and practice communities operate on very different timelines, where the pace of research is often slow compared to the fast-paced nature of working in schools (Penuel et al., 2017). This dimension relates to researchers’ perceptions about the extent to which research produced is timely and relevant to the current problems confronting schools (Maynard, 2006; Penuel et al., 2017).

Structures, processes, and incentives

This dimension of the gap is concerned with the context in which researchers operate and what influences researchers to produce certain kinds of research and engage in different

dissemination strategies (Burkhardt & Schoenfeld, 2003; Cooper et al., 2018; Fischman et al., 2018; Landry et al., 2001; Sá et al., 2011). For example, a researcher working in an organization emphasizing work connecting research to practice in promotion and/or tenure decisions or allocating time for communicating with practitioners may be more likely to produce certain types of research. Therefore, researchers' opportunity to produce certain types of research evidence or engage in certain dissemination activities may be related to the presence and use of particular structures, procedures, routines, and supports (Fischman et al., 2018; Zuiker et al., 2019).

Networks and Research Brokerage

Depicted as network ties in our framework (see Figure 1), research use may also be considered a function of the relationship between policy and practice communities and the research community. Thus, the survey includes items to assess the types of connections that researchers have with the practitioner community or those who enable access to practitioners. Relationships are conceptualized as user-pulled (e.g., active search by users), producer-pushed (e.g., dissemination), or exchanges (e.g., interaction during key decision-making or research processes; Levin, 2011). The nature and extent of connections and interactions between individuals across the two communities is an indicator of the relationship dimension—specifically, whether practitioners know how to connect with researchers and desire those connections (Penuel et al., 2016; Penuel et al., 2017), or whether researchers know how to connect with practitioners, and desire those connections (Cooper et al., 2018; Fischman et al., 2018). Additionally, researchers and practitioners may have direct connections and interact with not just individuals in the other community but organizations and media outlets supporting and encouraging connections between the research and practice communities (Malin & Paralkar, 2017; Malin et al., 2019).

Capacity to Connect with Practitioners

Our framework also conceptualizes researchers' capacity to connect with practitioners as a critical component to supporting research use. Researchers may lack confidence in their abilities to connect with practitioners around research and may lack skills to disseminate to practitioner

audiences. Little research has explored how researchers are prepared for engagement and knowledge mobilization work with policymakers or practitioners (for examples of studies that have explored this topic, see Cooper et al., 2018; Fischman et al., 2018; Zuiker et al., 2019); this dimension, therefore, explores researchers' training and experiences related to engagement with how practice may increase overall perceptions of capacity in this area.

Brokering Practices

We also recognize the importance of brokers in facilitating connections between research and practice. Brokers are seen as “linking mechanisms” and include a variety of actors such as funding organizations, advocacy groups, professional associations, and individuals who operate in brokering roles (Malin et al., 2018; Neal et al., 2015; Scott et al., 2014). This framework dimension includes a focus on researchers' engagement with brokers to support the movement of research into policy and practice communities. For example, researchers may interact with media and reporters to disseminate research findings (Gesualdo et al., 2020) or find and work with intermediary organizations to leverage existing resources (e.g., events, networks) and facilitate communication with education practitioners (Campbell et al., 2017; Cooper 2014; Rycroft-Smith, 2022). Researchers may encounter barriers to serving as brokers (Cooper et al., 2018; Fischman et al., 2018; Sá et al., 2011), and research institutions may serve as brokers by being involved in networks (Campbell et al., 2017; Hopkins et al., 2018; MacGregor & Phipps, 2020).

Survey Methods

The conceptual framework presented earlier is operationalized through the *SEE-S* and *SEE-R*, which are a pair of instruments to capture both researcher and practitioner perspectives on research use (Figure 2). We focus in this report on the *SEE-R*. The *SEE-S* and *SEE-R* surveys were developed using a multi-phase approach, utilizing qualitative and quantitative methods to produce reliable and valid survey measures. Our development process included drafting blueprints of various instruments utilizing our framework, exploratory interviews, and multiple rounds of cognitive interviews and pilot testing. Preliminary psychometric evaluation of items intended to represent specific constructs was also conducted after each piloting stage. The final survey includes six sections that correspond to our conceptual framework and the research questions underlying this report (Figure 2). Items are primarily closed-ended and ask respondents to indicate agreement, frequency, or degree of importance of activities, conditions, experiences, and beliefs aligned to the dimensions of our conceptual framework. Open-ended items ask respondents to convey specific details about their work, including organizational decisions, pieces of evidence, members of their networks, and so on. Additional details about specific items, survey development, and the instrument's psychometric properties are available within the *SEE-R* Technical Appendix towards the end of this document.

It is important to note that the *SEE-R* survey, as administered during its field trial, focuses the items within the Depth of Production section of the survey on a single research study and includes only one respondent per study (i.e., each respondent reports on only one of their research studies), but the Depth of Use section of the *SEE-S* survey of school-based practitioners includes multiple respondents per school and covers multiple decisions in any given school. Therefore, we did not expect the *SEE-R* field trial data to produce an overall scale of Depth of Production score comparable to the school-level Depth of Use scale produced by the *SEE-S* (see May et al., 2022). Validation of a *SEE-R* Depth of Production scale would require collecting and aggregating data on multiple research studies conducted by the same researcher(s) or research organization. This is an objective for future research.

Figure 2. Overview of the Survey of Evidence in Education



Data and Analytic Methods

The *SEE-R* was administered online to a sample of education researchers whose work focused on K-12 education policy and practice in the United States. Respondents also have a doctoral degree or have been a principal investigator on a federally-funded research grant. The sample was drawn from different groups of researchers to ensure that the data reflects the knowledge and experience of a variety of educational researchers focused on K-12 education policy or practice.

Population

The population sampled in this study includes any researcher whose work focused on K-12 education policy and practice in the United States, although we were particularly interested in university-based researchers (e.g., faculty) and other researchers whose work has been funded by the US Department of Education's Institute of Education Sciences (IES) and the National Science Foundation (NSF). The sample was drawn from

- A. "Education" academic departments (e.g., Schools of Education) and Education Research Centers at research universities with Very High Research Activity (R1).
- B. Researchers funded by the following branches of the Institute of Education Science (IES)
 - o National Center for Education Research (NCER)
 - o National Center for Special Education Research (NCSER)
 - o National Center for Educational Evaluation and Regional Assistance (NCEE)
- C. Researchers funded by the National Science Foundation (NSF) through the Discovery Research PreK-12 program (DRK-12) or the Innovative Technology Experiences for Students and Teachers program (ITEST).
- D. Regional Education Laboratories (REL) funded by the Institute of Education Sciences (IES)
- E. An "augmentation sample" that includes 48 additional researchers who were identified as sources of research evidence by practitioners completing the *Survey of Evidence in Education for Schools*.

For details of sampling procedures to yield representative data for the *SEE-R*, see Technical Appendix A. The *SEE-R* was administered to education researchers from May 2020 through April 2021 in waves. A total of 1,113 education researchers received an email describing the study's goals. The emails were unique to each of the five groups of researchers in the sample. The email sent to the researchers funded by IES, funded by NSF, and associated with a REL included the name of a specific funded project to describe as the survey was completed. The email included a unique link to informed consent, followed by the *SEE-R*. Surveys were administered via the Qualtrics online survey platform. Each participant was given four weeks to complete the survey. Weekly reminders were sent to non-respondents and partial completers.

Table 1. Response Rate by Sub-Sample

Sample	N survey invitations	Survey Window	N responded	Response Rate
Researchers at “Education” academic departments and Education Research Centers at R1 universities	351	May 2020 to October 2020	62	17.6%
IES-Funded Researchers	386	August 2020 to November 2020	187	48.4%
NSF-Funded Researchers	294	October 2020 to November 2020	49	16.6%
REL Researchers	34	January 2021 to February 2021	32	94.1%
Researchers in the Augmentation Sample	48	March 2021 to April 2021	11	22.9%
Total	1,113		341	30.6%

Analyses of the *SEE-R* field trial data involved several stages and various techniques for item analysis, scaling, and calculation of derived variables. Specific details of the methods used and the results of validity and reliability analyses are presented in the *SEE-R* Technical Appendix towards the end of this document. Most analyses presented within the main body of this report

involve the calculation of simple descriptive statistics for item responses (e.g., frequencies, percentages) and derived scales (e.g., means and standard deviations) that are displayed graphically via histograms, bar charts, and boxplots. The Technical Appendix describes the survey development, methods for item analyses and derived variables (Appendix A), Factor Loadings for Survey Scales (Appendix B), and Proportions of Network Ties in Researcher Networks (Appendix C).

Findings

A major focus of the *SEE-R* is measuring the types of research evidence produced and how, in turn, this research evidence becomes accessible to school-based practitioners, the construct we have previously referred to as depth of production. Several groups of items focused on the characteristics of the evidence produced by the research studies, how the research was intended to inform the decision-making process, the involvement of others in the research projects, dissemination strategies, and how researchers share research and support research use. Together, these items help to measure how much researchers were designing, implementing, and disseminating research that could be useful to the work of practitioners.

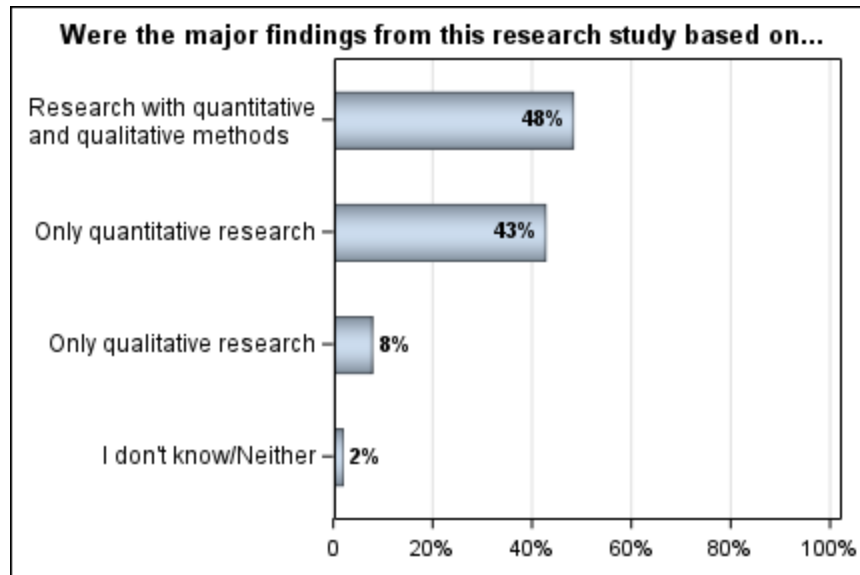
Q1. What kinds of research evidence did researchers produce in their research studies?

This section of the survey included items about the qualities of research evidence produced in the study that the researchers identified in an open-ended item at the beginning of the section. Researchers were asked to identify the different research methodologies, research samples, and analytic outcomes that constituted the major findings of their research studies.

Researchers tended to draw on both quantitative and qualitative methods for their research studies

In the *SEE-R*, 90% of researchers in our sample reported that their major findings were based on quantitative data, and 55.7% of researchers reported that their major findings were based on qualitative data (note, this was a “check all that apply” item). To understand these data further, we categorized researchers into whether the research they reported conducting was only quantitative research, only qualitative research, or both quantitative and qualitative research (see Figure 3). Nearly half of the researchers in our sample conducted research with quantitative and qualitative methods (48%), followed by only quantitative research (43%) and only qualitative research (8%).

Figure 3. *Types of Research Methods*



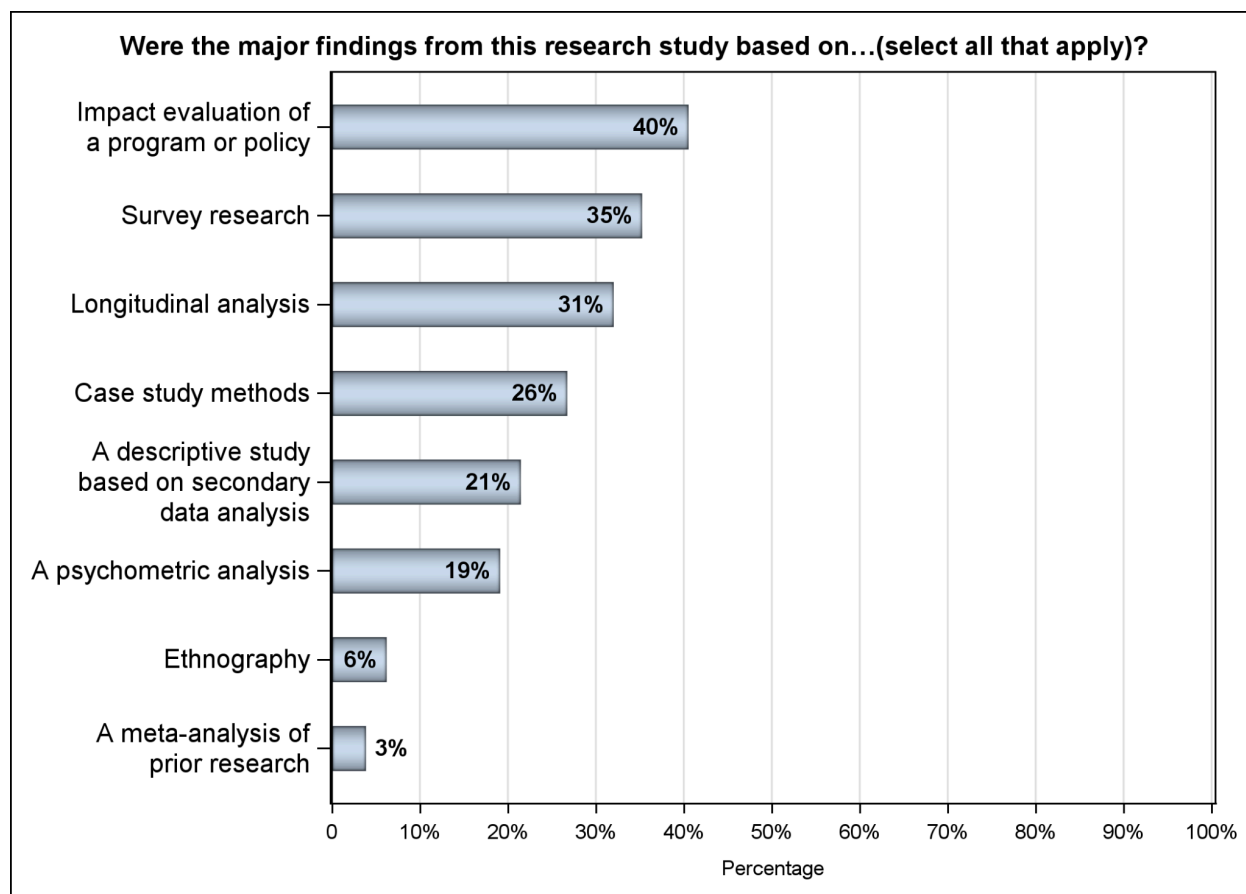
Note: $n = 341$; "I don't know/Neither" means the respondent did not use either method or did not remember the method used.

The prevalence of quantitative methodologies is not surprising considering the longstanding privilege of quantitative research methods, broadly and in education specifically (Caporaso, 1995; Pigott et al., 2021). However, quantitative methods have their own limitations. For example, emphasizing internal validity at the expense of external validity can result in research missing important information about the settings in which the phenomenon is being studied (Ming & Goldberg, 2021). The privilege of internal validity has been challenged over the last two decades with arguments that social science, particularly education research, is highly dependent on local context and knowledge. As Berliner (2002) asserted, "These huge context effects cause scientists great trouble in trying to understand school life. It is the reason that qualitative inquiry has become so important in educational research" (p. 20).

Many researchers are generating multiple-methods research with both quantitative and qualitative methods, which may have the benefit of not only demonstrating but also explaining relationships. However, the preference for quantitative methods among our sample persists, which is clear when comparing the "only quantitative" (43%) and "only qualitative" responses (8%).

Digging deeper into methods (see Figure 4), we found that researchers most frequently reported that their findings were based on an impact evaluation of a program or policy (40%).

Figure 4. Methodological Approaches of Research Studies

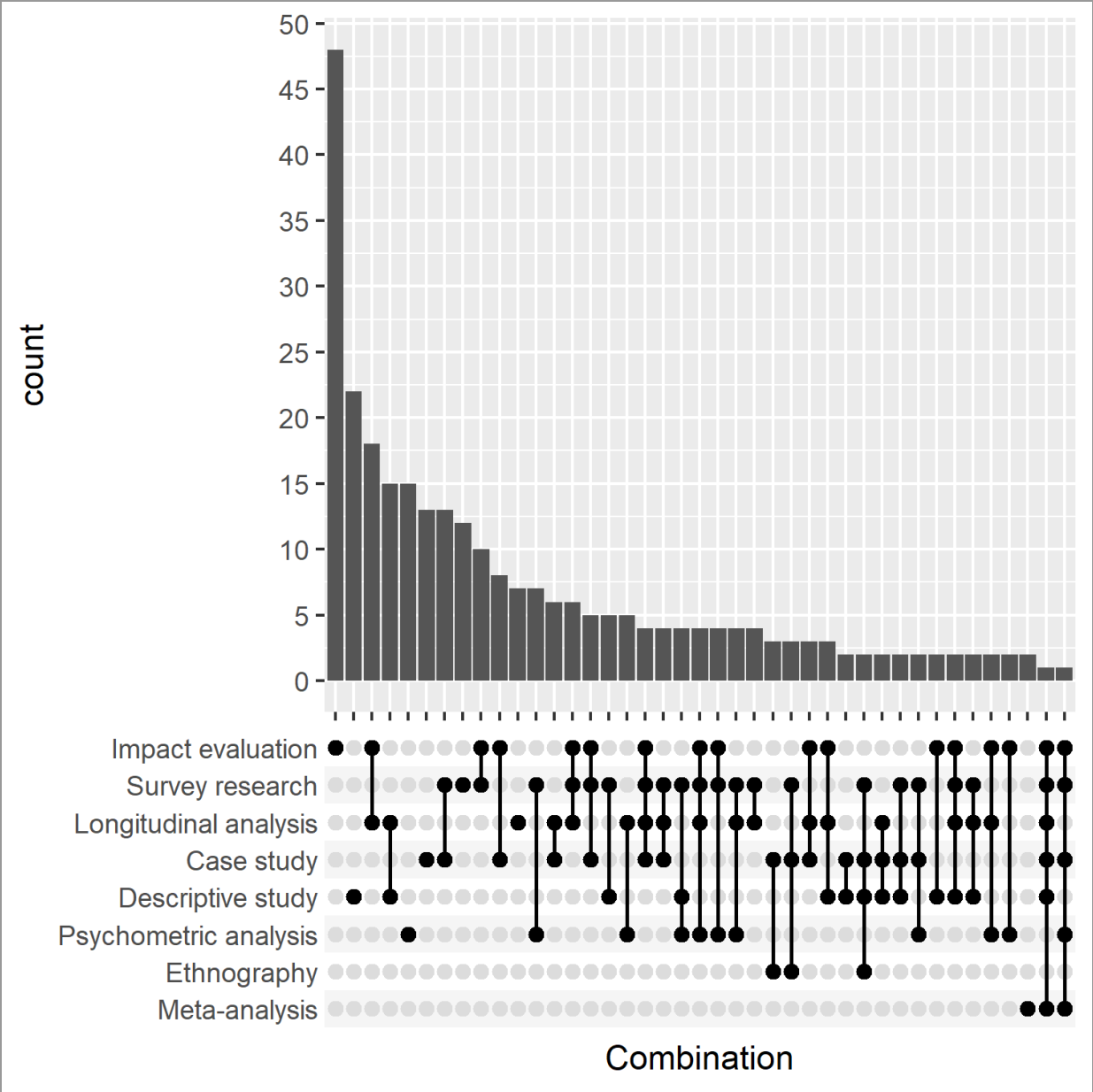


Note: $n = 341$; Respondents could select more than one answer; thus, percentages do not equal 100.

While this finding is not surprising given the mission of IES and the prevalence of IES-funded researchers in our sample, this finding is also consistent with prior literature, which suggests education research on “what works” has become more prevalent, acknowledging varied influences of policy demands and funder priorities (Farnsworth & Solomon, 2013; Feuer et al., 2002; Gorard, 2020; Gutiérrez & Penuel, 2014). Survey research (35%) and longitudinal analyses (31%) were also prevalent, and case study methods were used in about one-quarter of the studies reported.

We also found that 55% of respondents indicated that their research studies used more than one research methodology, confirming that educational researchers frequently use different methods to address research questions. Since researchers could select more than one kind of methodological approach, we examined the frequencies of different combinations of approaches (Figure 5). This analysis omitted 32 respondents who selected none of the 8 methodological items. To limit the size of the graph, we omitted combinations with very low frequencies; 90% of the resulting 309 respondents were retained for a final count of 279 respondents for this specific analysis. In general, only a handful of approaches were in the most frequent categories, and in the most frequent categories (where more than one approach was selected), distinct approaches such as impact evaluations or descriptive studies were often combined with “longitudinal analysis.” One of the most popular mixed approaches combined impact evaluations and descriptive studies (based on secondary data analyses), which may reflect policy priorities and efforts to build data systems for research use (Conaway et al., 2015; Farley-Ripple et al., 2017). The prevalent combination of longitudinal analysis and impact evaluations in our sample is consistent with the broad focus of educational effectiveness research on increasing student learning. Educational effectiveness research has seen significant progress in its methodological approaches in recent decades, leading to more accurate causal evaluations of programs and strategies (Cook & Cook, 2013; Creemers & Kyriakides, 2006; Gopalan et al., 2020). Thus, our findings may also be consistent with the adoption of these approaches for quantitative analysis of longitudinal data to evaluate the impacts of programs, strategies, and policies. But this also suggests that methodologies that describe processes or provide detailed accounts of teaching and learning and help practitioners to get “close up” views of how programs or interventions are used in schools (e.g., case studies and ethnographic research) are relatively uncommon, at least within our sample. Still, these findings alone do not address whether any of these research methodologies (or combinations of them) are well-suited for answering the most pressing questions from the policy and practice communities.

Figure 5. *Combinations of Methodological Approaches*

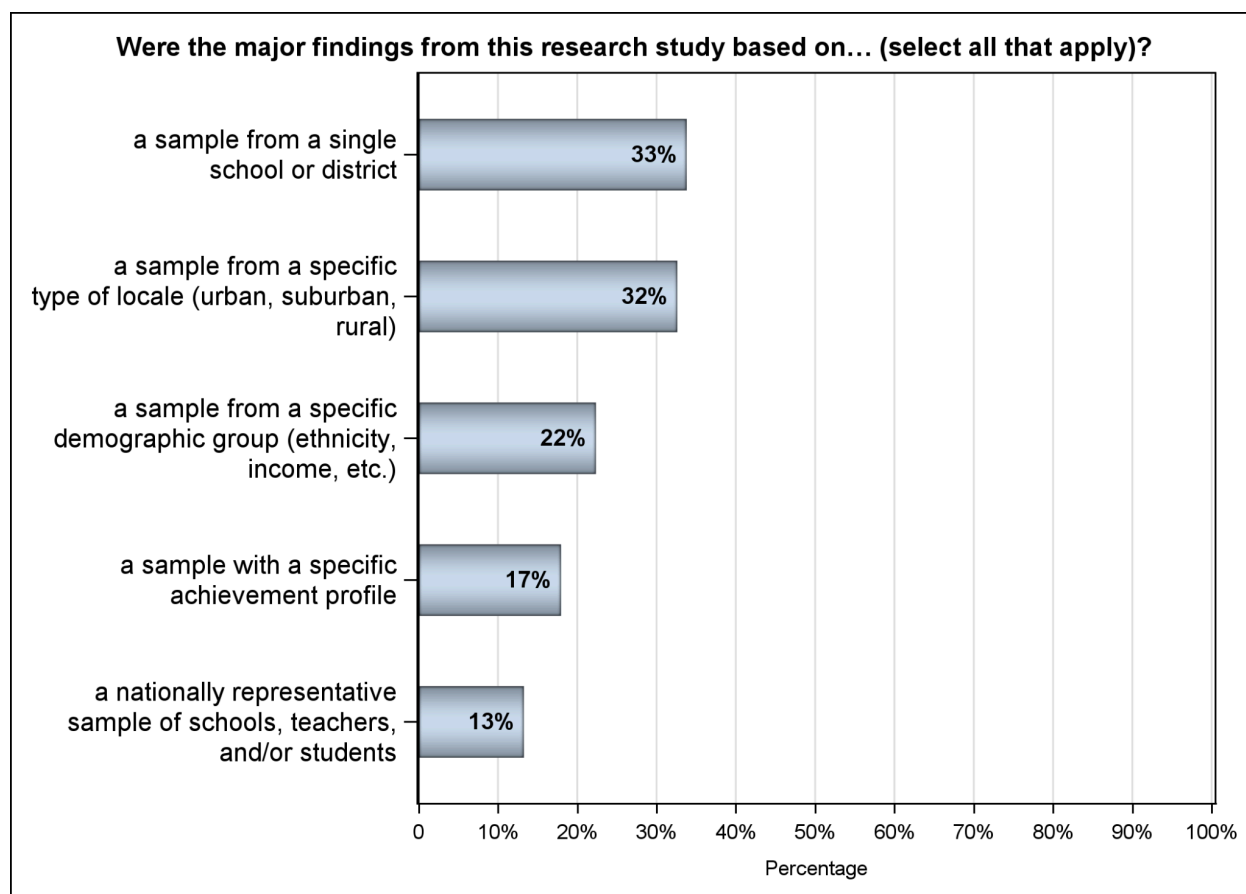


Note: $n = 279$.

Researchers tended to draw on local populations for their research studies rather than broadly representative samples

Understanding *to whom* findings are applicable is a critical consideration in producing usable and useful research. Figure 6 shows the percentage of researchers who reported that their major findings were based on different samples of teachers, students, schools/districts, locales, and demographic groups. The majority of researchers in our sample reported that the major findings from their studies were based on a sample from a single school or district (34%), followed by a sample from a specific type of locale (33%), a specific demographic group (22%) and a specific achievement profile (17%). Only 13% of researchers reported their findings were based on a nationally representative sample of schools, teachers, and/or students.

Figure 6. Sampling Frames of Research Studies



Note: $n = 341$. Respondents could select more than one answer; thus, percentages do not equal 100.

Researchers varied in their sampling frames but more often used local sampling frames than national ones. This is promising, given findings from our survey of practitioners and case studies (Farley-Ripple et al., 2022a, 2022b), which reveal that educators are concerned with whether research has been conducted in their context or a context similar to theirs.

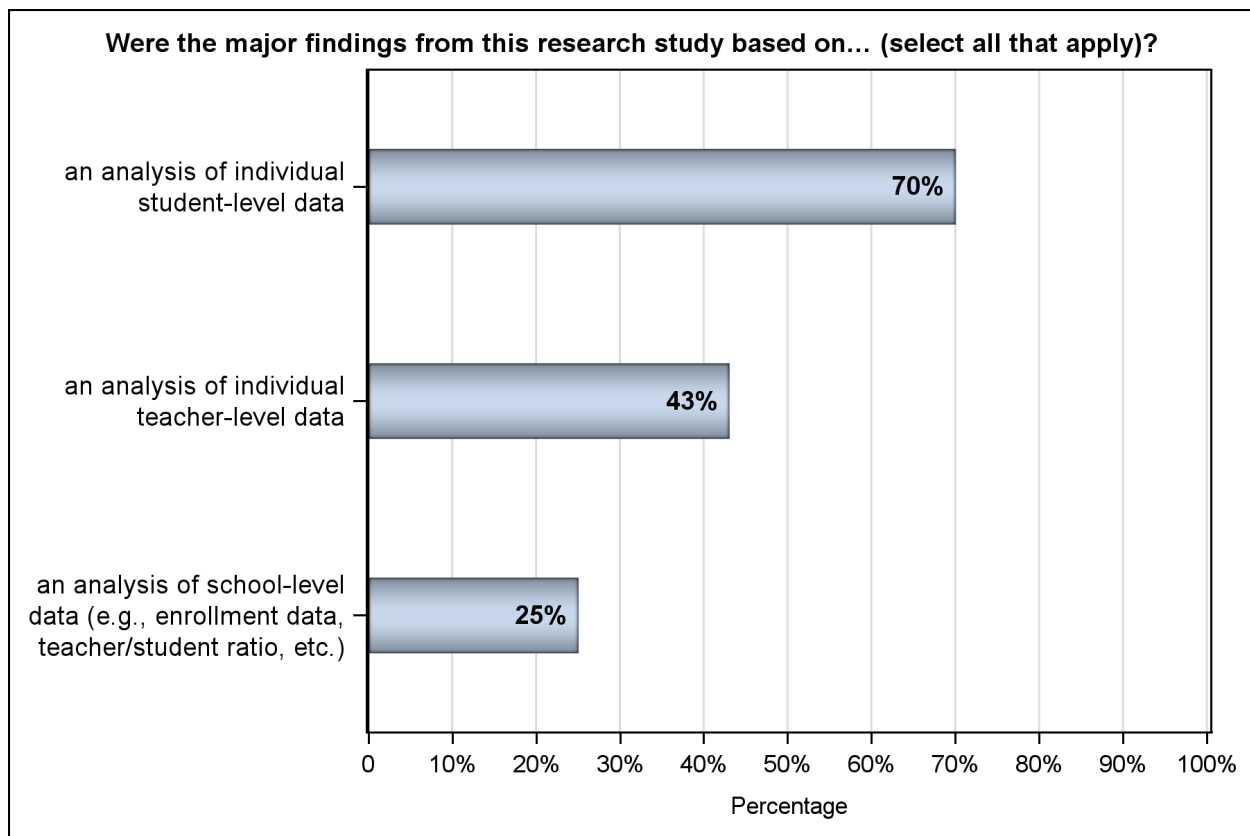
Interestingly, almost a third of respondents (n=104, 30.5%) did not select any of these types of samples, suggesting that the five categories in this survey item do not sufficiently capture the nature of generalizability in many studies. For example, many research studies seek to include multiple demographic groups to enhance generalizability, and many IES-funded projects involve schools from more than one school district or more than one locale to reach sample size goals. It is also important to acknowledge that broad generalizations and theories often fail in education due to the inability to account for the incredibly complex, multifaceted nature of the contexts in which educators exist (Berliner, 2002; Joyce & Cartwright, 2019). Results of the *SEE-S* and interview data from subsequent case studies make clear that, when selecting evidence, educators look for research conducted in schools and with student profiles similar to their own (Farley-Ripple et al., 2022b). Accordingly, we may have expected to see higher reports of studies with more specific samples, especially if researchers are generally aware of practitioner's preferences for locally-relevant samples. Future research could employ qualitative methods to better understand the types of samples education researchers rely on, how they construct those samples, and how they think about generalizability.

The research studies were often focused on analyses of student-level data

Recognizing that education researchers can select different units of analysis for their research studies (e.g., students, teachers, schools), we also asked researchers to indicate which levels of analysis they based their studies on. The results are included in Figure 7. Most researchers reported that their findings were based on analyses of individual student-level data. Focusing on students and student-level data is natural, given that practitioners and researchers alike are keenly interested in student outcomes. With the release of the Coleman Report (Coleman et al., 1966), the basis for evaluating schools shifted from a focus on inputs (e.g., resources, funding)

to outputs (e.g., student achievement, educator outcomes; Pigott et al., 2021), and federal agencies often prioritize funding accordingly. Furthermore, it was not uncommon for researchers to combine these different units of analysis, as 30.5% of the studies used both student- and teacher-level data. This shows that education researchers are trying to incorporate more information into their research studies by using data sources that reflect the system in which learning occurs. Collecting data from teachers and students can support more in-depth quantitative analysis, including multilevel models and mediation analyses to explore how teacher, classroom, and school factors can influence student outcomes.

Figure 7. Analytic Approaches of the Research Studies



Note: $n = 336$. Respondents could select more than one answer; thus, percentages do not equal 100.

Q2. Who do researchers engage as participants in stages of the research process?

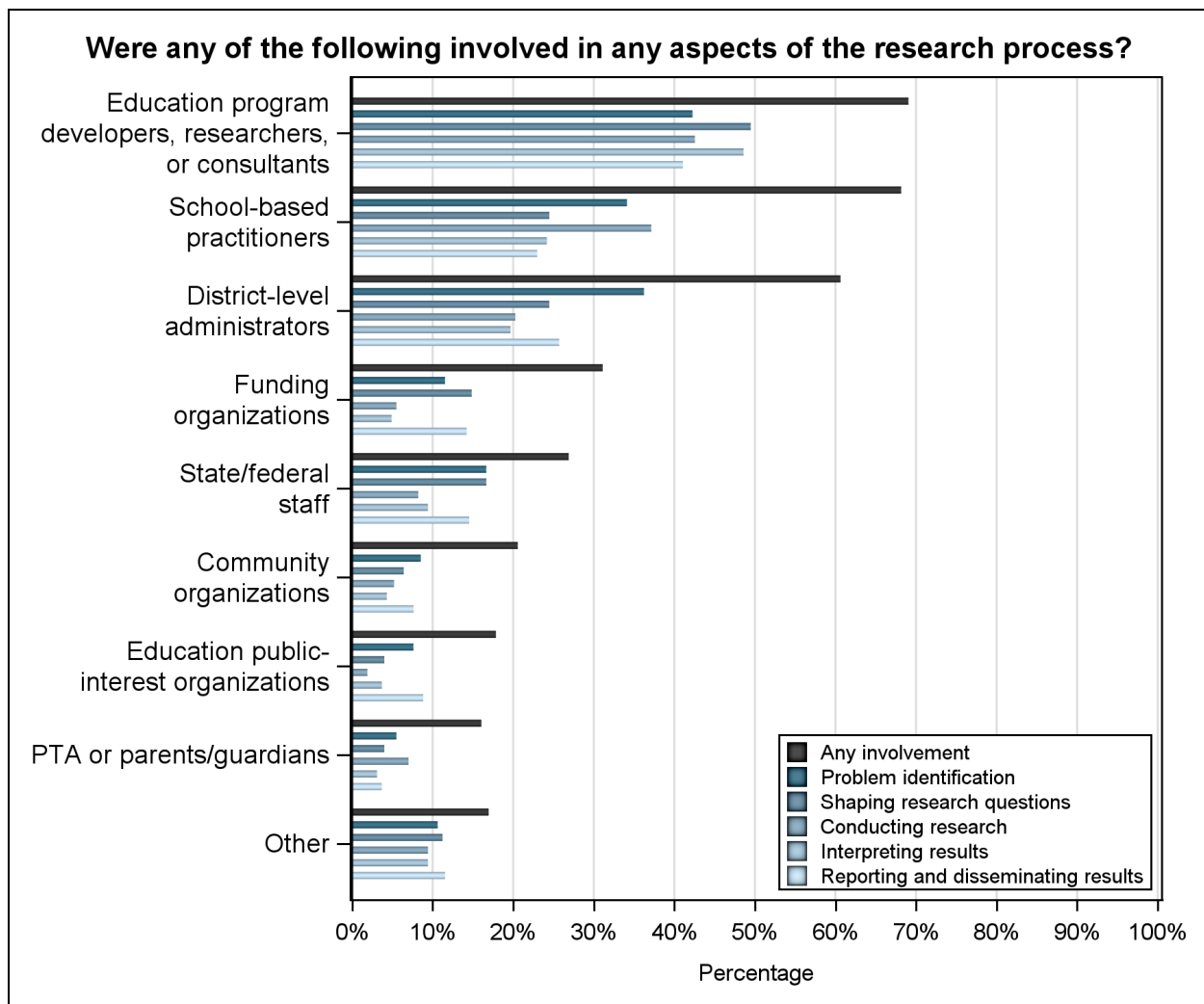
An important factor in making research relevant to practitioners is engaging with community partners or practitioners in developing a research study. Participation is conceptualized as a continuum, so these results capture the degree to which research is developed solely by researchers or in partnership with community members and stakeholders. To better understand which stakeholders influenced the production of education research, researchers in our sample were asked whether individuals from 9 specific groups were “involved in any aspects of the research process”: school-based practitioners; district-level administrators; PTA or parents/guardians; state/federal staff; education program developers, researchers, or consultants; education public interest organizations; funding organizations; community organizations; or other groups. For the "Other" option, researchers were able to specify who was being referred to.

Afterwards, respondents were asked to state what aspect of the research process each of the groups they selected were involved in. We identified five stages of the research process that practitioners and other stakeholders invested in improving education policy and practice could be involved in 1) problem identification, 2) shaping research questions, 3) conducting research, 4) interpreting results, and 5) reporting/disseminating results. Note that respondents were only asked this question about the aspect of the research process for groups they selected in the prior question.

Figure 8 shows the percentage of respondents in our sample that reported whether and how each stakeholder group was involved in the research process. According to these findings, education researchers most often report involving education program developers, researchers, and consultants in the research process (69.0%). This is logical, considering that education research is often collaborative and interdisciplinary. The data also reveal high levels of involvement with school-based practitioners (68.1%) and district-level administrators (60.5%),

with both most often involved in identifying the problems research addresses. These data suggest that educational research is to some degree centered on meaningful issues of practice and is noteworthy, given calls for increasing relevance and greater focus on meeting the actual needs of our education system (Fishman et al., 2013; Hansen et al., 2001; National Academies, 2022; Tseng, 2012). Perhaps unsurprisingly, school-based practitioners and district administrators tend to be involved in identifying problems. These groups are less likely to participate in the interpretation of findings, which may be a missed opportunity to strengthen the relevance of research for practice.

Figure 8. Participation of Community Members in the Research Process



Note: $n = 309$

Further, the fact that less than half of respondents engaged school and district staff in many of these ways presents opportunities for improvement. Notably, other stakeholders were far less likely to be involved. Researchers in our sample rarely reported including community organizations (20.5%), education public interest organizations (17.8%), and parents/guardians/PTA members (16.0%). Importantly, 5.3% of respondents reported not engaging with any group in any aspect of the research process. Again, these findings suggest opportunities for strengthening democratic approaches to producing and using research evidence (Tseng et al., 2017).

Q3. How do researchers disseminate the findings of their research studies?

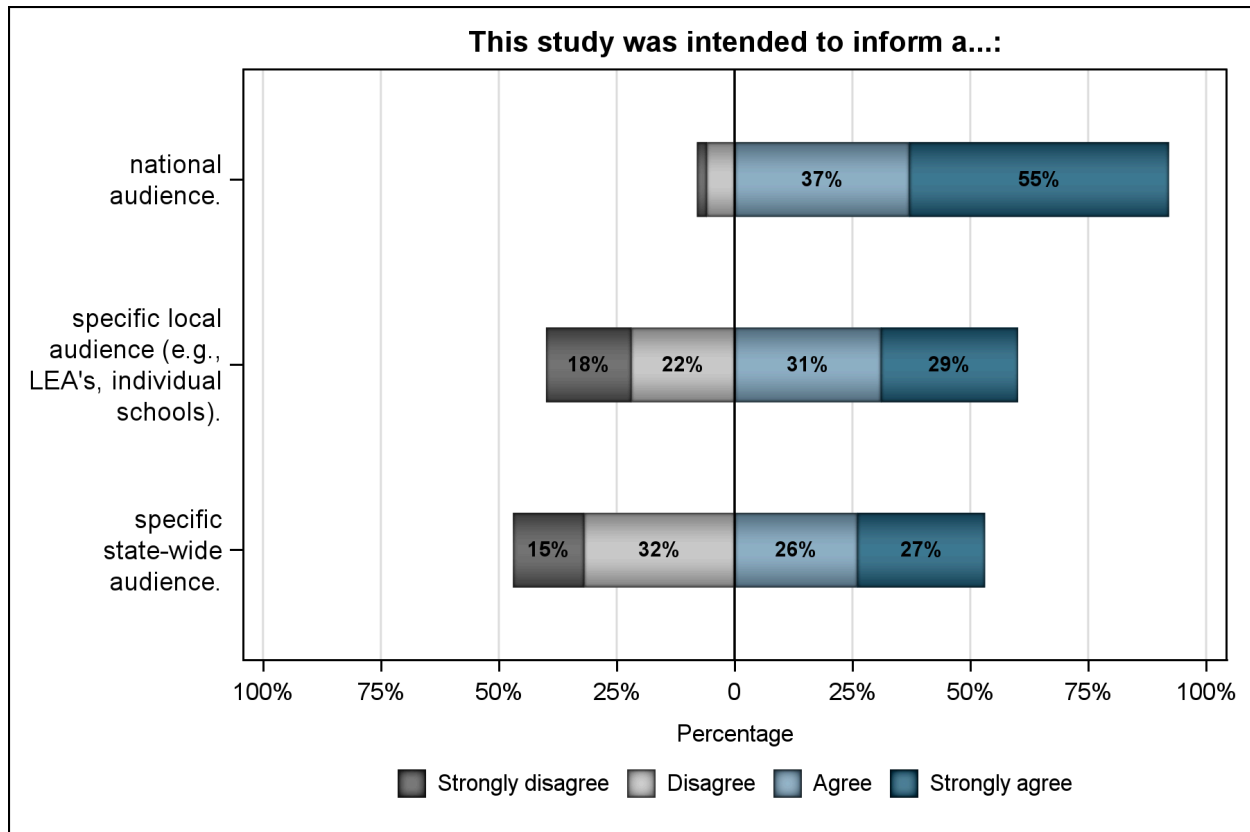
A critical component in the uptake of research is the extent to which the resulting information is available to and reaches those positioned to take action on findings. Often under the umbrella of dissemination, researchers and their partners develop a range of research products and leverage a range of communication channels to get their work into the hands of policymakers and practitioners. However, we know little about how researchers approach this aspect of their work. The following questions ask the education researchers in our sample about their research's intended audience(s), who their research was intended to influence, the process by which they disseminated their research, and how their research can be accessed.

Research studies were primarily designed to inform a national audience rather than specific local or state audiences.

The education researchers in our survey were asked about the extent to which the research they conducted was designed to inform a national, statewide, or local audience of practitioners. Most researchers reported that their research was intended to inform a national audience, followed by practitioners from local and state audiences, respectively (see Figure 9). This overwhelming focus by researchers on publishing for a national audience contrasts the types of research practitioners report relying on in organizational decision-making processes in the *SEE-S* (Farley-Ripple et al., 2022). Specifically, analyses from the *SEE-S* revealed that practitioners were

least likely to rely on evidence that employed a “nationally representative sample of schools, teachers, and/or students” (i.e., only 15% relied on external research, and only 34% of these relied on a nationally representative sample) and far more likely to rely on evidence involving local data (64% to 80%) or research conducted by local district or school staff (39% to 46%).

Figure 9. *Intended Audiences of Research Studies*



Note: $n = 332$; LEA stands for 'Local Education Agencies'

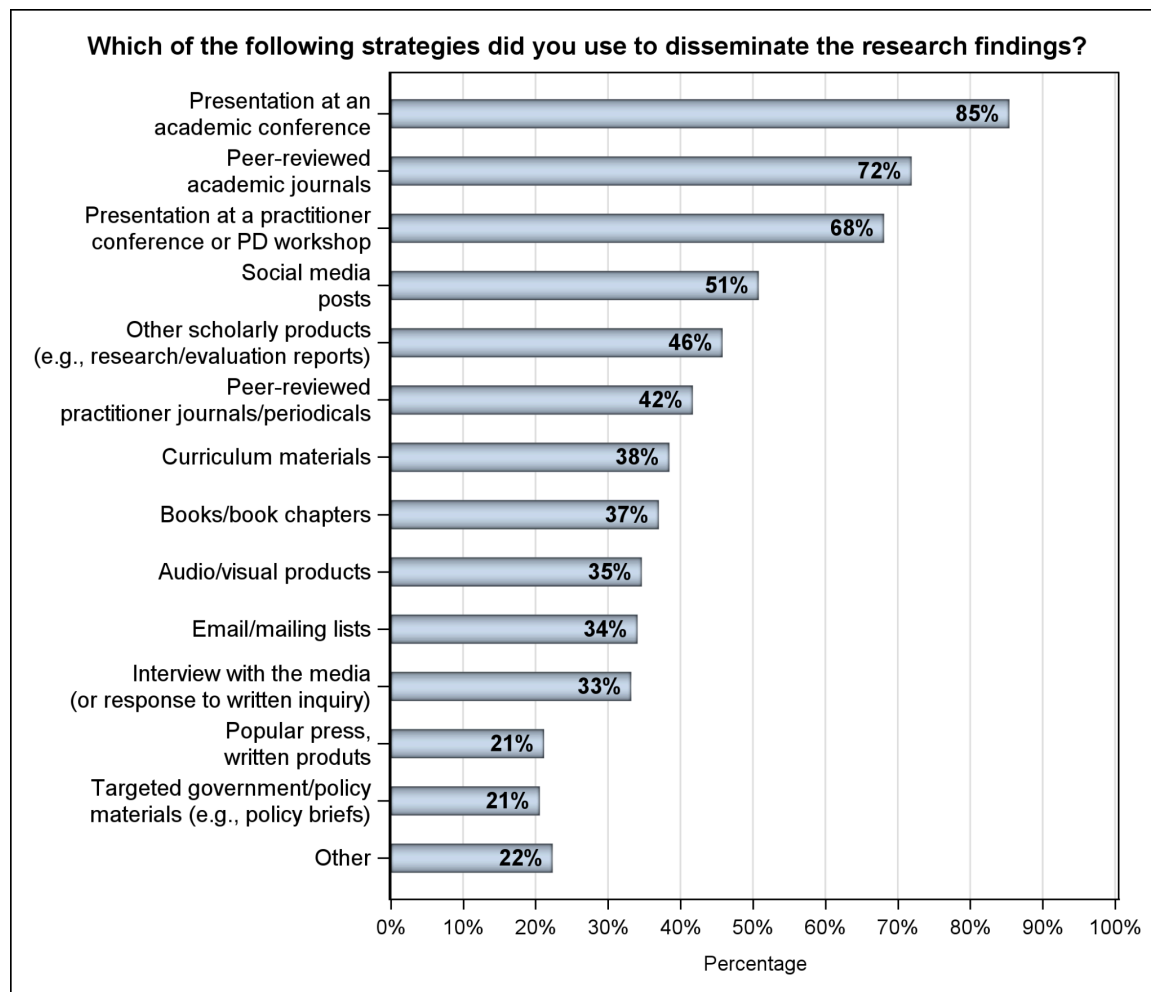
Researchers use a variety of strategies for disseminating their work, but more often use traditional academic formats.

To learn about how the education researchers in our sample disseminated their research projects, we asked respondents to select all of the strategies they used to disseminate their research findings from the following list:

- | | |
|---|---|
| 1. Books/book chapters | 7. Targeted government/policy materials (e.g., policy briefs) |
| 2. Peer-reviewed academic journals | 8. Curriculum materials |
| 3. Peer-reviewed practitioner journals/periodicals | 9. Interview with the media (or response to written inquiry) |
| 4. Presentation at an academic conference | 10. Social media posts |
| 5. Presentation at a practitioner conference or professional development workshop | 11. Audio/visual products |
| 6. Other scholarly products (e.g., research/evaluation reports) | 12. Popular press, written products |
| | 13. Email/Mailing lists |
| | 14. Other |

Figure 10 shows the strategies education researchers employed to disseminate the findings from their research projects. These results show that the majority of respondents disseminated their findings via academic conference presentations (85%), followed by peer-reviewed academic journals (72%), and presentations at practitioner conferences/professional development workshops (68%). Education researchers in our sample reported disseminating their findings via targeted government/policy materials (e.g., policy briefs) (21%) and popular press/written products the least (21%). Thus, most researchers in our sample engage in academic activities to disseminate their findings, and less often did researchers report disseminating research via policy briefs and popular press materials. Considering that the evaluation of academic researchers' job performance is most often heavily influenced by their engagement in academic activities rather than engagement with broader audiences, these

Figure 10. Strategies That Education Researchers Reported Using to Disseminate Their Research Findings



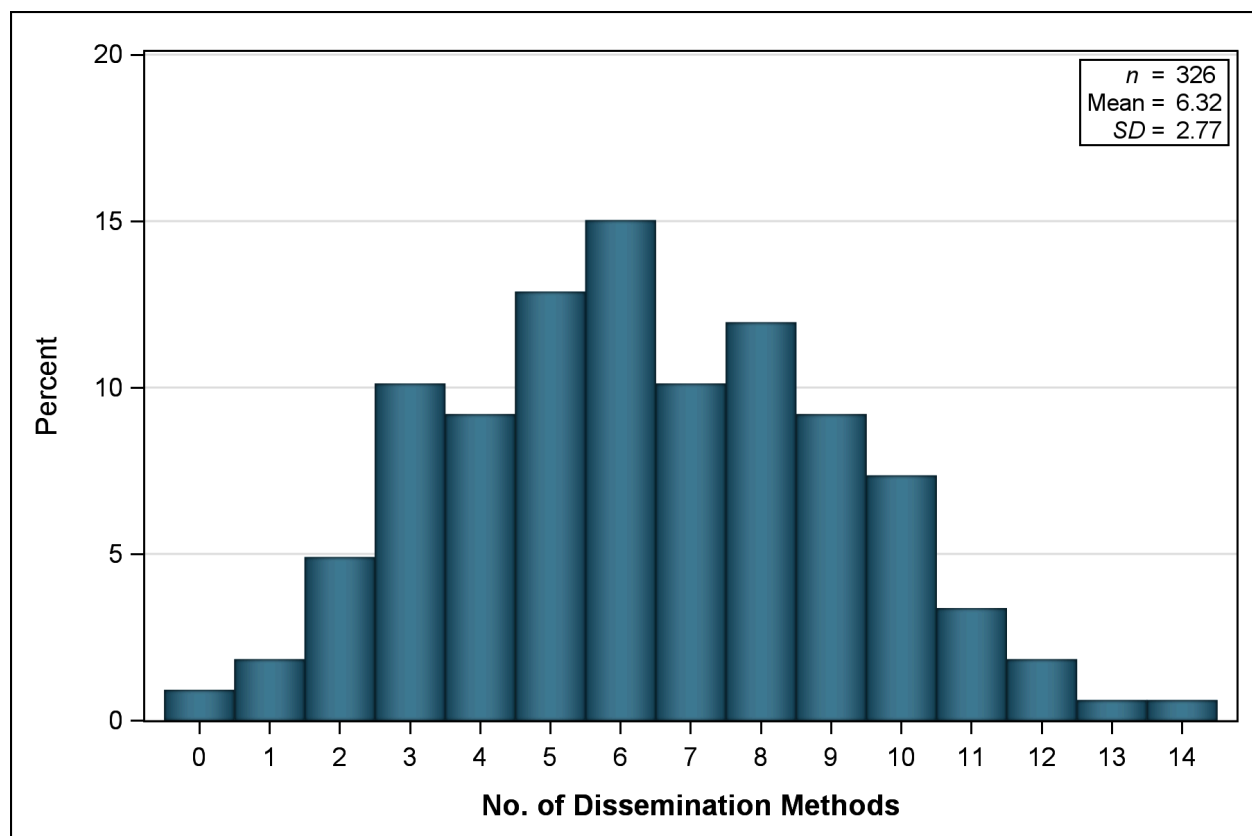
Note: $n = 326$; Respondents were able to select more than one answer; thus, percentages do not equal 100.

results are to be expected. Most faculty report that it would be difficult to achieve tenure without publishing in peer-reviewed academic journals (Altbach, 1996; Zuiker et al., 2019). However, the finding that most researchers in our sample reported disseminating through practitioner conferences/professional development workshops is promising, as our practitioner survey offers evidence that these formats are frequently used by education practitioners (Farley-Ripple et al., 2022b). Indeed, just 3.3% of respondents reported ONLY disseminating through publishing in academic journals and presenting at academic conferences—a sign that

researchers in our sample are more often engaged in other forms of dissemination, not just traditional academic channels.

On average, researchers selected multiple ways to disseminate the research studies that they cited in the survey. Figure 11 shows the distribution of the number of dissemination methods, and researchers, on average, typically used about 6 different methods.

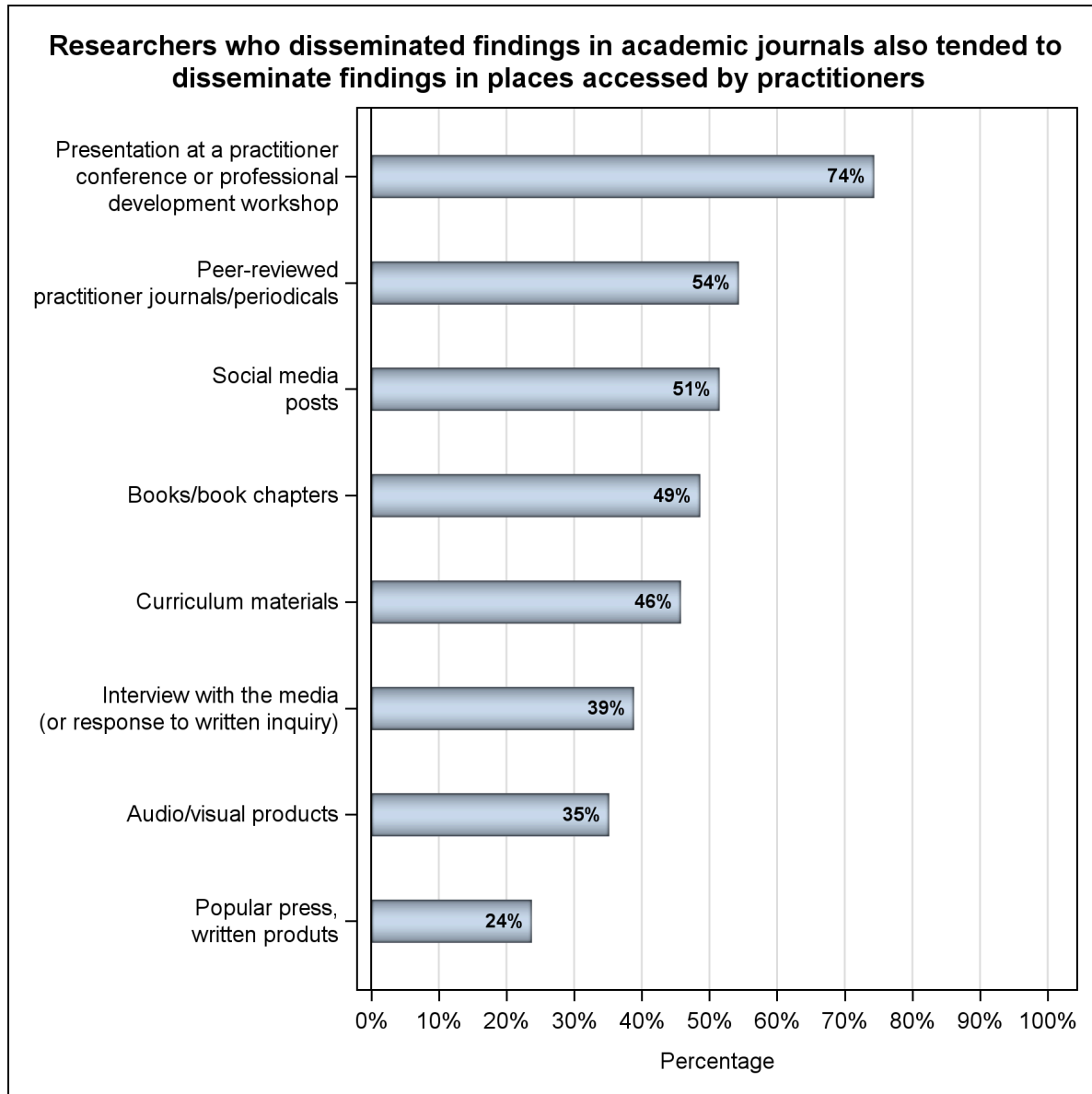
Figure 11. Histogram of Number of Dissemination Methods Used by Researchers



We found that disseminating findings through academic journals does not mean researchers are not trying to reach practitioners. Figure 12 shows that respondents who disseminated the research findings in academic journals also tended to disseminate in places more typically accessed by practitioners. For example, it was common for researchers who published their research study's findings in a peer-reviewed journal to also present at practitioner-focused

conferences (74%) and to publish their work in journals or other periodicals targeting practitioners (54%).

Figure 12. Dissemination Strategies (by Whether Researcher Also Disseminated Findings in Academic Journal)



Note: $n = 326$. Respondents could select more than one answer; thus, percentages do not equal 100.

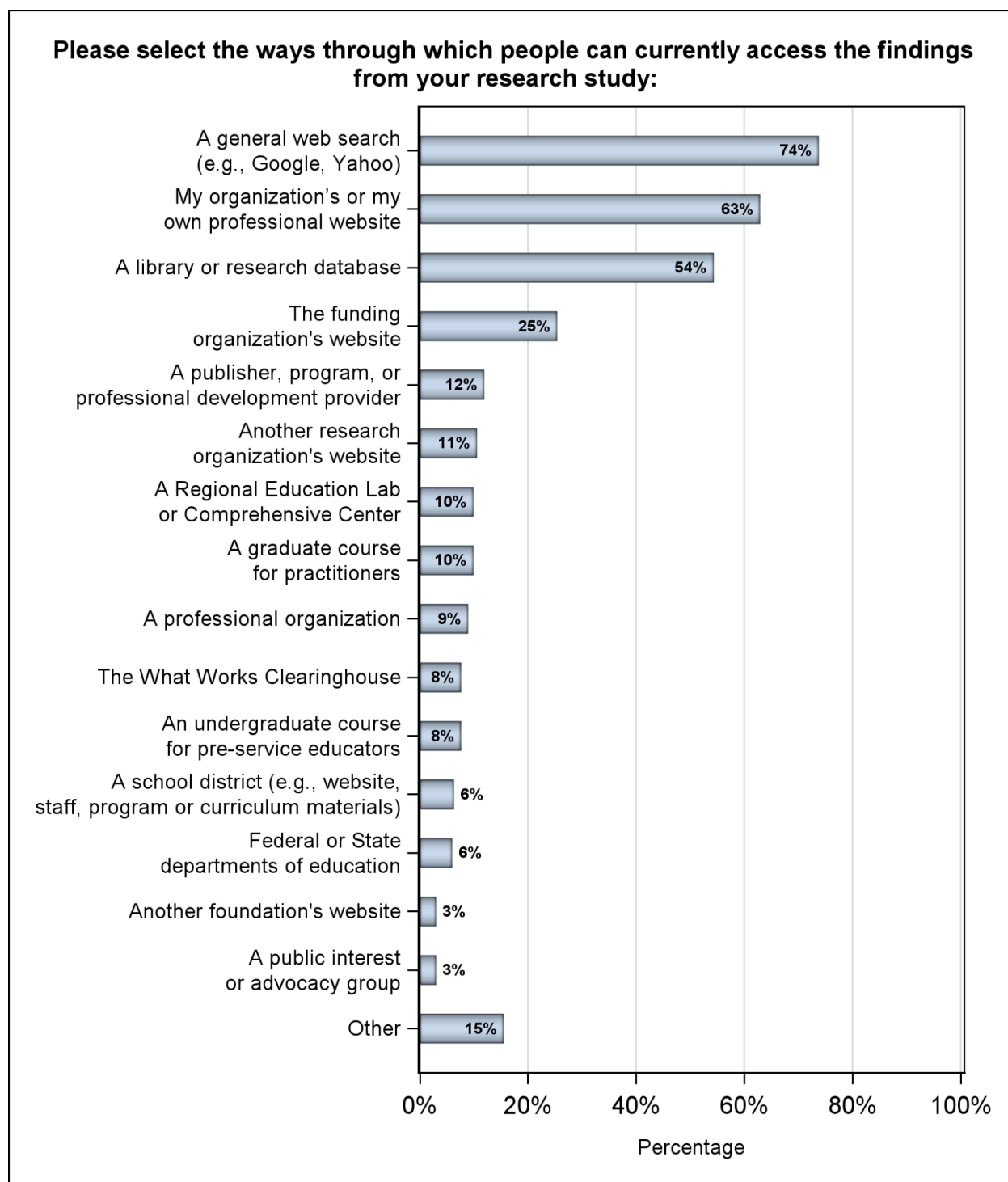
Researchers report that the findings of the research studies are typically available in online resources but not often through organizations that could link research to practice.

We asked education researchers in our sample to select all of how people can find their research project from the following list of search sources:

- | | |
|---|--|
| 1. A general web search (e.g., Google, Yahoo) | 11. Another research organization's website (please specify) - Text |
| 2. The What Works Clearinghouse | 12. A public interest or advocacy group |
| 3. A library or research database | 13. A publisher, program, or professional development provider |
| 4. A Regional Education Lab or Comprehensive Center | 14. An undergraduate course for pre-service educators |
| 5. My organization's or my own professional website | 15. A graduate course for practitioners |
| 6. The funding organization's website (please specify) | 16. A professional organization |
| 7. The funding organization's website (please specify) - Text | 17. Federal or State departments of education |
| 8. Another foundation's website | 18. A school district (e.g., website, staff, program, or curriculum materials) |
| 9. Another foundation's website - Text | 19. Other (please specify) |
| 10. Another research organization's website (please specify) | |

Figure 13 shows the percentage of the different ways education researchers report that people can access their research findings, listed in descending order. Most respondents indicated that a general web research (74%) will locate the findings of their research study. This is important because there has been increased interest in making research results freely available, especially those from studies funded by federal agencies.

Figure 13. Different Ways Education Researchers Report That People Can Access Their Research Findings.



Note: $n = 304$. Respondents could select more than one answer; thus, percentages do not equal 100.

Libraries or research databases were also commonly reported as places where research findings could be found, but those resources are generally not as easy to use and may not always be available to practitioners. Less often did researchers report that their findings were available in resources that could be characterized as intermediaries, such as “A publisher, program, or professional development provider” (12%), a “professional organization” (9%), or “public interest or advocacy group” (3%). Thus, research findings are not as often translated into materials or hosted by organizations that could disseminate them further.

To understand the number of search sources that respondents state people can use to find their research, we calculated the sum of respondents’ search sources and computed descriptive statistics for this derived variable. We found that the range of search sources spanned from 1-9, with 3.15 being the average number of search sources that researchers report their research projects can be accessed with.

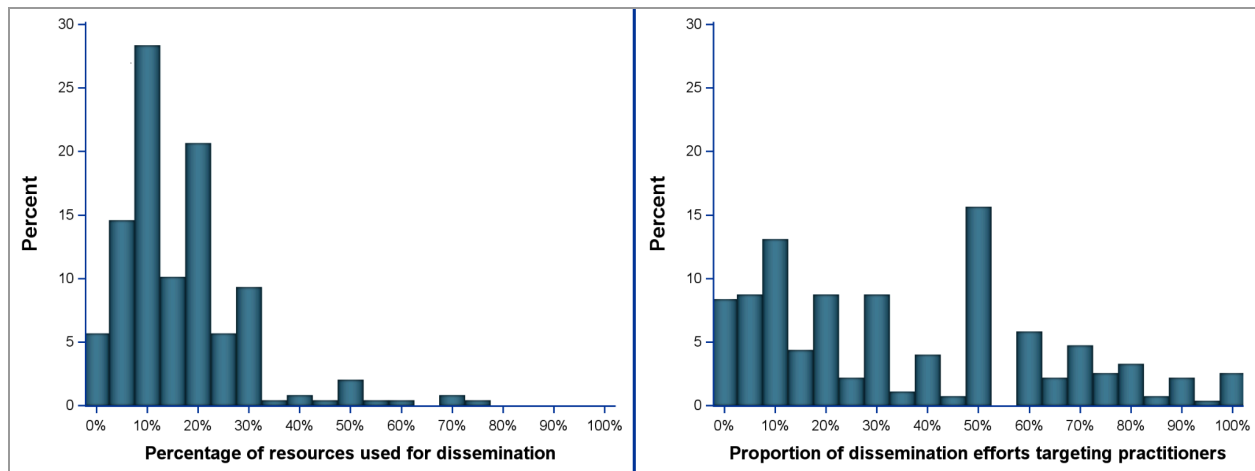
It is important to note that researchers may not have control over whether their findings can be accessed at certain search sources. For instance, researchers can intentionally make their findings available through their own websites or via academic publications. However, researchers may not be aware that their findings are being implemented in sources that they do not directly influence, such as an academic curriculum or another foundation’s website.

Research projects typically allocate a fraction of study resources to dissemination efforts, and dissemination resources were rarely targeted toward practitioners.

We also asked researchers what percentage of their study’s resources were used for dissemination (left panel of Figure 14) and what percentage of these dissemination efforts were focused on targeting practitioners (right panel of Figure 14). Here, we found that, on average, researchers in our sample used 16.3% of their resources for dissemination, and 35.7% of their dissemination efforts targeted practitioners. Funding for research is primarily for the expenses related to conducting the research, so fewer funds are allocated to dissemination. Also, researchers disseminate findings to the research community and practitioners, and the

histogram in the right panel shows the variability of the proportion of dissemination efforts targeted toward practitioners. A little less than 10% of respondents reported not focusing at all on practitioners.

Figure 14. Histogram of the Percentage of Resources Researchers Used for Dissemination (left) and Histogram of Proportion of Researchers' Dissemination Efforts Focused on Practitioners

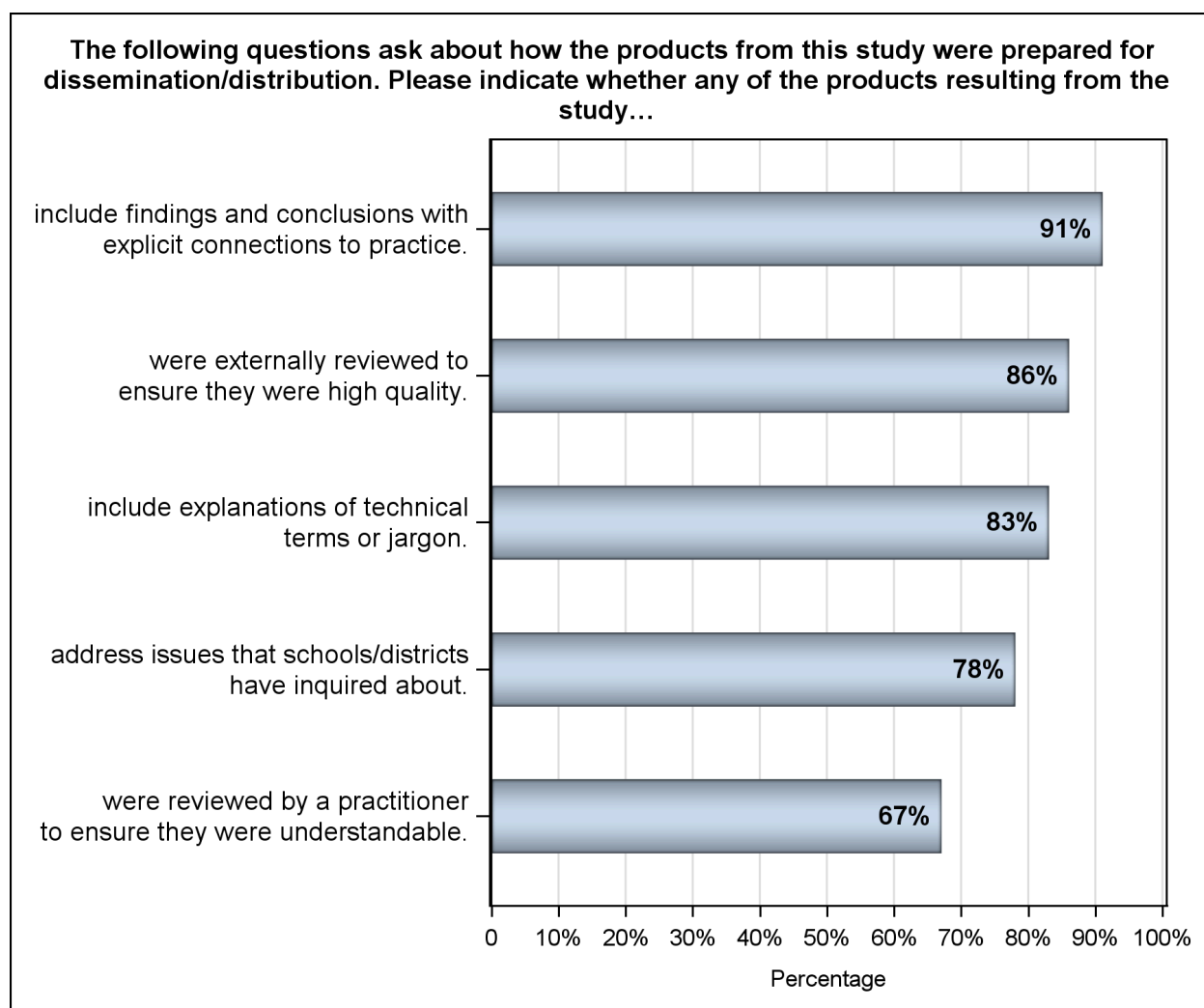


Note: $n = 232$ (left panel); $n=259$ (right panel)

Researchers often reported using techniques to make the findings of their study interpretable and usable by practitioners.

We asked the education researchers in our sample about how the products from their study were prepared for dissemination/distribution. These survey items were designed to understand whether the researchers in our sample created products from their research projects that education practitioners would find easy to interpret.

Figure 15. Percentage of the Different Ways Education Researchers' Research Products Were Designed to Be Interpretable by Non-Technical Audiences.



Note: $n = 231$. Respondents could select more than one answer; thus, percentages do not equal 100.

As shown in Figure 15, most researchers stated that they designed their research study to be interpretable by a general audience. The majority of researchers (86%) in our sample report that their research products were externally reviewed, which is expected since many researchers report disseminating their findings in peer-reviewed academic journals. Frequent reports that research “addresses issues that schools/districts have inquired about,” on the other hand, relates to our prior finding that practitioners are often involved in identifying problems to be studied. However, claims about implications and addressing issues of practice may be

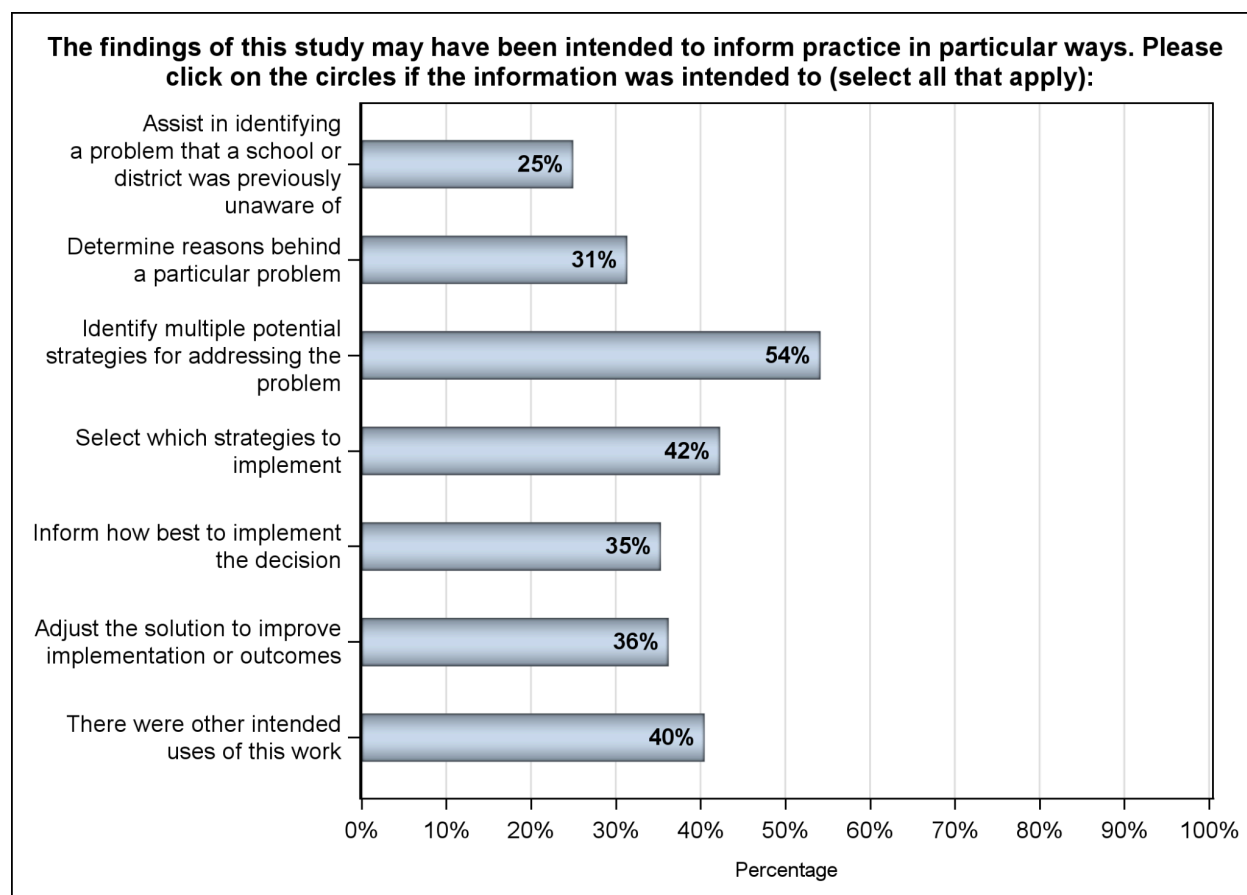
overstated, reflecting researchers' intentions rather than actual relevance to policy or practice. Previous research suggests a disconnect between the questions that researchers study and the problems that practitioners are working to solve (Backer, 1993; Davies & Nutley, 2008; Willingham & Daniel, 2021). Additionally, no mechanism for practice to systematically inform research exists (National Research Council, 2003; National Research Council, 2012; Snow, 2015). Findings from the *SEE-S* suggest that researchers do not typically contact educators to inquire about the problems they are facing (85% indicate they have never been contacted by a researcher), and practitioners do not contact researchers about issues in their schools (90% indicate that they have never contacted a researcher) (May et al., 2022). Nonetheless, researcher responses are promising in that they suggest widely-held intentions for the usefulness and relevance of research.

Q4. How do researchers intend for their findings to be used in different stages of the decision-making process?

Research and other forms of evidence may be intended to inform practices during the decision-making process at various stages (Bass, 1983; Farley-Ripple, 2008). Researchers in our survey were asked to indicate when the information they produced in their studies was intended to inform different aspects of practitioners' decision-making processes. Participants were asked to select all options that applied. This set of items gives us insight into specific ways in which researchers' studies were intended to inform education practitioners. Figure 16 shows the percentage of respondents who reported that their study was designed to inform the different decision stages for education practitioners.

When examining these findings, we find that most researchers in our sample reported that their study was designed to identify multiple potential strategies for addressing the problems of education practitioners (54%), followed by selecting which strategies to implement in the decision-making process (42%).

Figure 16. Researchers' Intended Ways for Research Studies to Inform the Decision Process



Note: $n = 329$. Respondents could select more than one answer; thus, percentages do not equal 100.

These findings are consistent with the prevalence of impact evaluations reported by this sample. Further, results were similar to those of the *SEE-S*, in which more than 70% of the respondents who described a recent organizational decision indicated that evidence was used to identify strategies (76%) and to select which strategies to implement (73%). Together these findings suggest alignment between the two communities on what we would call the *instrumental* uses of research—the use of research to inform specific decisions.

It was less common for researchers to report conducting studies intended to assist schools with identifying or understanding particular problems or implementing solutions, which is in line with research (see, for example, Davies & Nutley, 2008; Farley-Ripple et al., 2018; Hood, 2003; Ion & Iucu, 2014; Levin, 2013; Welsh, 2021). The results suggest that researchers primarily focus

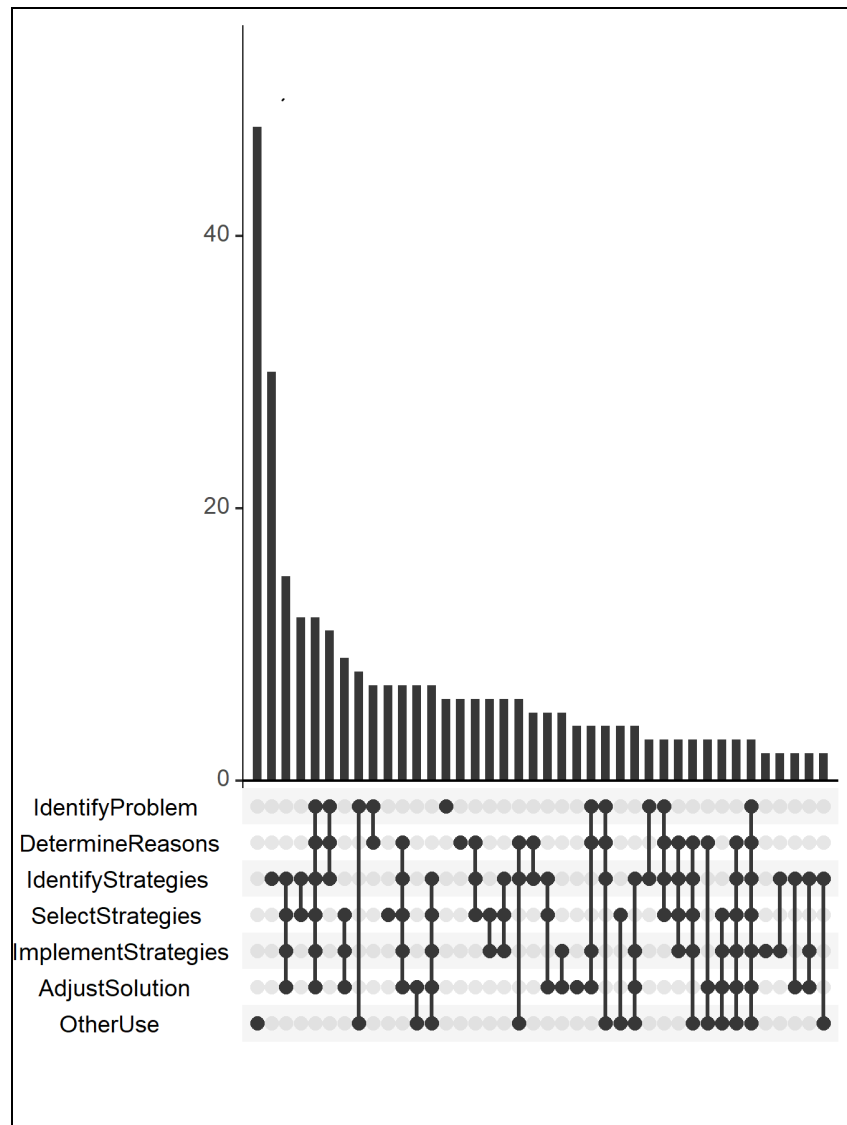
on producing research that will be used instrumentally (i.e., to inform decision-making). However, earlier literature suggests that practitioners may prefer different types of research at different stages (Farley-Ripple, 2008) and that evidence use often occurs after a decision has been made (Pfeffer & Salancik, 1977, 1978; Staw, 1980). Further, practitioner responses from the *SEE-S* indicate that although evidence is frequently used to identify and select strategies to address organizational problems, evidence is nearly as frequently valued in identifying problems and implementing solutions (Farley-Ripple et al., 2022b). Taken together, these findings highlight a potential opportunity for researchers to consider engaging in research that is (intended to be) useful to practitioners at various stages of the decision-making process.

Notably, 40% of respondents reported other intended uses of their work beyond the options we presented, 64% of which chose this option in addition to another decision stage their research was intended to inform. Those who chose “other” were prompted to provide an open-ended response clarifying what “other” meant. To understand these responses further, we examined the text responses to better understand why many respondents did not perceive that their purpose fit one of the existing categories. While there were a variety of different responses, there were three intended purposes that appeared more often as “other” responses: 1) contribute to methodological advancement, 2) inform policy or policymakers (uses that are aligned with “conceptual” use of research), or 3) determine the impact of a program or policy (use that is aligned with “instrumental” use of research). These categories could be added to a revised version of the decision stage item in the future.

We also examined the frequency of distinct combinations of stages in the decision process that the research was intended to inform (Figure 17). As with our prior analyses, 90% of the responses are used to reduce the number of very small combinations. The most frequent responses were those who selected only “other” and only “identify strategies.” In considering responses where more than one decision stage was selected, the most frequent combinations are still heavily focused on instrumental uses of research surrounding strategies. The most frequent combination was the selection of identifying strategies, selecting strategies,

implementing strategies, and adjusting solutions, followed by the selection of identifying and selecting strategies.

Figure 17. Combinations of Stages in the Decision Process That Research Was Intended to Inform



Note: $n = 307$

Findings support our earlier results suggesting educational researchers were more focused on conducting research about programs or interventions that could be effective in educational environments. These findings complement those of the *SEE-S* (Farley-Ripple et al., 2022b) in

that it was common for school-based practitioners to use research to “identify multiple potential strategies for addressing the problem” and “select strategies to implement.” However, one key difference is that it was uncommon for researchers to report that their study findings were intended to inform the process of identifying a problem that a school or district was unaware of—just 25% of researchers indicated that they intended for their study’s findings to be used this way, but 78% of *SEE-S* respondents who cited an organizational decision stated that research was used to identify a problem in the school or district. Again, this may reflect the overarching theme that researchers tend to design studies for national audiences rather than research projects tailored toward local contexts.

Q5. What are researchers’ perspectives and assumptions about research, and how do they compare with practitioners’?

This section of the *SEE-R* focuses on education researchers’ perceptions and assumptions related to the five potential gaps between the research and practice communities. This section covers items about the relevance and usefulness of research, the characteristics of products that researchers produce, and questions about the quality of research concerning internal and external validity. Respondents were also asked to respond to questions about their relationships with the education practitioner community and the structures, processes, and incentives in their universities and workplaces that may facilitate or constrain the use of their research by practitioners.

Most researchers reported making products designed for practitioner audiences.

We asked researchers whether they create research products to inform practitioner audiences. According to the results, 82.7% of researchers in our sample stated that they had created products designed for practitioner audiences. Of course, this does not break down those claims by specific types of products, how often they create them, or the amount of study resources they dedicate to making them. In fact, results for Q3 suggest that researchers more often

develop traditional academic resources rather than products designed for practitioner audiences.

Furthermore, data from Q3 suggest that dissemination resources are rarely used to target practitioners (see results for Q3 for more information). However, this finding suggests that most researchers in our sample have created products specifically designed for practitioners at some point in their careers.

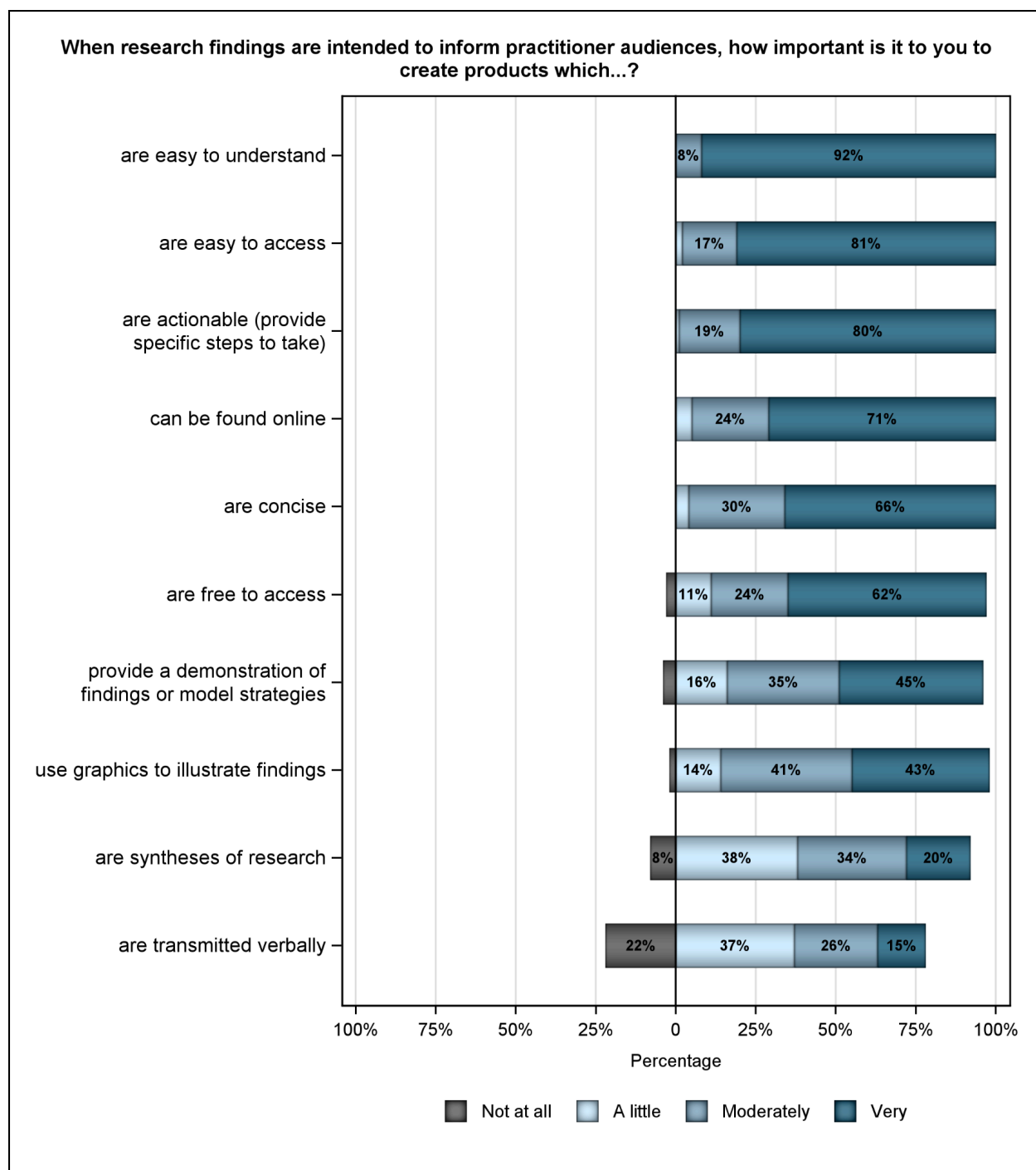
Researchers tend to believe that it is important for their research products to be easy to access and understand.

While tackling limited research uptake by practitioners requires a multi-pronged approach, addressing barriers to practitioners accessing clear, relevant, and useful research products is one strategy for better informing the actions of decision-makers in matters related to teaching and learning (Carr-Harris et al., 2013). Accordingly, across the field of education, the trend towards accessible and plain language has become endorsed broadly by researchers (e.g., Meagher et al., 2008) and government research funding bodies (e.g., National Science Foundation, 2021). Our findings align with this growing consensus. Figure 18 describes respondents' preferences regarding the importance of different research product characteristics. Researchers felt most strongly that the products from a research study should be easy to understand (91% Strongly agree) and easy to access (81% Strongly agree). Another way in which education researchers can increase the accessibility of their research is by making their research freely available through open access¹ (OA) initiatives. However, findings from our study suggest that compared with other characteristics of research products, there is less consensus among education researchers (61% Strongly agree) that the cost of access is an important factor to consider when creating research products intended to inform practitioner audiences (Figure 18). Our findings align with the current literature focused on the open-access movement, which suggests that open-access publishing is underutilized and not seen as a

¹ Open access “is a movement and mode of research dissemination that seeks to make the fruits of academic endeavor freely available online, where they can reach and benefit a global audience of researchers, students, teachers, and policymakers” (Suber, 2012)

priority in education research (Furlough, 2010; Roehrig et al., 2018). Our survey did not inquire about why researchers felt certain characteristics were or were not important. Yet, several barriers have been shown to impede open publishing, including (a) the cost of publishing in OA journals, (b) a lack of high-impact OA journals, (c) traditional publishing policies that inhibit OA, and (d) institutional tenure requirements that discourage public scholarship (Mighehli & Ramello, 2014; Pinfield, 2015; Roehrig et al., 2018; Yang & Li, 2015).

Figure 18. Education Researchers' Perceptions of the Importance of Research Product Characteristics



Note: $n = 259$

Our items on characteristics of research products produced two coherent survey scales based on a factor analysis (see Appendix B). The first we label *Ease of Access*, which includes six items indicating how important it is to make research products that “are easy to understand,” “are easy to access,” “are actionable (provide specific steps to take),” “can be found online,” “are concise,” and “are free to access.” The second we label *Helpful Features*, which includes four items indicating how important it is to make research products that “provide a demonstration of findings or model strategies,” “use graphics to illustrate findings,” “are syntheses of research,” and “are transmitted verbally.” The distribution of the *Ease of Access* (Figure 19) and *Helpful Features* (Figure 20) scales for researchers were examined in order to examine how researchers perceived the importance of these aspects of how research can be accessed and used by practitioners. The scale for *Ease of Access* is left-skewed, indicating that the majority of educational researchers reported that product characteristics related to *Ease of Access* were very important to consider when creating products for practitioner audiences. Contrastingly, the *Helpful Features* scale score exhibits considerable variability (Figure 20), which may be due to less agreement amongst researchers about those characteristics (e.g., using graphics, verbal transmission) that help practitioners integrate research findings into their practice.

Figure 19. Histogram of 'Characteristics of Products - Ease of Access' Scale Scores

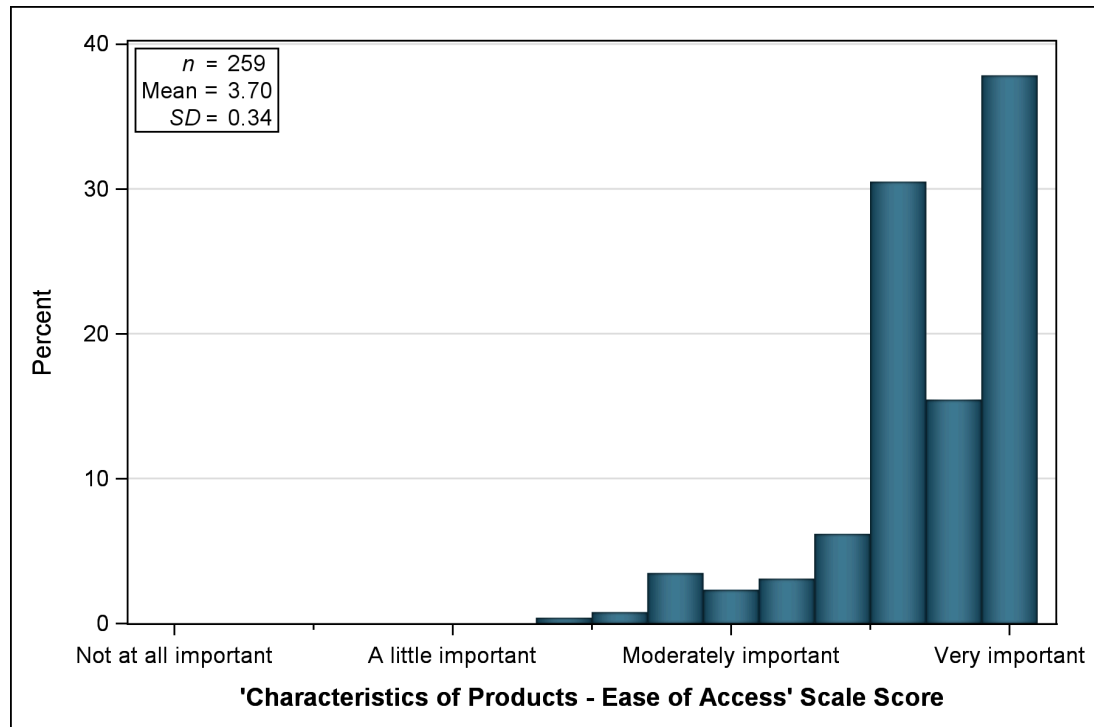


Figure 20. Histogram of 'Characteristics of Products - Helpful Features' Scale Scores

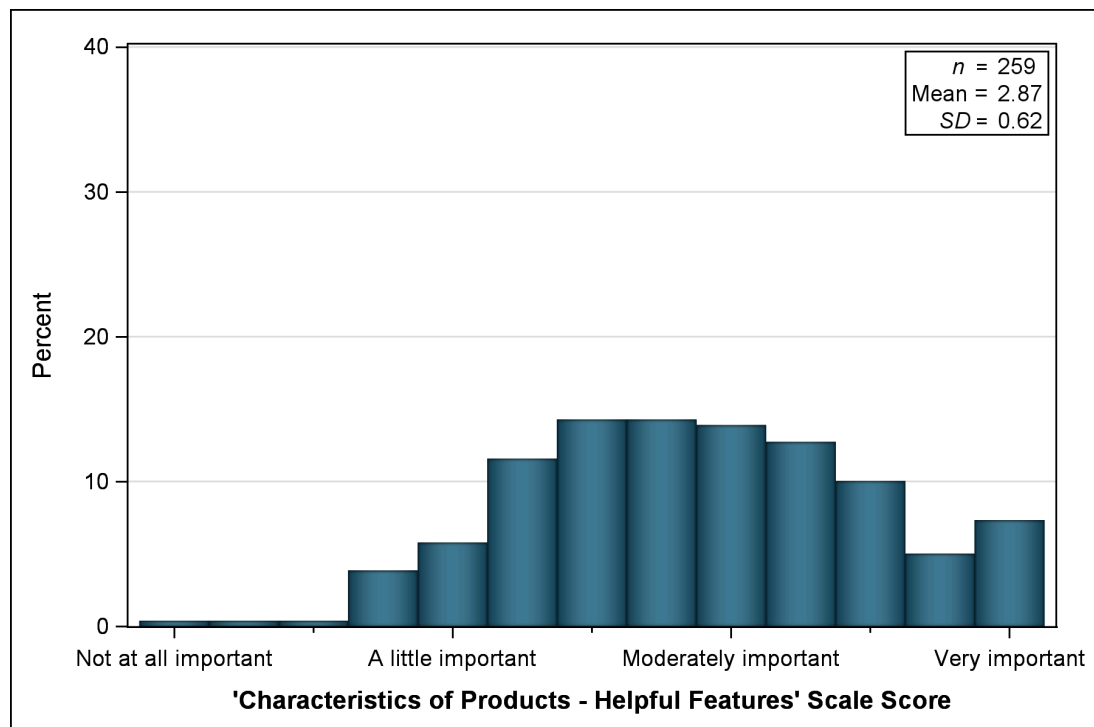


Table 2 includes a comparison of the means of scales for “Characteristics of Products” items that were included in both researcher (*SEE-R*) and practitioner (*SEE-S*) surveys. Researchers had, on average, slightly higher scores on the two scales related to the characteristics of products: *Ease of Access* and *Helpful Features*. This suggests that researchers were more likely, on average, to believe these criteria for accessing and using research were important. Researchers, who are likely attuned to how difficult or easy it can be to access educational research, are likely more keenly aware of the consequences of research—whether their own or someone else’s—that is not accessible to school-based practitioners.

Table 2. Researcher and Practitioner Means on Scales for “Characteristics of Products”

Scale	Researcher			Practitioner			<i>p</i> -value
	<i>n</i>	mean	<i>sd</i>	<i>n</i>	mean	<i>sd</i>	
Products - Ease of Access	259	3.70	0.34	4,114	3.42	0.65	<.0001
Products - Helpful Features	259	2.87	0.62	4,128	2.76	0.79	.0078

Note. For all *t*-tests, there was evidence that comparison variables had unequal variances.

To examine the differences between how researchers and practitioners responded to the “Characteristics of Products” items, we dichotomized the individual items so that ‘Not at all important’ and ‘A little important’ were collapsed into one level and ‘Moderately important’ and ‘Very important’ were another level. In Table 3, we report the percentage of respondents for each survey who answered ‘Moderately important’ or ‘Very important’ for each item. We also report the results of the chi-square tests of proportions for the dichotomized items. Researchers were more likely to perceive that it was important for research to have characteristics that make it more likely to be found, accessed, and used. Being the producers of research, researchers are aware of how difficult or simple it may be for others to locate their

² The “Characteristics of Products” survey items in the *SEE-S* and the *SEE-R* had different value labels for the second response option for the level of importance of each product characteristic. In the *SEE-R*, the label for the second option was “A little important”; in the *SEE-S*, the corresponding label was “Slightly important.”

research and practitioners may place less importance on some of these aspects because they obtain information from other sources. That both groups did not consider it very important for research findings to be transmitted verbally speaks to how rarely these communities consume (or produce) research in this format. Just under 90% of respondents in both groups also agreed that it was important for research evidence to be “free to access,” though that also means that just over 10% of respondents in both groups did not think free access is important.

Table 3. Proportion of Respondents Who Indicated the Characteristic Was “Moderately” or “Very important”

Product characteristic	Researcher		Practitioner		χ^2	<i>p</i>
	n	%	n	%		
Are actionable	256	98.8	3,480	83.2	44.7	<.0001
Use graphics to illustrate findings	219	84.6	2,670	64.0	45.5	<.0001
Are easy to understand	258	99.6	3,792	90.4	25.1	<.0001
Can be found online	246	95.0	3,485	83.2	24.9	<.0001
Are concise	247	95.4	3,556	85.1	20.9	<.0001
Are easy to access	255	98.5	3,783	90.4	19.0	<.0001
Are syntheses of research	140	54.1	2,579	61.7	6.03	.014
Provide a demonstration of findings	207	79.9	3,157	75.6	2.53	.111
Are transmitted verbally	107	41.3	1,908	45.8	1.97	.161
Are free to access	223	86.1	3,658	87.4	0.402	.526

Researchers believe that peer-review and comprehensive reporting of methods and results are important to the credibility and trustworthiness of a research study.

Researchers are simultaneously authors, editors/reviewers, citers, and users of research. As such, we were interested in understanding education researchers’ values about the different qualities of research—specifically, what factors drive its trustworthiness and credibility.

Education researchers considered peer review a central pillar of trust, with 68% of our survey respondents reporting that publication in a peer-reviewed journal is very important for

trustworthiness (Figure 21). Researchers were less in agreement about whether the number of citations or knowing the authors of a study was important for trustworthiness.

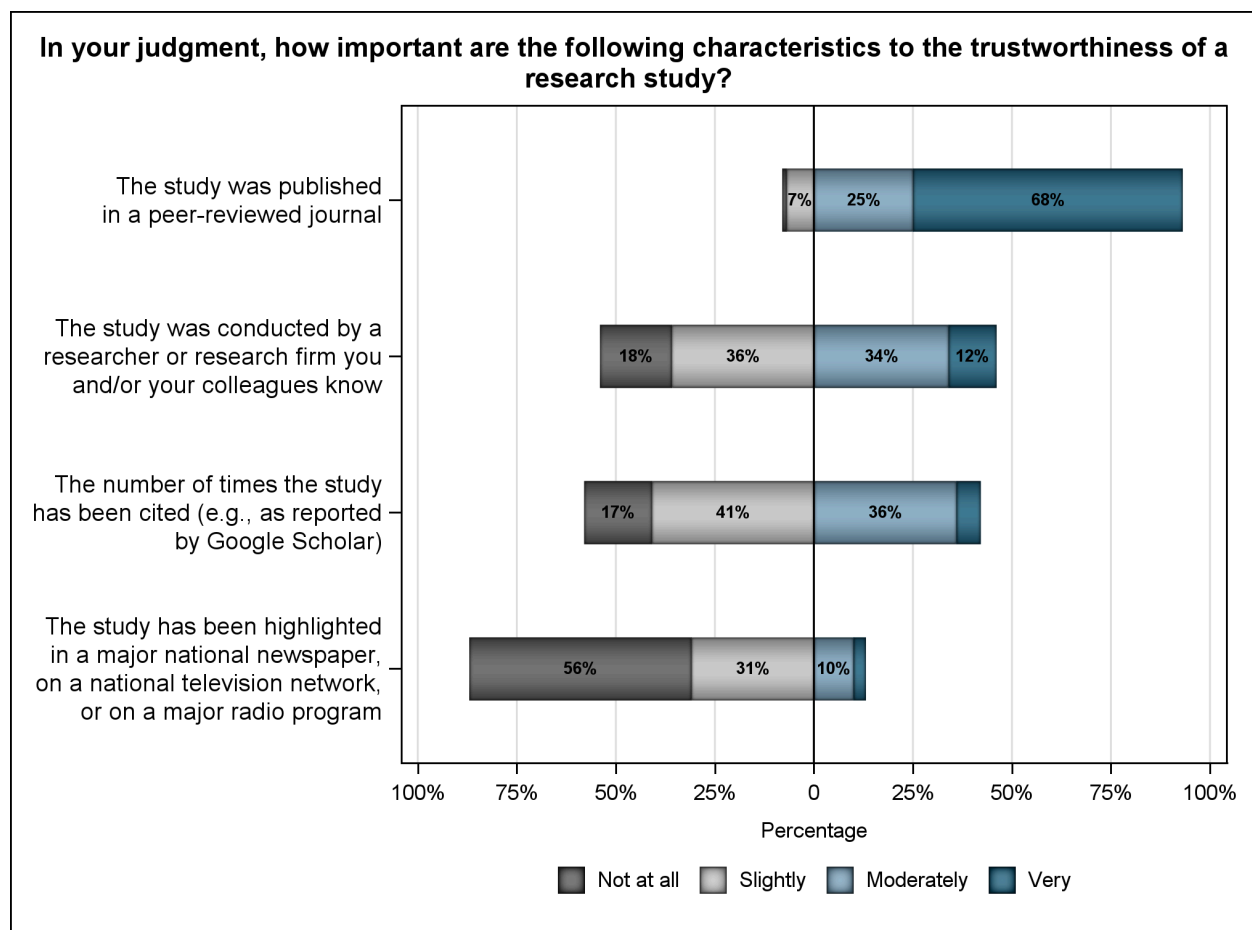
Similarly, researchers were more skeptical about coverage of research in the popular press, and having a study highlighted by a major news network does not have the same imprimatur as peer review in reputable journals. While just 13% of researchers indicated it was at least “Moderately” important for the trustworthiness of a study to have been highlighted in major media, 39% of practitioner respondents in the *SEE-S* believed it was at least “Moderately” important. This illustrates how practitioners are perhaps more open to using information from studies that are fortunate enough to receive significant media coverage, even though that is likely uncommon for most education research studies.

Our findings on the perceived importance of peer review align with previous research (e.g., Mulligan & Mabe, 2011) that has likewise found that researchers consider peer review a very important indicator of trustworthiness. While we did not ask researchers to contextualize why they trust (or distrust) the peer-review process, previous work by Nicholas et al. (2014) suggests that researchers perceive the peer-review process as a familiar, standard, and traditional practice and, as a result, was thought to be an important scholarly attribute which enables researchers to search, use, cite, and disseminate with confidence. However, Nicholas and colleagues (2014) go on to report that while researchers in their study had “a strong attachment to peer review,” most researchers recognized several criticisms (e.g., biased reviewers, an opaque review system, predatory journal practices) which required them to additionally examine other criteria to judge credibility.

Our survey also asked education researchers their views on what makes research credible. Figure 22 depicts survey responses to this set of items. Of greatest importance to the credibility of a study was whether the study produced statistically significant results and reported findings for all outcomes, positive or negative. Of the education researchers who responded to these items, 86% agreed or strongly agreed that these were important in their judgment of the credibility of a research study. This aligns with long-standing traditions in education research,

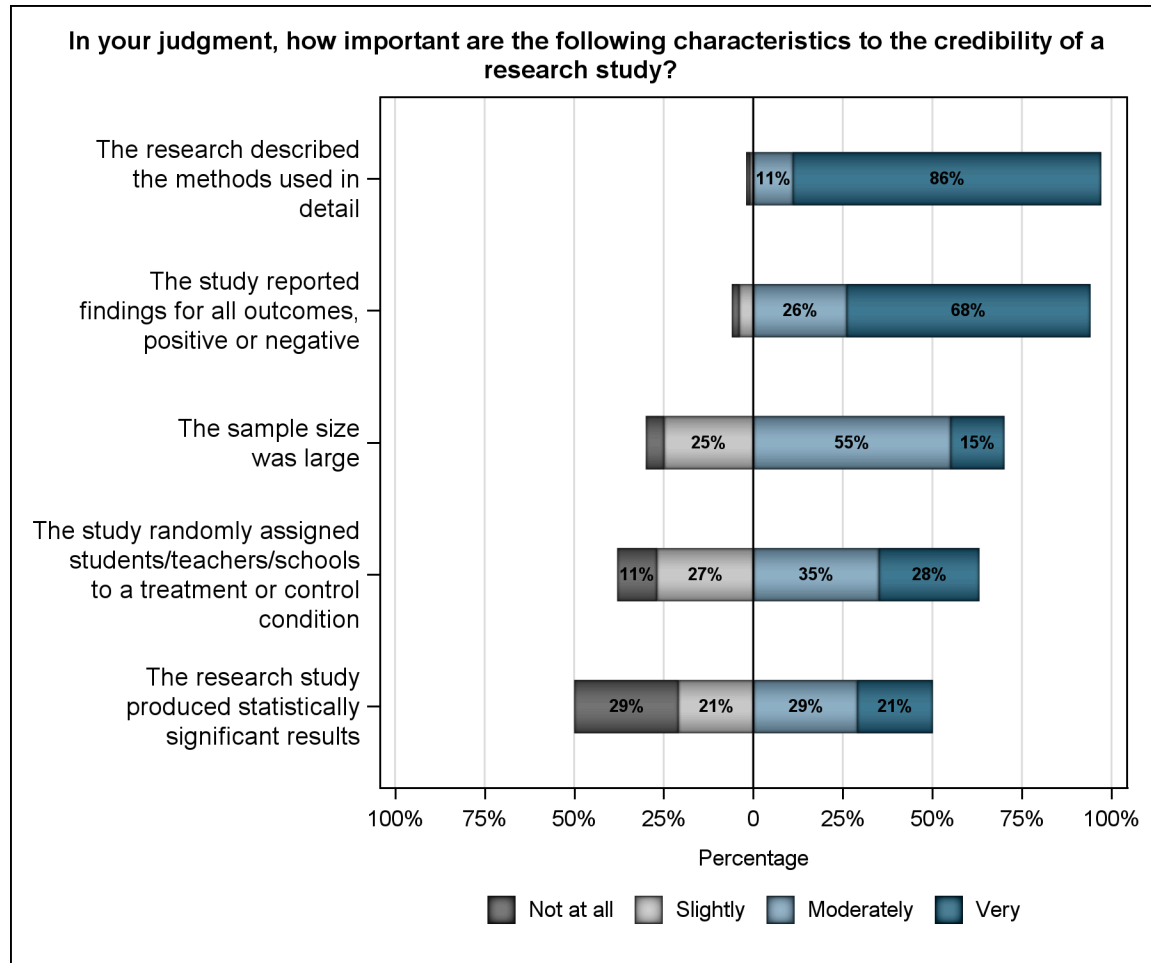
including a tendency for detailed, comprehensive reporting of methods and results, and a reliance on “statistical significance” in order for the results to be convincing. However, detailed reporting and the use of technical jargon by researchers can make it more difficult for practitioners to understand and interpret results. Moreover, the misinterpretation of p-values and statistical significance has long been recognized as a problem in interpreting research findings, and recent movement within the research community argues that p-values are overused and too often misinterpreted (Wasserstein et al., 2016).

Figure 21. Education Researchers’ Views About What Makes Research Trustworthy



Note: $n = 314$

Figure 22. Education Researchers' Views About What Makes Research Credible



Note: $n = 314$

There were key differences in how practitioners and researchers perceived the importance of different study characteristics for credibility and trustworthiness (Table 4). For these analyses, the “Moderately” and “Very” important responses were collapsed into one category, and “Not at all” and “Slightly” important responses were collapsed into another category. Table 4 includes the percentage of researchers and practitioners who selected “Moderately” or “Very” important, and the chi-square test of proportions for the derived binary variables. For researchers, the importance of peer review is evident, and practitioners place more importance on learning about research through media channels. This reflects differences in how researchers and practitioners ascribe importance to the ways in which they access research. Regarding credibility, practitioners tended to place more importance on the aspects of research studies

traditionally associated with statistical methods (larger sample size, randomization of subjects to treatment and control conditions, and statistical significance). Other important differences indicate that 48% of practitioners perceived that producing statistically significant results was “very important” for a study’s credibility; however, just 21% of researcher respondents indicated that this was very important for the credibility of a research study. This may reflect the growing consensus that p-hacking (the manipulation of aspects of a study to cause there to be a statistically significant result) and overreliance on p-values is a problem that affects an undue number of research studies (Wasserstein et al., 2019). Future research may explore why practitioners and researchers prioritize different qualities for the credibility and trustworthiness of research.

Table 4. Proportion of Respondents Who Indicated the Aspect of a Research Study Was “Moderately” or “Very important” for Trustworthiness and Credibility

Aspect of Study	Researcher		Practitioner		<i>X</i> ²	<i>p</i>
	<i>n</i>	%	<i>n</i>	%		
Trustworthiness Items						
The study was published in a peer-reviewed journal.	290	92.4	2,641	63.2	109	<.0001
The study has been highlighted in a major national newspaper, on a national television network, or on a major radio program.	41	13.1	1,621	38.9	83.4	<.0001
The study was conducted by a researcher or research firm that you and/or your colleagues know.	147	46.8	2,254	53.9	5.80	.016
The number of times a study has been cited.	132	42.0	1,740	41.7	.012	.914
Credibility Items						
The research study produced statistically significant results.	157	50.1	3,483	83.6	216	<.0001
The study reported findings for all outcomes, positive or negative.	297	94.6	3,450	82.7	29.9	<.0001
The research described the methods used in detail.	307	97.8	3,426	82.2	50.9	<.0001
The sample size was large.	220	70.1	3,333	79.9	17.0	<.0001
The study randomly assigned students/teachers to a treatment or control condition.	197	62.7	3,041	73.0	15.3	<.0001

Our items on factors influencing trustworthiness and credibility produced two coherent survey scales based on factor analysis (see Appendix B). The first we label *Reputation-Based Trustworthiness*, which includes four items indicating whether the study was (a) published in a peer-reviewed journal, (b) highlighted by a national media outlet, (c) authored by a known researcher, and (d) the number of times it has been cited. The second we label *Methods-Based Credibility*, which includes four items indicating whether (a) the study results were statistically significant, (b) the reporting was comprehensive, (c) the sample size was large, and (d) the study used random assignment. The distributions of the *Reputation-Based Trustworthiness* (Figure 23) and *Methods-Based Credibility* (Figure 24) scales suggest that education researchers' opinions varied on the importance of different aspects of trustworthiness (evident in a wide spread of scores centered between "slightly" and "moderately" important). In contrast, researchers were more likely to agree on the importance of different aspects of credibility (evident in a narrower spread of scores centered at "moderately" important). Again, this reflects the consistency with which researchers emphasize and agree on the importance of methods in driving credibility, as opposed to the importance of trustworthiness of where one publishes and how much recognition the work receives by other researchers, the public, and the press.

Figure 23. Histogram of 'Reputation-Based Trustworthiness' Scale Scores

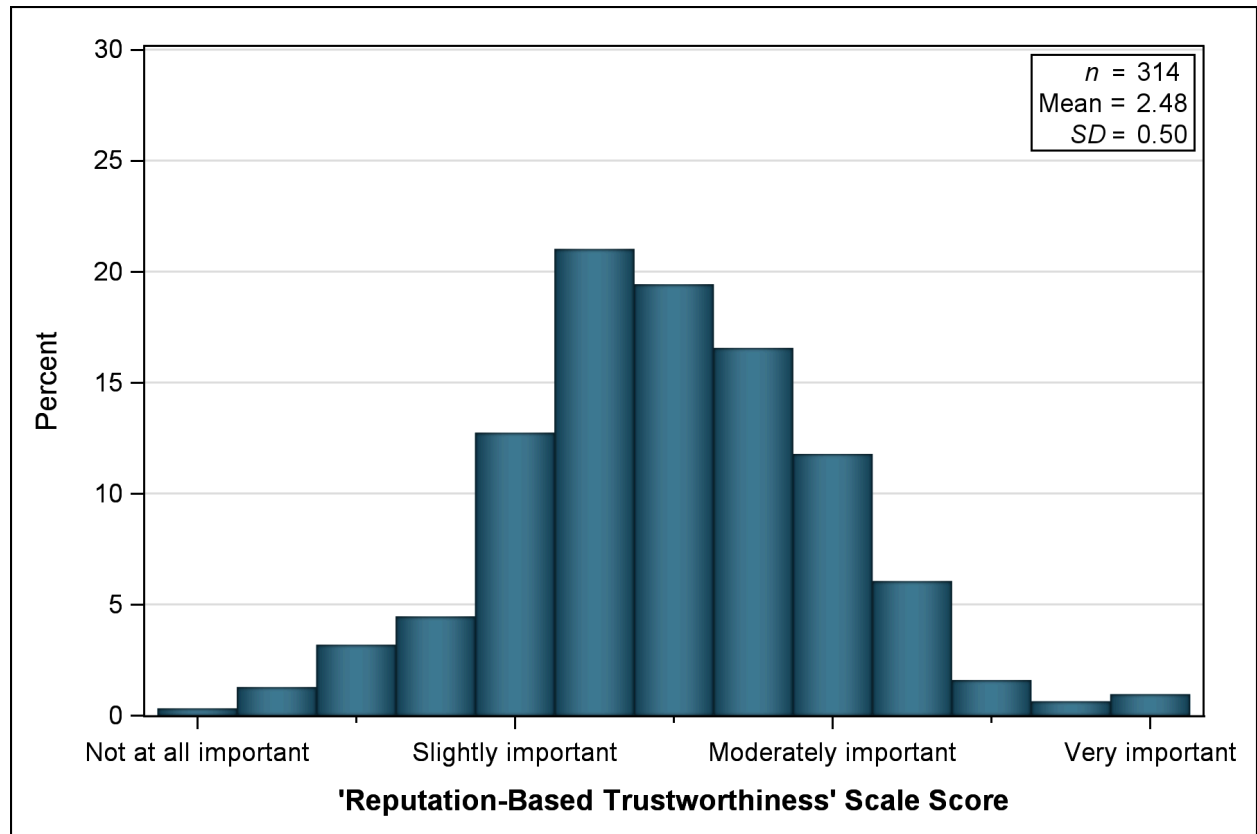
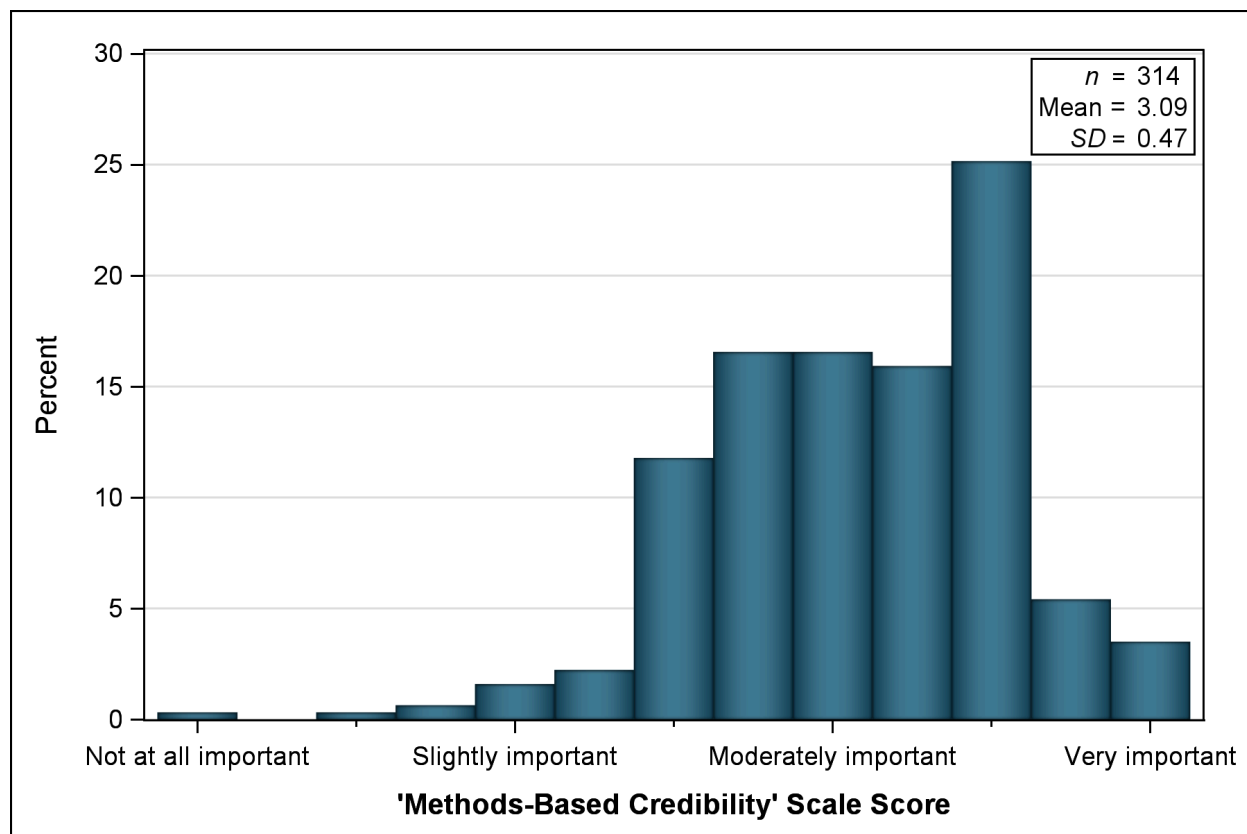


Figure 24. Histogram of 'Methods-Based Credibility' Scale Scores



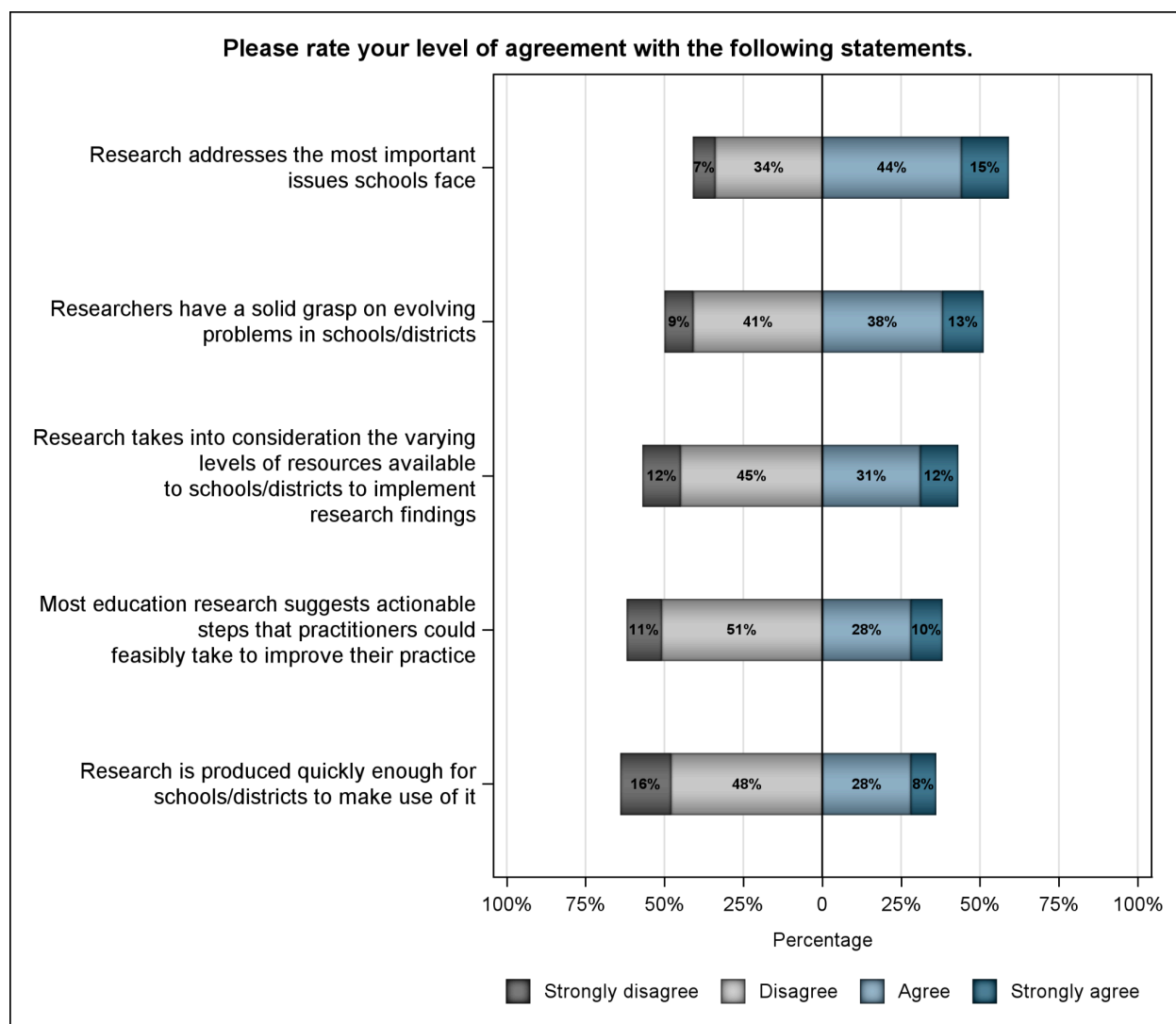
Researchers believe that research is relevant to educational practice but is not responsive enough to the needs of practitioners.

In studies examining barriers and facilitators to research uptake in the education community, practitioners commonly indicate that they desire research that addresses the problems they face within their local contexts (e.g., Tseng & Nutley, 2014). Figure 25 shows the results from five items designed to understand researchers' attitudes about the problems research addresses. Although the majority of respondents "Agree" and "Strongly agree" that research addresses the most important issues schools face the most (59%), many researchers "Disagree" or "Strongly disagree" that research is produced quickly enough for schools/districts to make use of it (64%), suggests actionable steps for practitioners (62%), or takes into consideration the resources that schools and districts have available to implement findings (57%). That even

researchers tend to agree that the research enterprise is not nimble enough to inform practice rapidly is significant—it points to the need to find mechanisms that help ensure research better addresses current questions and needs in education. Findings from our center’s case studies on brokerage revealed that researchers can create favorable conditions to encourage the integration and use of research evidence. Specifically, we found evidence of researchers engaging in direct interactions with practitioners to share research findings and co-designing research products with practitioners. In addition, researchers within our case studies leveraged practitioners’ professional networks by encouraging practitioners to share research with others. Researchers also leveraged intermediaries’ networks to share research findings with practitioner communities (e.g., through events such as conferences).

However, it is important to note that when asked about their projects (see previous sections addressing Q3 and Q4), researchers report doing many things to ensure the relevance and responsiveness of their research for practitioners. However, when asked about research in general, they seem less favorable. This may indicate that many researchers see themselves as working to address widely-held beliefs about the lack of responsiveness of research to policy or practice.

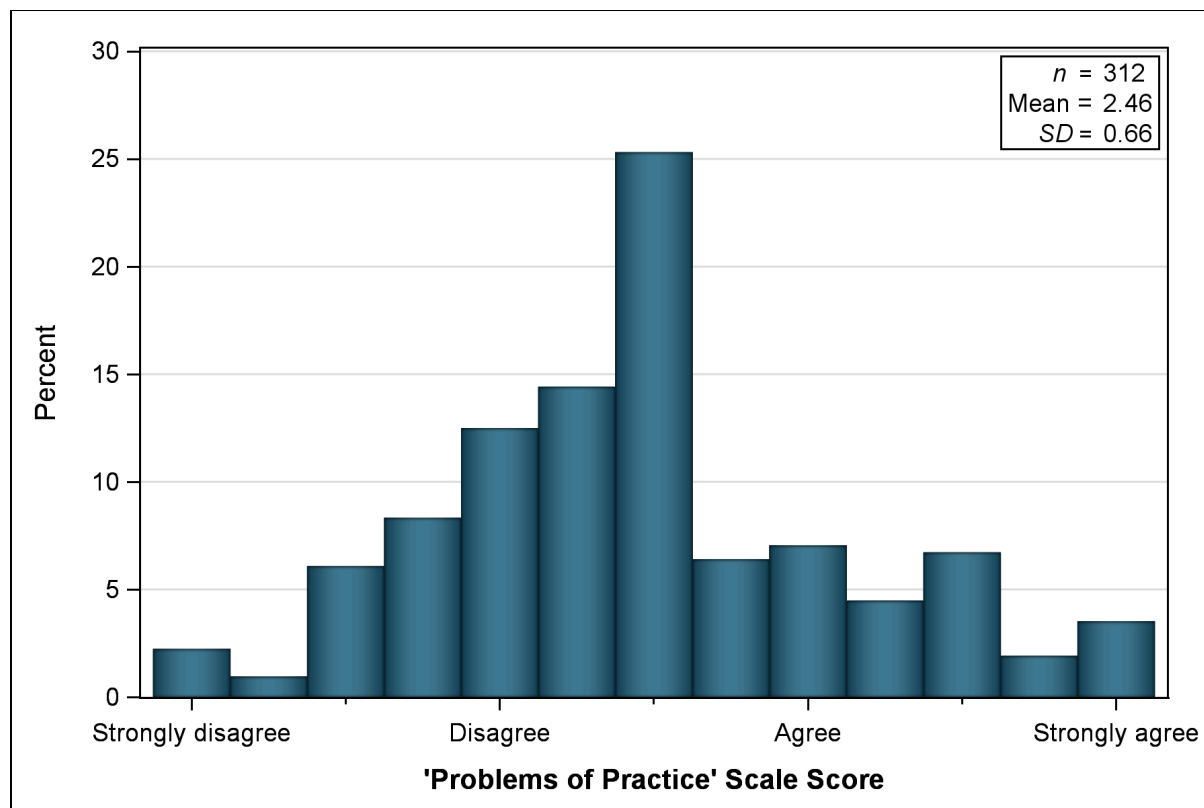
Figure 25. Researchers' Attitudes about the Problems Research Addresses for Education Practitioners



Note: $n = 312$

The *Problems of Practice* items were highly correlated and produced a single coherent survey scale based on a factor analysis (see Appendix B). The *Problems of Practice* scale distribution suggests that most researchers feel that research does not adequately address the problems that practitioners face (Figure 26), which is evident in the predominance of scores in the bottom half of the distribution.

Figure 26. Histogram of 'Problems of Practice' Scale Scores



Additionally, we sought to compare researcher responses to practitioner responses in the SEE-S survey. Table 5 includes a comparison of the means of scales for “Problems of Practice” items that were included in both practitioner (*SEE-S*) and researcher (*SEE-R*) surveys. Practitioners had, on average, modestly greater *Problems of Practice* scale scores. However, it is important to note that researchers’ and practitioners’ mean scores (2.46 and 2.68, respectively) indicate that both communities were considerably divided regarding whether research addresses the problems that practitioners face.

Table 5. Researcher and Practitioner Means on Scales for ‘Problems of Practice’

Scale	Researcher			Practitioner			p value
	n	mean	sd	n	mean	sd	
Problems of Practice	312	2.46	0.66	4,112	2.68	0.61	<.0001

To more closely examine the differences in how researchers and practitioners rated their agreements with the five *Problems of Practice* items, we dichotomized the responses into one level for the “Disagree” options and another for the “Agree” options. We found that, in general, practitioners were more likely to agree with the statements about the relevance of research to practice. The most pronounced difference was for the item about how “actionable” education research is—practitioners were, on average, more likely to agree that education research has actionable recommendations that practitioners could adopt and use in their practice. This may feel counterintuitive, but it is a finding worth exploring further. One explanation may be that educators have broad definitions of what counts as research and consider a wide range of research-based products (see our case studies; Farley-Ripple et al., 2022a) in their responses to this set of items, whereas researchers may have considered academic research and traditional products in theirs.

Table 6. Proportions of SEE-R and SEE-S Respondents Who ‘Agreed’ or ‘Strongly Agreed’ with Statements About ‘Problems of Practice’

Survey Item	Researcher		Practitioner		χ^2	<i>p</i>
	n	%	n	%		
Most education research suggests actionable steps	119	38.1	3,428	82.1	339	<.0001
Research is produced quickly enough for schools/districts to make use of it	113	36.2	2,425	58.4	58.0	<.0001
Research takes into account the varying level of resources available to schools/districts...	134	43.0	2,284	54.8	16.4	<.0001
Researchers have a solid grasp on evolving problems in schools/districts	156	50.0	2,555	61.5	15.9	<.0001
Research addresses the most important issues schools face	184	59.0	2,560	61.5	0.759	.38

Taken together, this section provides important insight into how education researchers and practitioners see room for improvement in the relevance and responsiveness of current education research. Although the two communities place greater or lesser emphasis on specific aspects of relevance, there is a clear indication of room for improvement in every dimension we measured. Efforts to encourage improvement in the relevance and timeliness of research provide a potential opportunity for strengthening research uptake. Several authors have offered frameworks to guide the production of more useful and relevant research (e.g., Gutierrez & Penuel, 2014; Ming & Goldenberg, 2021). Further, the recently published report from the National Academies of Sciences, Engineering, and Medicine on the future of education research at IES suggests many ways to promote the increased utility of education research (National Academies, 2022).

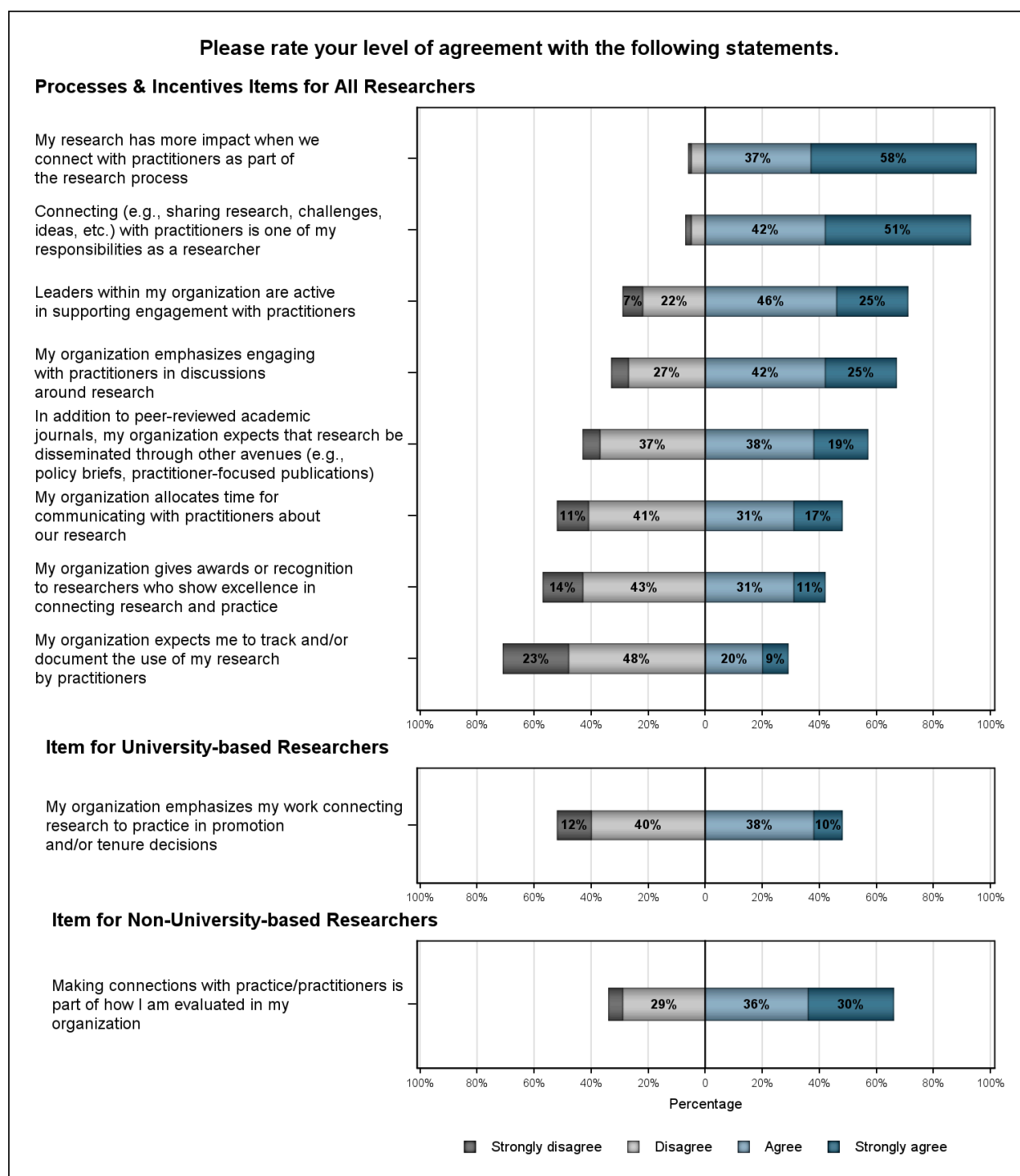
Researchers agree that connections with practitioners are important, but processes and incentives for connecting with practitioners vary widely across organizations.

Historically, the primary goal for educational researchers, universities, and other research institutions in which they work has been to produce knowledge. However, more recently, more attention has been paid to the broader social impact of research organizations (especially publicly funded ones; Cox & Barker, 2011; Naidorf, 2014). In this environment, many education researchers are increasingly seeking ways to share their findings beyond academic conferences and journals. However, emerging research suggests that institutional structures, processes, and incentives shape the work of educational researchers.

To learn more about the organizational contexts in which educational researchers work, we asked survey respondents about the structures, processes, and incentives present in their respective organizations. Figure 27 details participants' perceptions of organizational processes and incentives for connecting research and practice. Researchers tended to agree that their research had more impact when practitioners were engaged during the research process. However, their responses also suggest that many institutions do not recognize and value work

intended to mobilize research so practitioners can use it. A factor analysis of these items (see Appendix A and B) showed that all ten items formed a coherent scale indicating the extent to which the respondent's organization promoted research mobilization through processes and incentives. The distribution of the *Processes and Incentives* scale is presented in Figure 28.

Figure 27. Perceptions About Organizational Processes and Incentives for Connecting with Practitioners



Note: $n = 307$

Using Item Response Theory (IRT) methods (see Appendices A and B), the *Processes and Incentives* scale score for university-based researchers was based on the nine primary items plus the item they answered about promotion and tenure, and the score for non-university-based researchers was based on the nine primary items plus the job performance item they answered. Thus, there was one *Processes and Incentives* scale score. The distribution of the scale is included in Figure 28, and it shows a mean response right below the “Agree” point, with considerable variation from “Strongly disagree” to “Strongly agree.”

Figure 28. Histogram of ‘Processes and Incentives’ Scale Scores

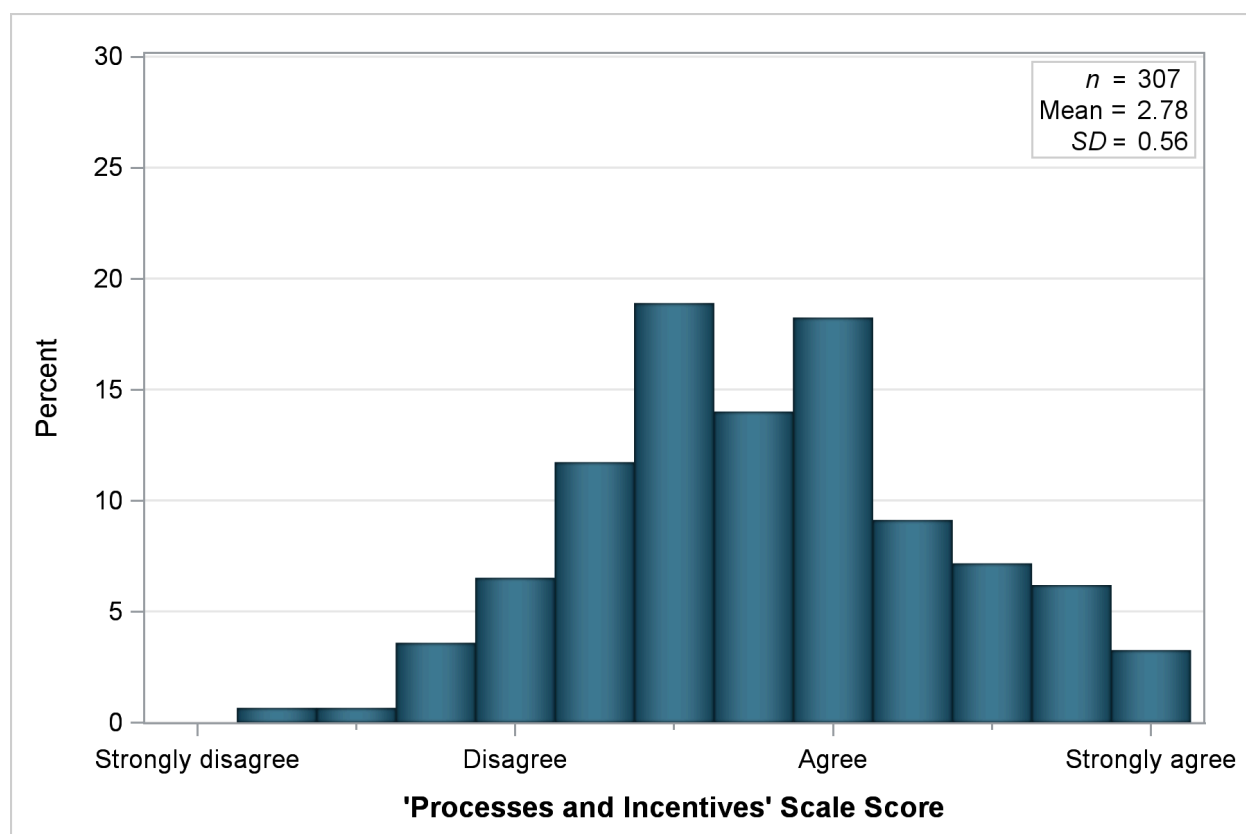


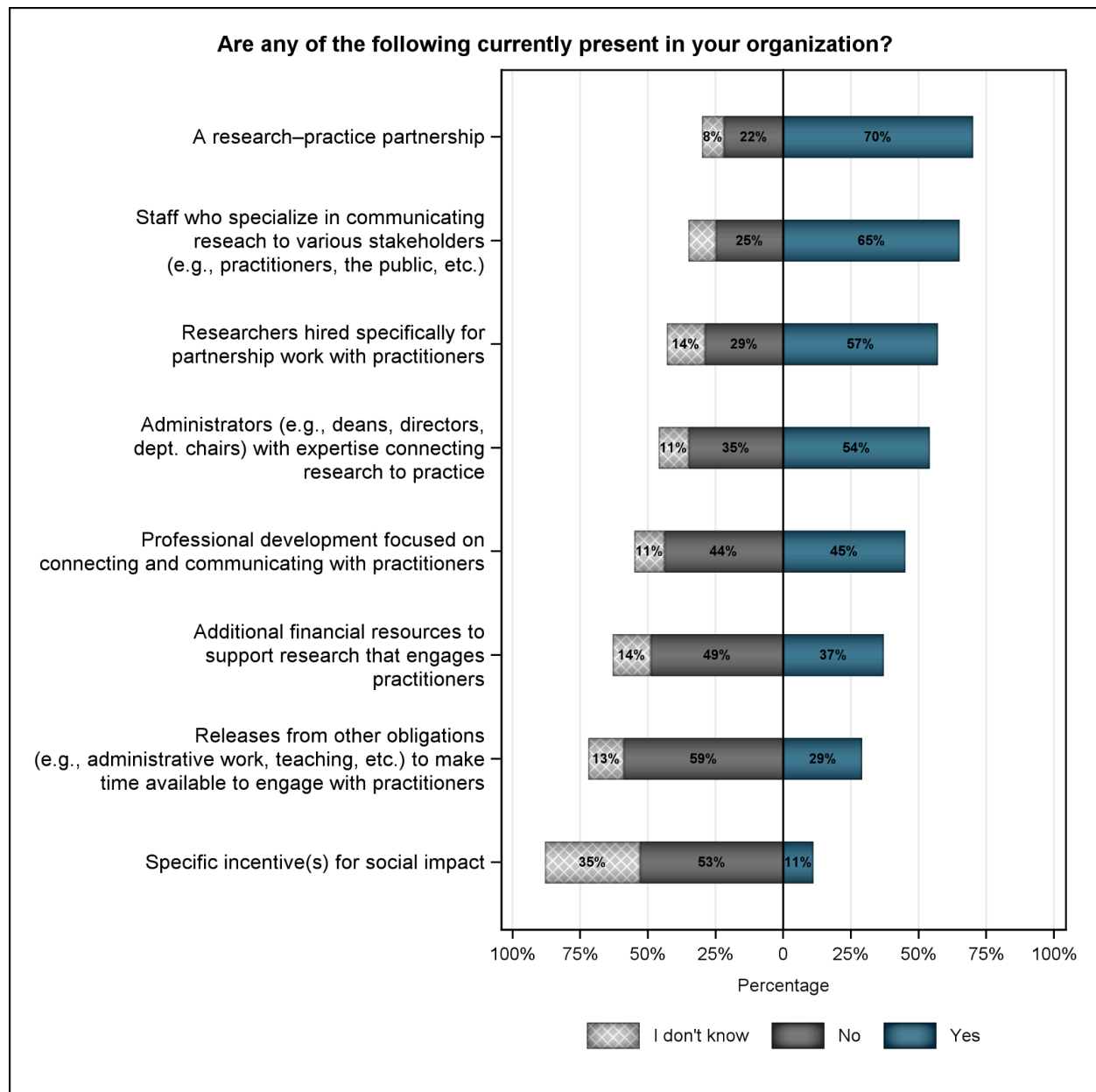
Figure 29 includes the results for the items about whether certain structures exist in the institutions in which researchers work. On average, education researchers reported having a mean of 3.68 structures (sd = 2.17) in their organization for facilitating their engagement with practitioners. Importantly, almost 10% of respondents reported having no such structures.

Researchers responding to the *SEE-R* indicated that some supports were commonly present, such as research–practice partnerships and staff with a specialty in communicating research findings. The development of research-practice partnerships (RPPs) that include teachers, researchers, and school and district administrators has proliferated as a way to infuse evidence-based practice within local education contexts. Our findings indicate that most *SEE-R* respondents work in research organizations that are involved in RPPs (70%, Figure 29). This starkly contrasts a similar item from the *SEE-S* survey, in which only 20% of respondents reported that their school or district was involved in an RPP. There are at least two potential explanations for this stark contrast in results between the two communities. The first is that our sample is dominated by education researchers who have been funded by IES or NSF—two agencies with a recent history of funding collaborations and whose work, therefore involves some degree of partnership with schools, districts, or state agencies. In other words, our sample is not representative of the full population of education researchers, and the prevalence of RPP involvement among researchers in our sample is far higher than for the full population of researchers. The second potential explanation is that RPPs may be quite common among research universities and education research organizations, but their capacity to engage with many districts and schools is limited. In other words, there may be a high proportion of researchers engaged in RPP work, but there are simply too few education researchers to engage in enough partnerships to cover every district and school across the nation.

A large portion of our respondents indicated that there is insufficient support for the work of knowledge mobilization. Over half of the survey respondents ‘Disagreed’ or ‘Strongly disagreed’ that their organizations recognize efforts to connect research and practice through awards and recognition (57%, Figure 27), or through promotion and tenure decisions (52%, Figure 27). Also, 52% of the respondents ‘Disagreed’ or ‘Strongly disagreed’ that researchers were able to allocate enough time for communicating with practitioners about research (Figure 27). Furthermore, almost no education researchers reported working within organizations with specific incentives for social impact (11%, Figure 29). These findings echo prior studies that argue a significant barrier to conducting research that is useful to and used by practitioners is the reward and incentive system of universities (i.e., promotion and tenure; Fischman et al.,

2018; Gamoran, 2023; Mitton et al., 2007; Sá et al., 2011). Scholars in the field of knowledge mobilization (e.g., Ellison & Eatman, 2008; Gamoran, 2023; Jacobson et al., 2004; Nutley et al., 2007) suggest that one solution is to revise promotion and tenure guidelines to provide specific incentives for researchers who dedicate time and resources to these types of efforts. We contend that research organizations have institutional reasons to consider this work critical, including the opportunity to benefit their communities by not only producing research but translating it into practice.

Figure 29. Existence of Organizational Structures, Processes, and Incentives for Engaging with Practitioners



Note: $n = 311$. We consider certain roles (e.g., staff, administrators) to be organizational structures because they may serve as gatekeepers to researchers' ability to engage in knowledge mobilization activities.

Q6. How do researchers connect with the community of educational practitioners?

Education researchers are increasingly developing fundamental relationships with members of the practice community to *change practice through research* and *change research through practice*. While education researchers may develop formal relationships with members of the education community through research-practice partnerships, researchers can also develop informal relationships with individual practitioners. The education researchers in our sample were asked questions regarding their attitudes about connecting with practitioners as well as the number of times they have been in contact with practitioners or practitioners have been in contact with them. (There were parallel items for practitioners on the *SEE-S*, so the responses on each survey are summarized in this section.)

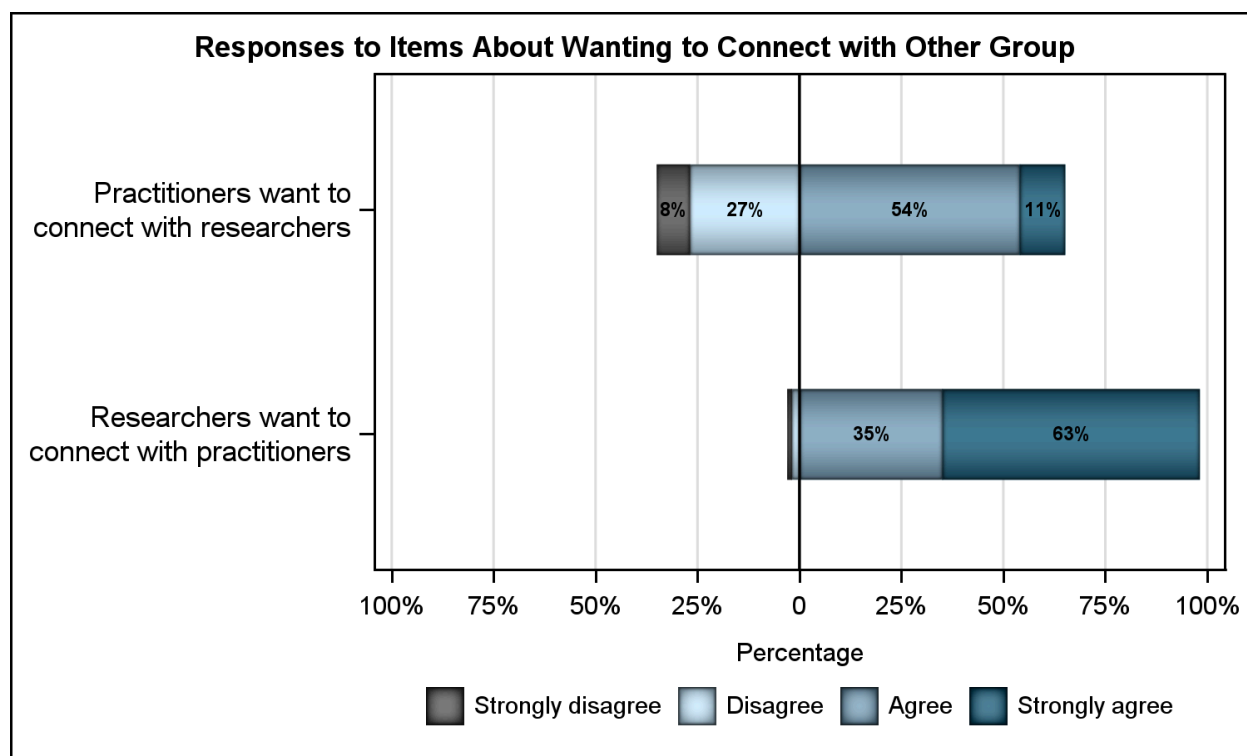
Researchers have a strong desire to connect with practitioners, but the connections that do happen are typically sporadic and involve only a select few practitioners.

Compared with how practitioners report an interest in connecting with researchers, researcher respondents to the *SEE-R* tend to more strongly agree with the statements about wanting to connect (Figure 30) and knowing how to connect with practitioners (Figure 31). The results of chi-square tests of independence indicate that these differences were both statistically significant at the alpha .0001 level. Also, compared with practitioners contacting researchers, we found that researchers were much more likely to indicate that they had contacted practitioners about problems in the practitioners' school or district ($p < .0001$). Figure 32 shows that 46% of researchers reported contacting practitioners at least six times in the past two years. Similarly, Figure 33 indicates that researchers were much more likely to report being contacted by practitioners ($p < .0001$). Researchers are valuable resources for practitioners and can play a role in helping practitioners who have specific questions about applying research to practice.

On one hand, the fact that the vast majority of researchers reach out to and are approached by practitioners is incredibly promising in terms of creating opportunities to build relationships

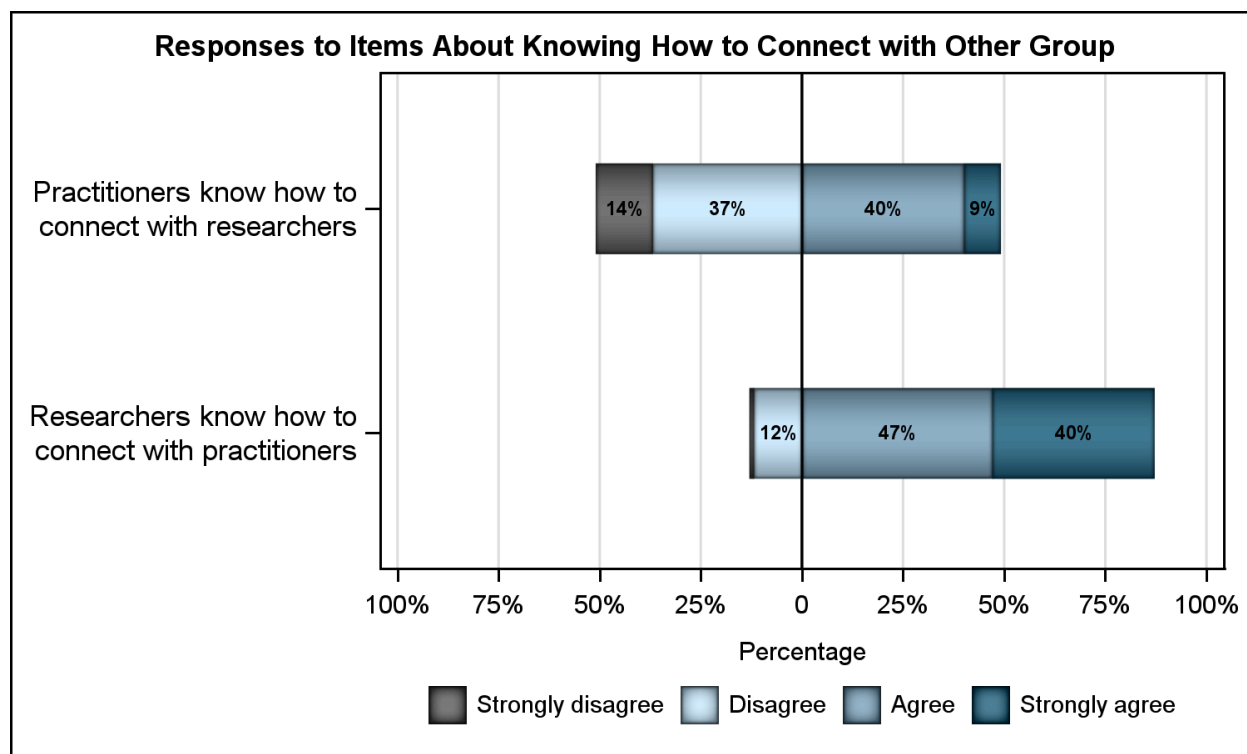
between the two communities, which are widely understood as critical to supporting research use. On the other hand, engagement across communities does not appear sustained. There could be barriers to long-term relationships, or sustained interaction is not required for researchers to enable practitioners to use research. Previous findings likely contribute to this problem, including a lack of incentives, processes, and structures for researchers and practitioners. Furthermore, data from our survey of school-based practitioners (Farley-Ripple et al., 2022b) suggest nearly the opposite pattern, with virtually no practitioners indicating they had contacted or been contacted by researchers. While this makes sense, given that a researcher need not have a relationship with every single educator to have a relationship with the school or district, it also signals the problem of scaling relationships. There are fewer education researchers than educators, and many researchers may work with the same school or district. In this sense, while direct relationships between researchers and practitioners may be ideal, additional solutions to linking the two communities are likely needed to reach the full education system.

Figure 30. Responses on the SEE-S and SEE-R to Items About Wanting to Connect with Other Group



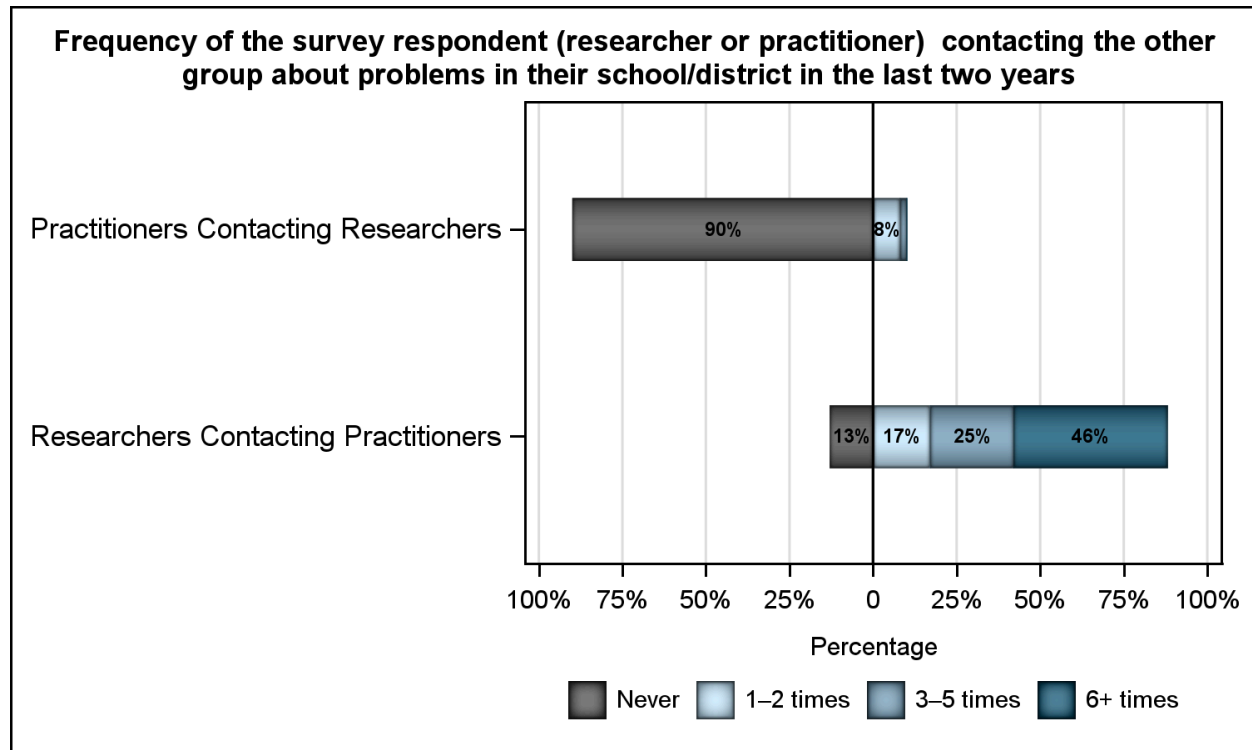
Note: Researcher $n = 312$; Practitioner $n = 4,159$

Figure 31. Responses on the SEE-S and SEE-R to Items About Knowing How to Connect with Other Group



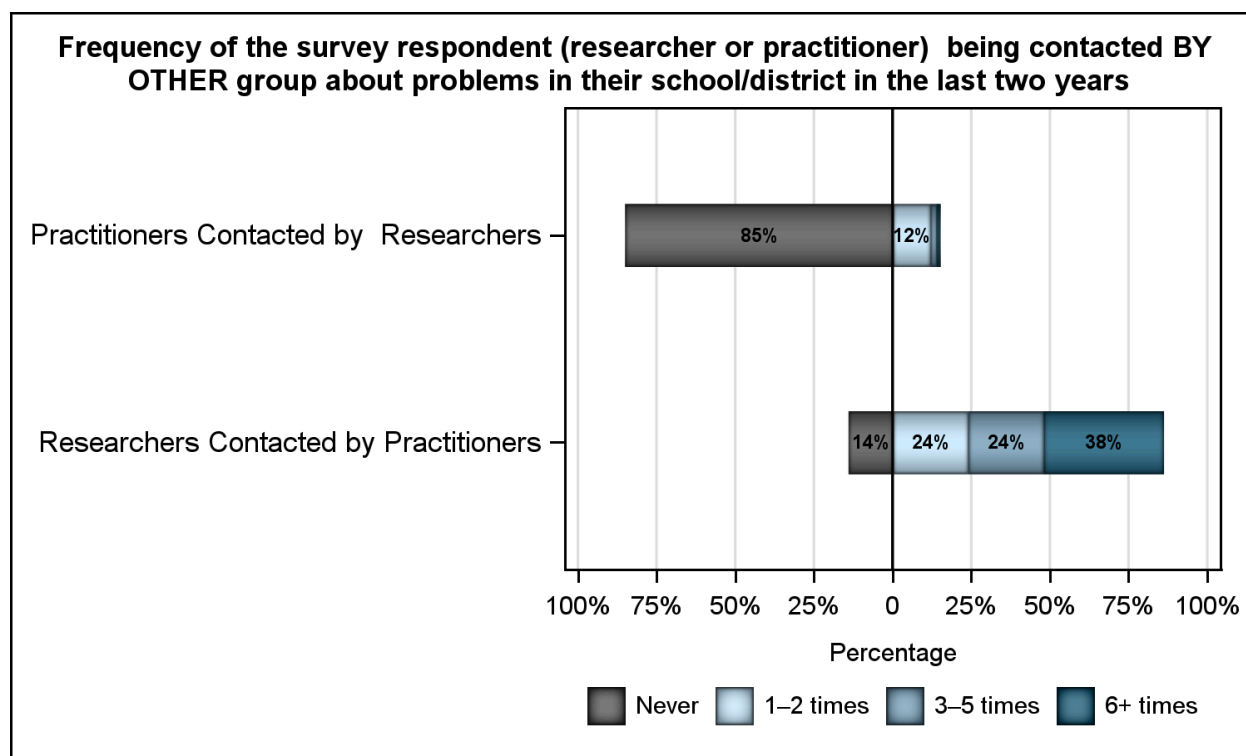
Note: Researcher $n = 312$; Practitioner $n = 4,167$

Figure 32. Frequency of SEE-S and SEE-R Survey Respondents Contacting the Other Group



Note: Practitioner $n = 4,215$; Researcher $n = 307$

Figure 33. Frequency of *SEE-R* and *SEE-S* Survey Respondents Being Contacted by the Other Group



Note: Practitioner $n = 4,215$; Researcher $n = 307$

Comparisons of researcher and practitioner responses for the items about having contact with the other group are included in Table 7. The stark differences underscore just how much more, on average, researchers report contacting practitioners and being contacted by practitioners about problems in the practitioners' school or district. For example, 45% of the researchers in the *SEE-R* report contacting practitioners six or more times in the last two years about a problem in their school or district, but less than 1% of practitioners in the *SEE-S* reported contacting researchers six or more times.

Table 8 includes the frequency distributions and results of the chi-square tests of proportions for the two "Relationships Between Communities" items included in both surveys. Researchers were more likely to agree both with the statement about "wanting" to connect and "knowing how" to connect with practitioners—just 2% percent of researcher participants disagreed with the statements about wanting to connect (compared with 34% of practitioners). This illustrates

an apparent gulf between the two groups in terms of interest in connecting with members of the other group. Often, researchers may depend on practitioners for access to information about practice or assistance with conducting research in schools. Still, practitioners may perceive that it is not as necessary to connect with researchers if they obtain research through other means or rely on other sources of information for decisions about educational practice.

Researchers connect with the community of educational practitioners directly and indirectly through various media outlets, organizations, and individuals.

In our conceptual framework, networks provide an important mechanism for linking research and practice, creating means for practitioners to access research information and for researchers to mobilize knowledge. Researchers were asked about the individuals, organizations, and media sources they turn to to connect with the practice community and which category best describes that resource. Respondents to this survey section (n=179) generated 1,572 nominations, 38.8% of which were organizations, 36.5% were individuals, and 24.9% were media sources. The mean number of nominated resources was 8.78, with a standard deviation of 6.66. Descriptive statistics about the network ties that connect researchers with practice are included in Table C1 in the Appendix.

Figure 34 presents the full set of ways researchers report connecting with practice. Notably, researchers work through professional associations and districts (including the central office in general and specific administrators), which is highly consistent with reports from practitioners in the *SEE-S*. Figure 35 shows that there are a variety of mechanisms that connect researchers with practice. “Mediated” connections are those in which researchers access practice through intermediaries; “Direct” connections are those connections to practice in which intermediaries do not facilitate access; “Local” connections are connections to practice facilitated by other researchers. Data show that most of those pathways are mediated, which highlights the importance of intermediaries in linking research and practice communities.

Figure 34. Composition of Networks Connecting Researchers to Practice

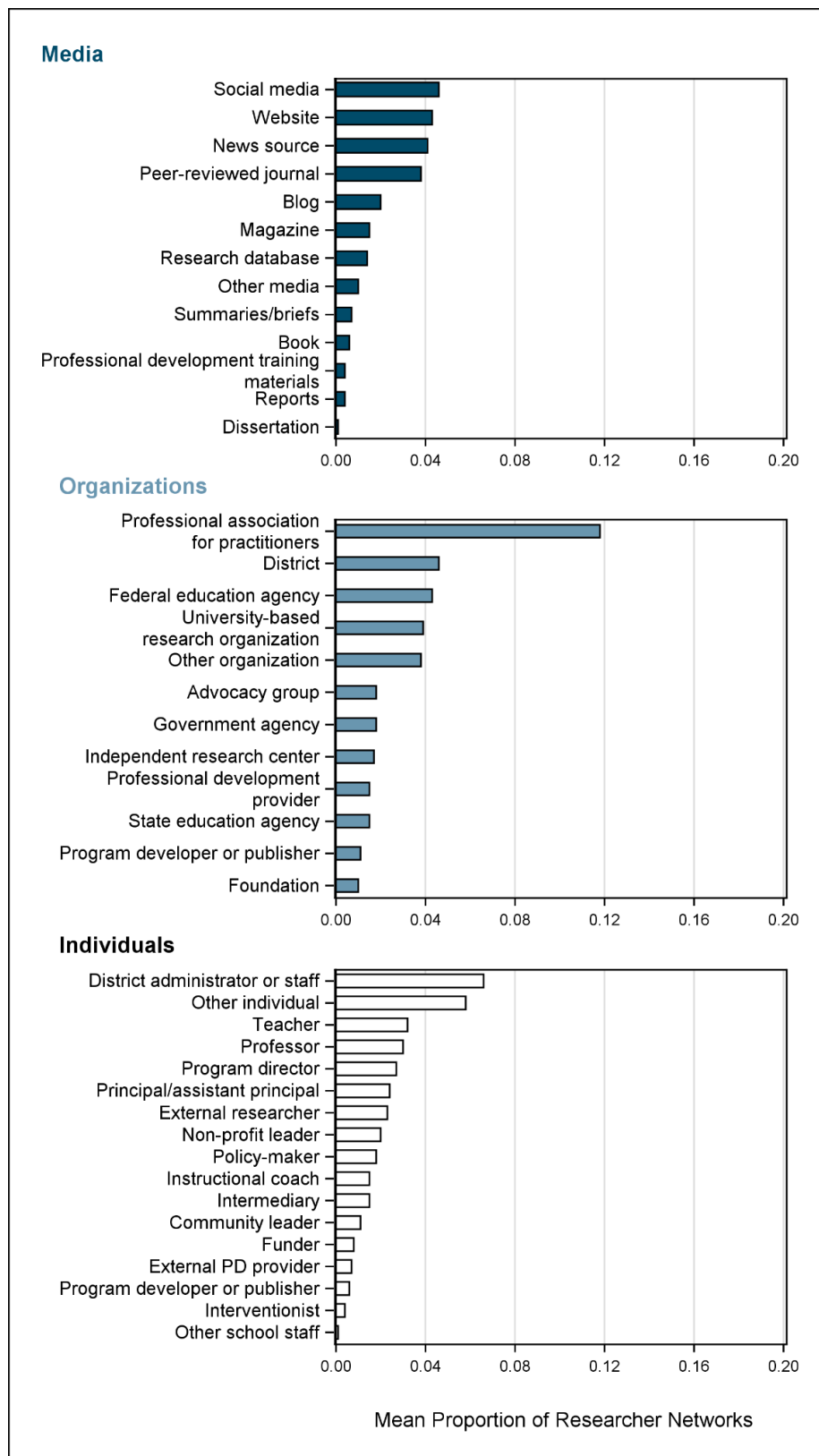
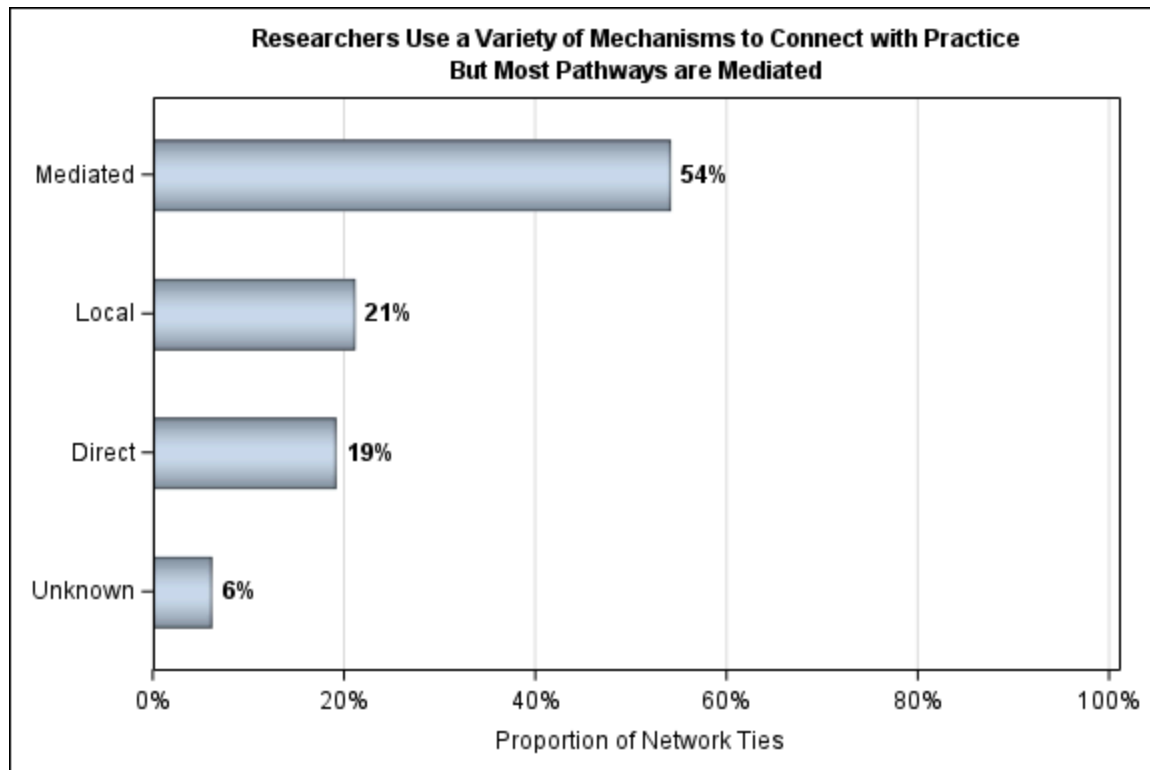
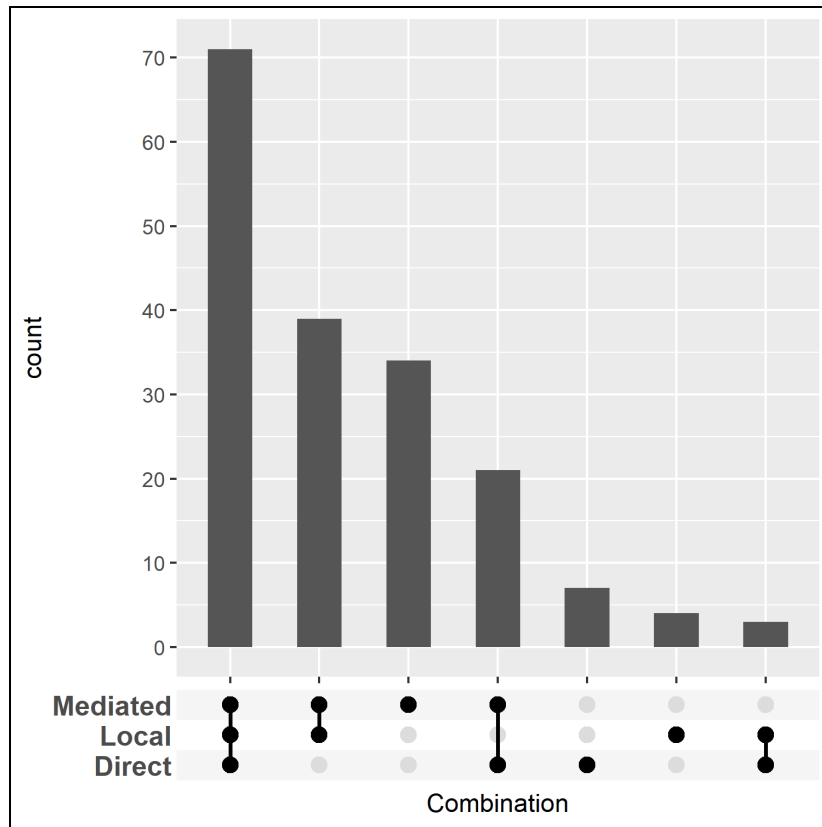


Figure 35. Mechanisms to Connect Researchers with Practice



We examined the frequency of researchers reporting they used different combinations of the types of networks. For this analysis, we derived indicators for each Mediated, Direct, and Local networks with a value of 1 if the proportion of network ties was greater than 0. The counts of the combinations are included in Figure 36. The most frequent combination was to have a network that used all three types of connections, followed by a network composed of Local and Mediated ties. Using intermediaries is in the four most frequent combinations, underscoring the importance of how researchers leverage other entities when making connections to practice.

Figure 36. Combinations of Different Groups of Network Ties



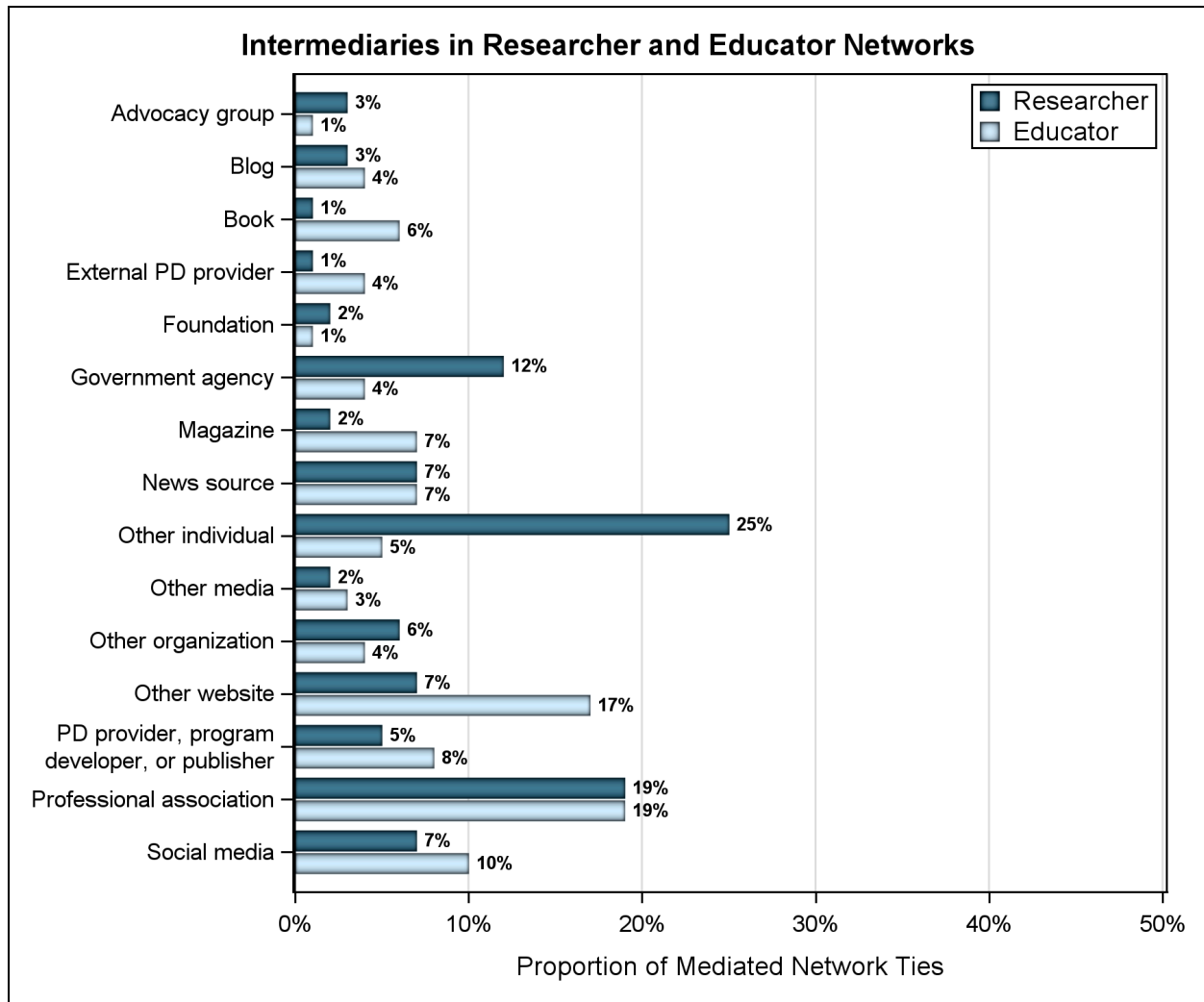
Note: $n = 179$

There are promising commonalities and notable disconnects among intermediaries in researcher and educator networks.

The importance of intermediaries in linking research and practice was also noted in our findings from the *SEE-S*. Educators rarely connected directly with research (only 8.8% of all ties were characterized in that way) and much more frequently relied on intermediaries (35.6% of ties were to intermediary organizations). Given the diffuse set of intermediaries working in the education sector, this finding begs the question of whether educators and researchers are connecting through or to a common set of individuals, organizations, or media sources. Of those ties categorized as mediated, researchers and educators rely on some common resources, as demonstrated in Figure 37, such as professional associations, news sources, blogs, and social media. Shared ties to professional associations are particularly important as these organizations

feature strongly in both educator and researcher networks, creating a powerful mechanism for better communication across community boundaries and an important role for associations as boundary spanners. However, data in Figure 37 also suggest some notable disconnects, including practitioner reliance on a wide range of websites, PD providers (individuals and organizations), books, and magazines and researcher reliance on other uncategorizable individuals and organizations, advocacy organizations, and government agencies. These findings warrant additional investigation but suggest different understandings of how educational decision-making and practice are supported and enacted across the education system. For example, researcher connections to government agencies suggests a belief that it is important to influence policy and regulation at higher levels of the system. On the other hand, educators' use of websites, PD providers, and magazines implies a more decentralized set of influences on what happens in classrooms. This misalignment may be problematic not only for creating effective pathways between research and practice but also for system-wide coordination and improvement.

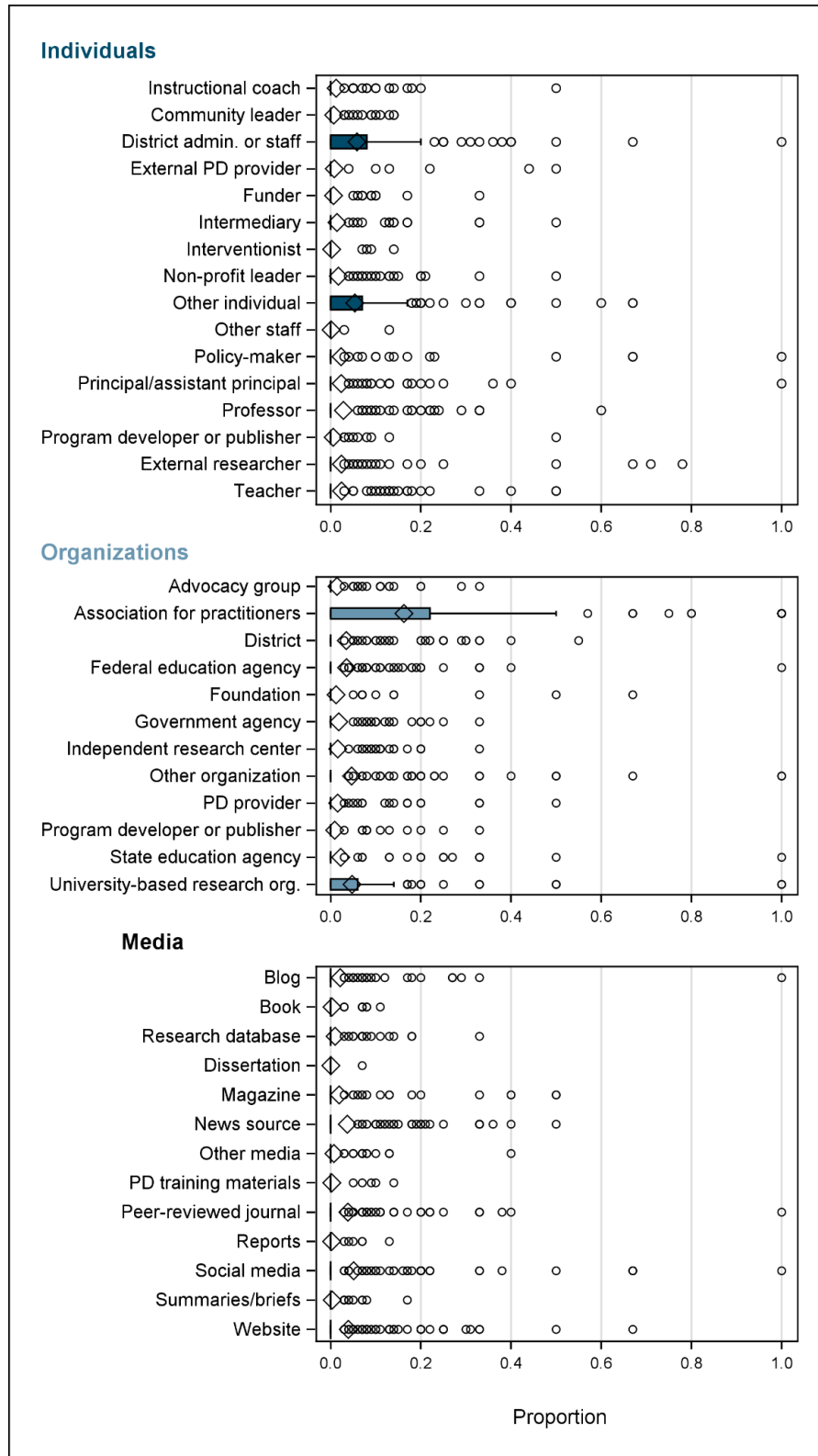
Figure 37. Intermediaries in Researcher and Educator Networks



Researchers' networks vary widely, suggesting different knowledge, skills, and approaches to connecting with practice.

We also considered researchers' individual networks - that is, the size and composition of the set of resources they rely on to connect with practice. These networks varied widely, with researchers identifying as few as a single individual (n=13, 7.3%) to our maximum of 30 (n=2, 1.1%). Further, these networks differed substantially in composition. Figure 38 illustrates that variability by type of resource.

Figure 38. Boxplots of Proportions of Researchers' Networks Composed of Specific Entities



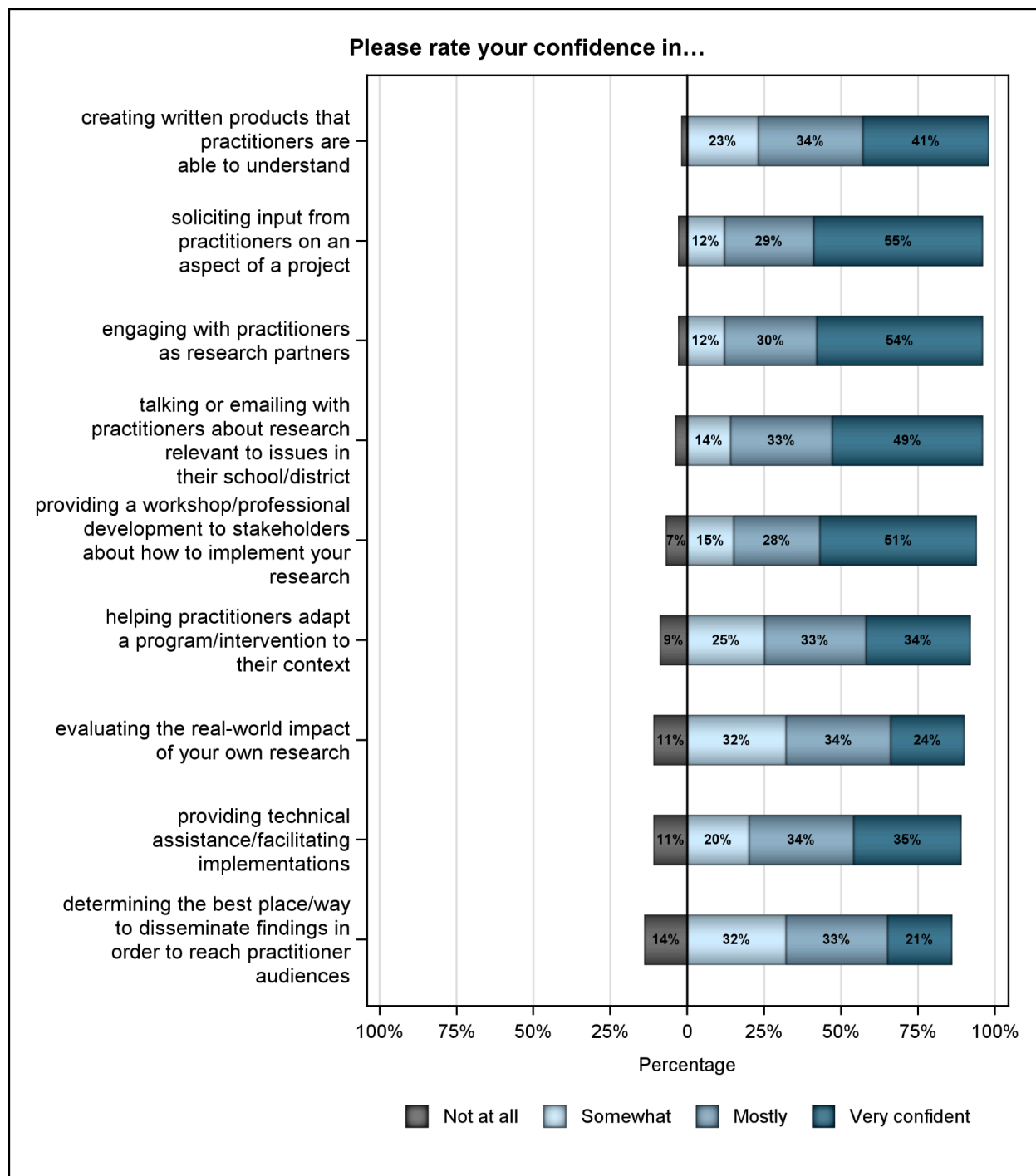
Q7. How confident are researchers in our sample about engaging with practitioners and connecting research and practice?

Covered in this section of the *SEE-R* are survey items that measure education researchers' capacities to engage in knowledge mobilization and to conduct practitioner-focused research. Included are items that ask about 1) their confidence in creating practitioner-focused research products and 2) their training and experiences related to conducting practitioner-focused research studies.

Researchers are generally confident in their ability to mobilize knowledge but are less confident in disseminating research to policy and practice audiences.

This set of items focuses on education researchers' capacity to create research designed to inform practitioner audiences. Figure 39 details the researchers' responses. Generally, survey respondents were confident in their ability to engage in activities related to knowledge mobilization. Importantly, one area in which researchers were less confident was determining the best place/way to disseminate findings to reach practitioner audiences.

Figure 39. Education Researchers' Confidence in Abilities to Engage in Knowledge Mobilization



Note: $n = 289$

Converted to a scale score, the distribution of *Capacity to Engage in Knowledge Mobilization* is included in Figure 40. Typically, researchers were “Mostly” confident in their capacity to engage in knowledge mobilization. We were interested in exploring the different dimensions of capacity for engaging in knowledge mobilization, so we investigated whether there were latent sub-scales for capacity to engage in knowledge mobilization. The results of our EFA and CFA suggested that there were 3 sub-scales: *Capacity to Disseminate Research*, *Capacity to Adapt Research to the Local Context*, and *Capacity to Communicate with Practitioners*. Even though researchers were also confident in communicating with practitioners (see the panel chart in Figure 41), the mean subscale score for *Capacity to Disseminate Research* was the lowest of the three subscale means. These results suggest there may need to be additional professional learning and support in those areas.

Figure 40. Histogram of ‘Capacity to Engage in Knowledge Mobilization’ Scale Scores

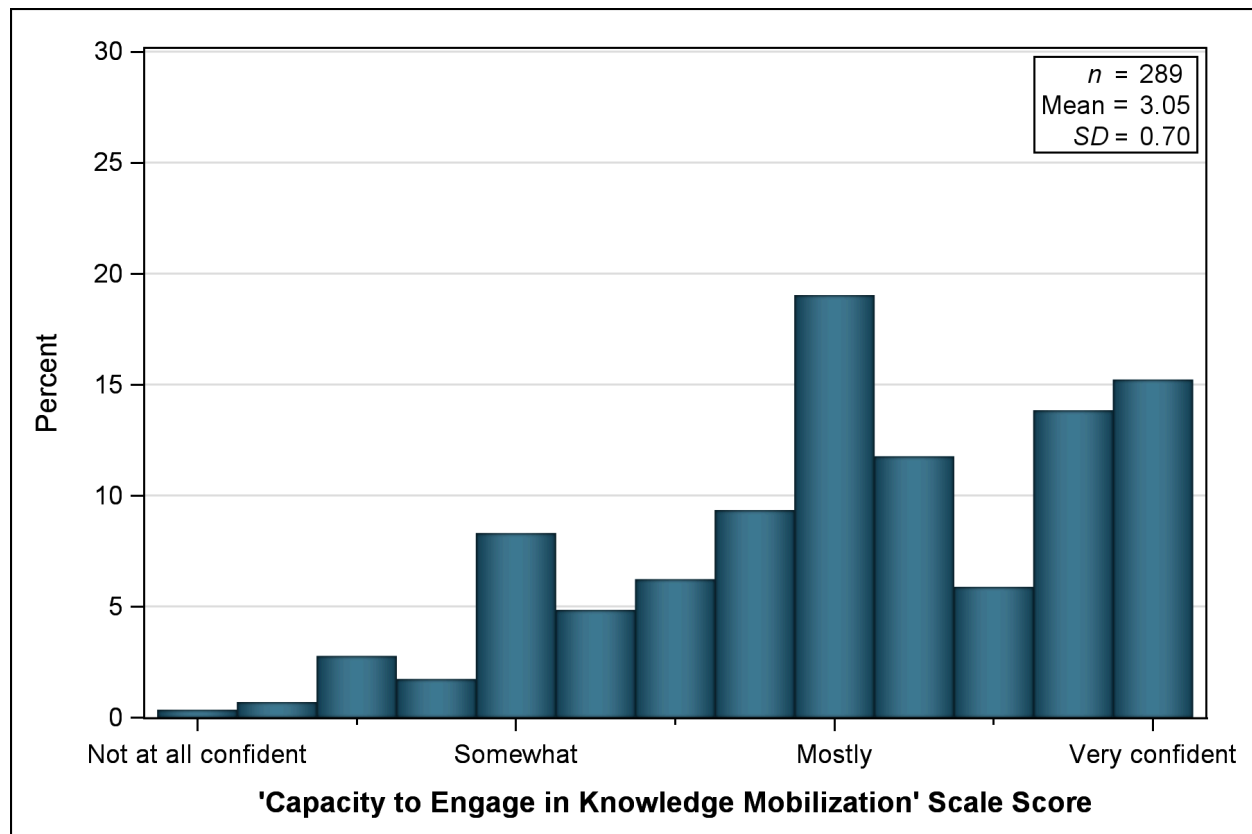
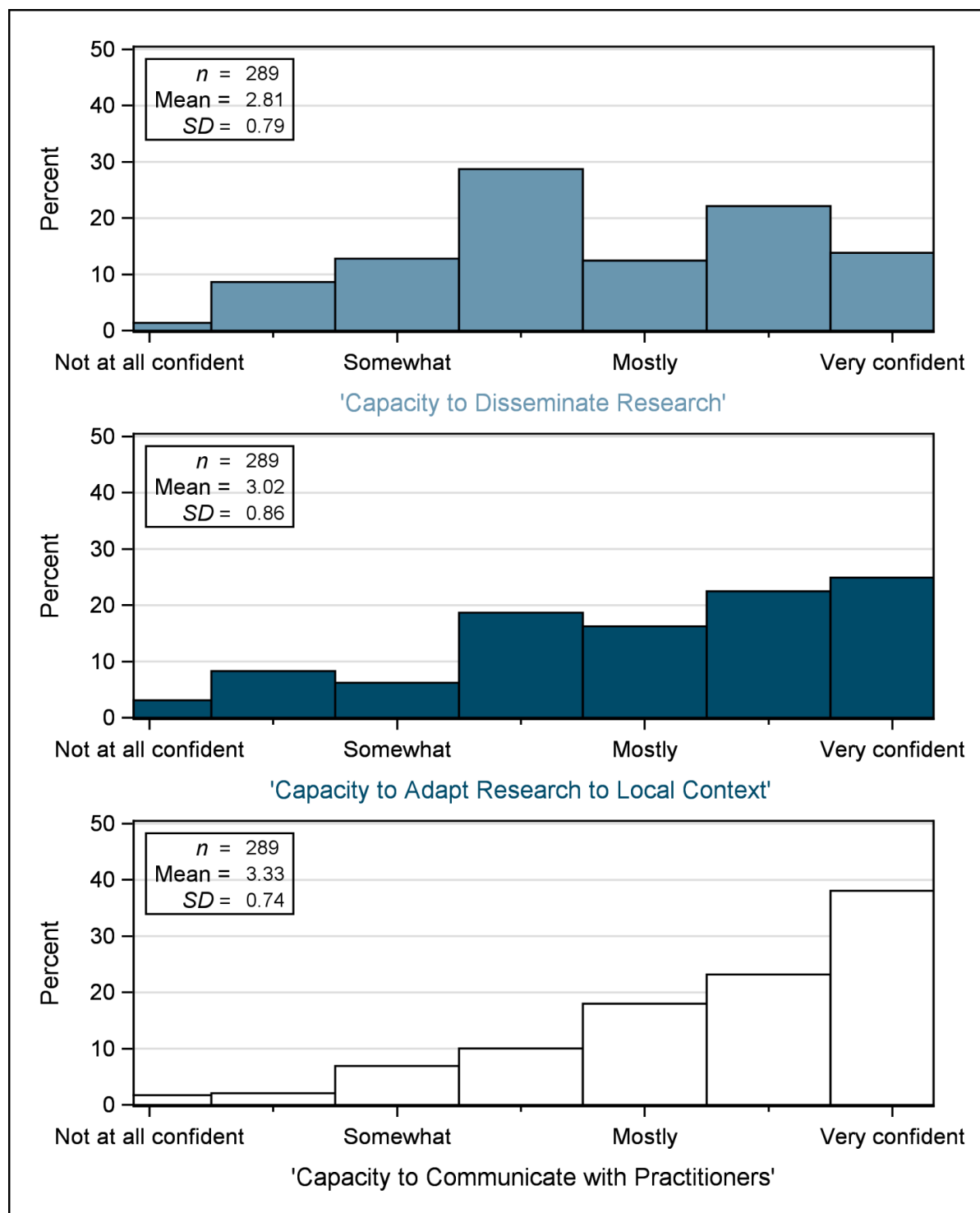


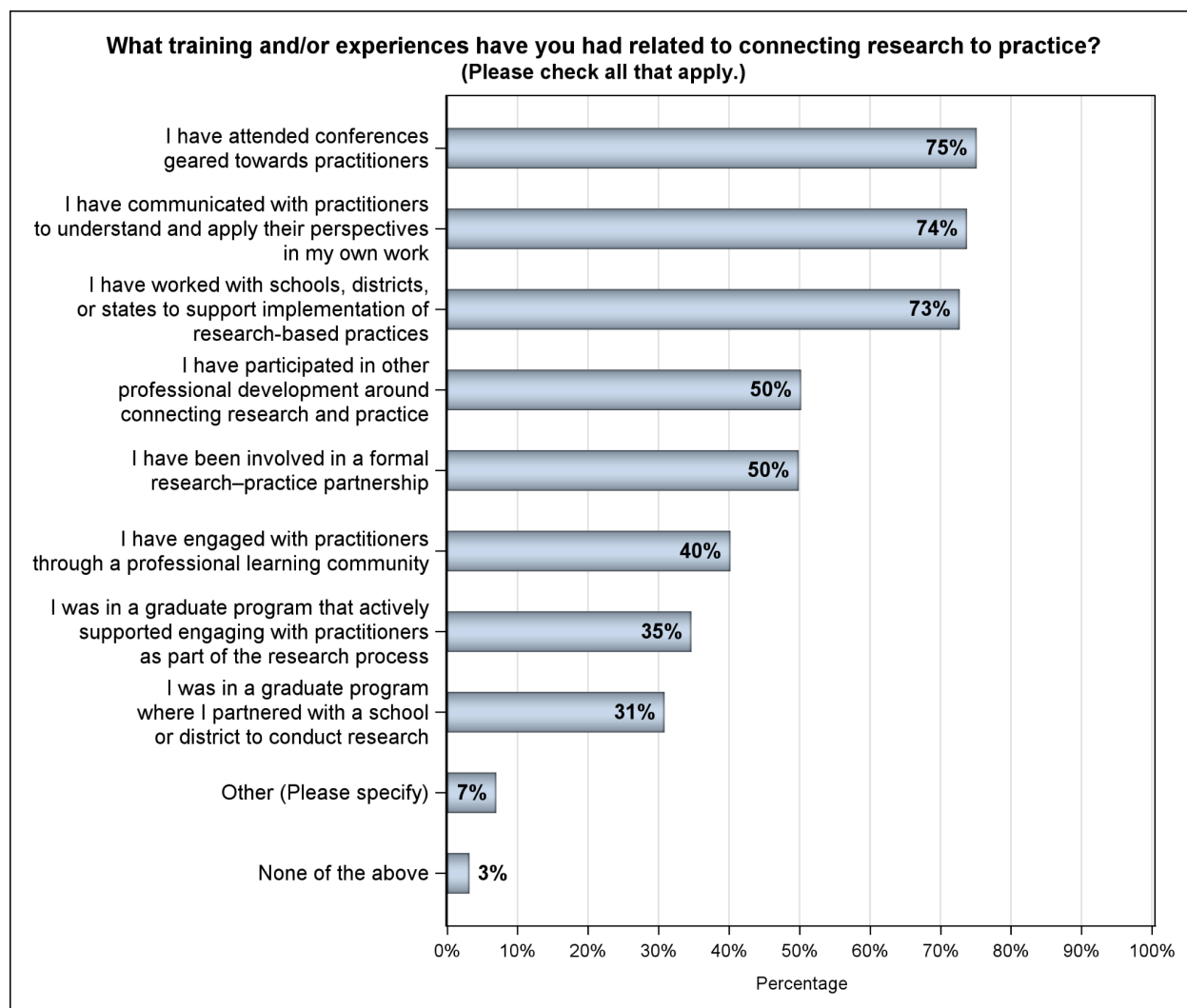
Figure 41. Histograms of 'Capacity to Engage in Knowledge Mobilization' Subscale Scores



Researchers' capacity to engage with practice comes more from experiences than formal training.

The *SEE-R* included items describing education researchers' training and experiences in creating practitioner-focused research products. Responses to these questions are detailed in Figure 42. Seventy-five percent of survey respondents reported attending a conference geared towards practitioners. Seventy-four percent indicate they have communicated with practitioners to understand and apply their perspectives in their work. Also, 73% of respondents reported working with schools, districts, or states to support the implementation of research-based practices. Given that researchers tend to report that dissemination activities were not incentivized or supported, these results suggest that researchers value dissemination even when it is not typically formally recognized. However, these results do suggest that there are opportunities to support knowledge mobilization more formally by expanding access to this type of training.

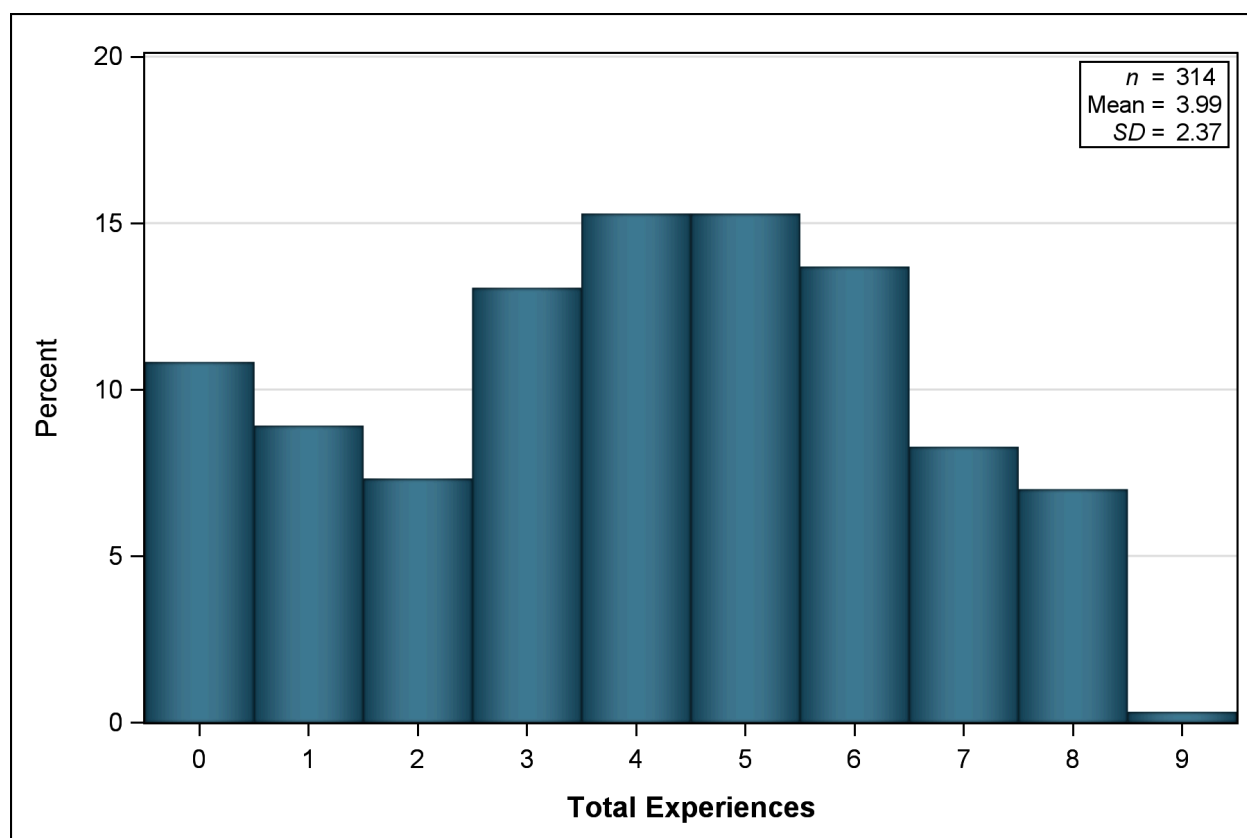
Figure 42. Education Researchers' Research-Related Training and Experiences



Note: $n = 314$. Respondents could select multiple answers; thus, percentages do not equal 100.

The distribution of the total number of experiences is included in Figure 43. While researchers reported an average of 4 experiences related to connecting research to practice, almost 20% reported only having 0-1 experiences. Therefore, some researchers are fairly limited in how they engage in activities that connect research to practice, and it is important to identify possible barriers to participating in these activities that could otherwise help researchers make research relevant to a practitioner audience.

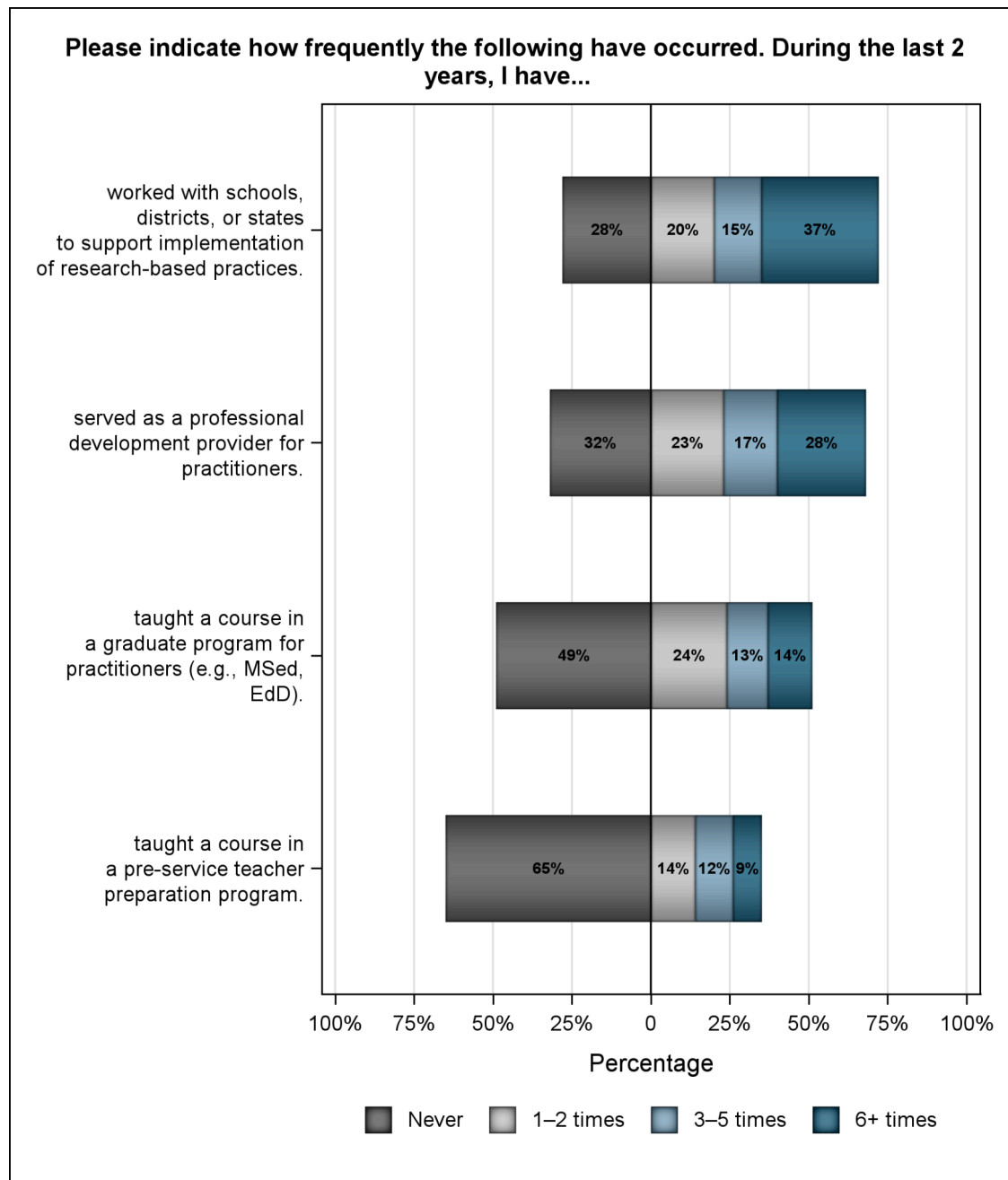
Figure 43. Distribution of Total Experiences Related to Connecting Research to Practice



Education researchers were also asked to respond to questions about the frequency of engaging in different knowledge transfer activities (Figure 44). About half of the respondents (52%) reported working with schools, districts, or states to support the implementation of research-based practices at least three times a year. It was common for researchers to report not having taught a course in a graduate program for practitioners (49%) or a course in a pre-service teacher preparation program (65%). Another means by which researchers may gain experience working and sharing research with practitioners is through academic programs and professional learning. We therefore asked researchers about these experiences. In the last two years, 68% of respondents reported having delivered professional development and 51% reported having taught a graduate course—and fewer reported teaching in pre-service preparation programs. There may be an untapped opportunity for researchers to connect with

future educational practitioners by having more contact with pre-service teachers in teacher-education programs.

Figure 44. Education Researchers' Knowledge-Transfer Activities



Note: $n = 289$

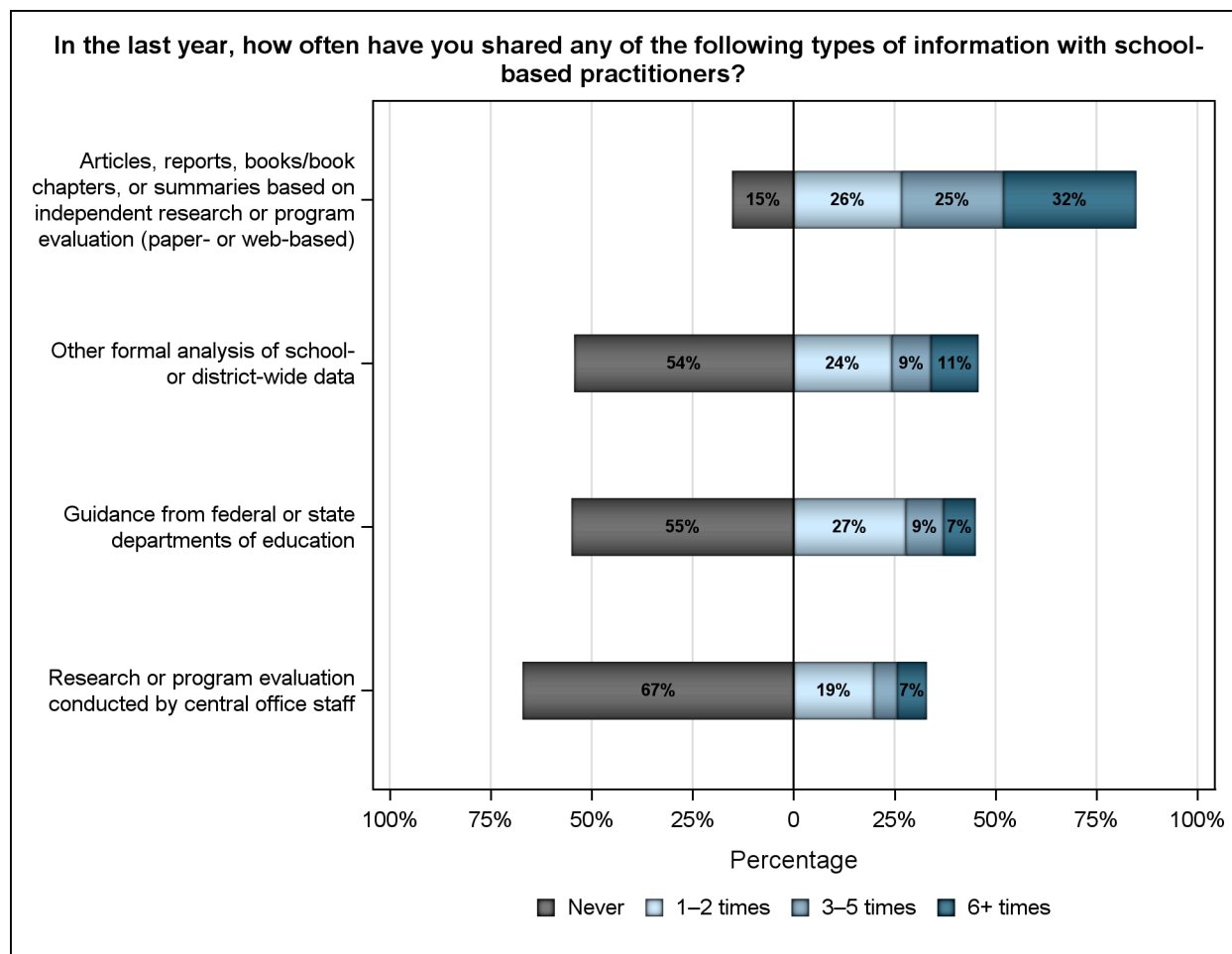
Q8. To what degree do researchers in our sample engage in research brokerage activities?

Respondents were asked questions about sharing evidence with the practitioner community to gauge the extent to which researchers engage in research brokerage activities. Researchers were first asked about the frequency with which they shared different types of evidence with education practitioners and whether and how they shared their perspectives on interpreting research or evaluating the quality of research shared with practitioners.

Researchers often report sharing research findings or summaries of research.

Researchers most frequently shared items were articles, reports, books/book chapters, or summaries based on an independent research or program evaluation (Figure 45). These products may appeal more to a practitioner audience than federal guidance or reports based on local data analyses. Researchers were also less likely to share analysis of formal school- or district-wide data. This may be because researchers may not have access to local research and data analysis from schools or school districts.

Figure 45. Brokering of Different Forms of Evidence as Reported by Education Researchers



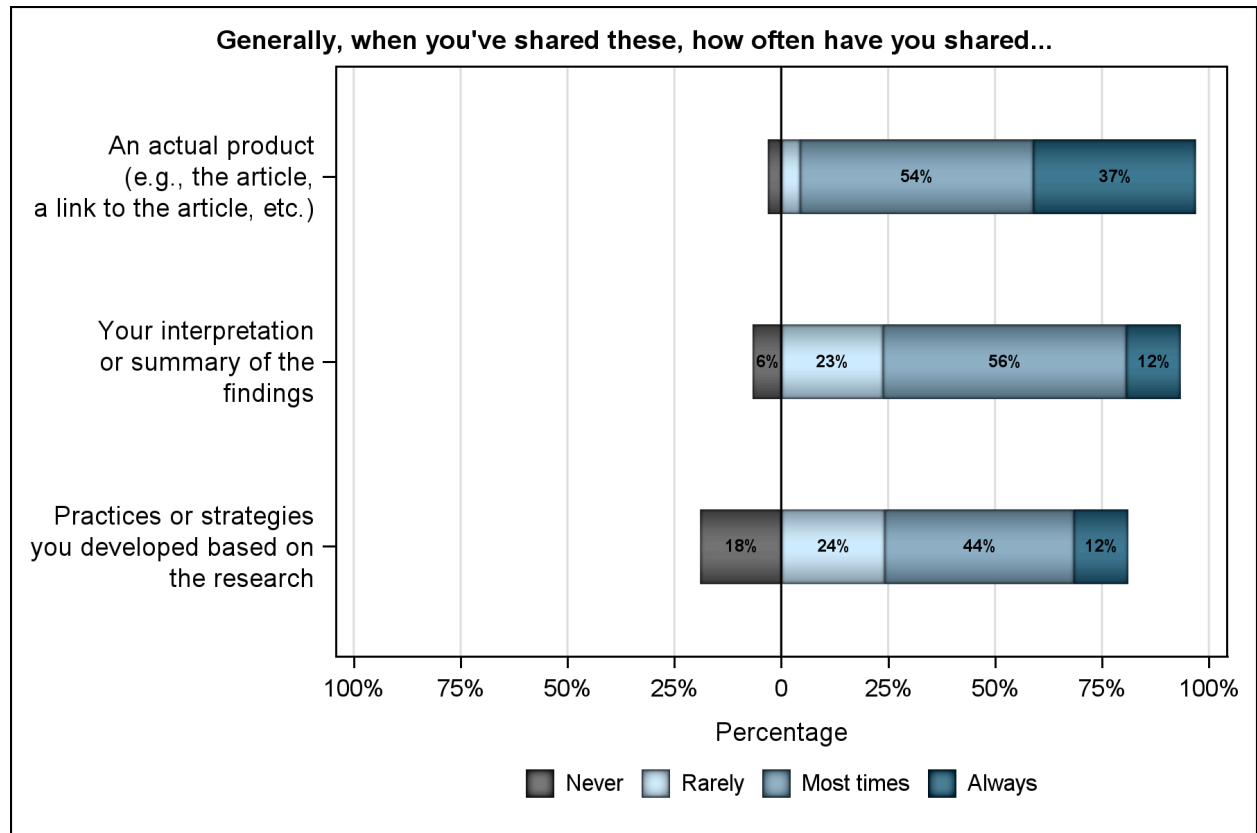
Note: $n = 289$

Researchers report sharing research products and strategies based on research.

Respondents were also asked to report *what* they shared in the past year (Figure 46). The vast majority (91%) of respondents indicated that in the last year, they provided practitioners with an actual research product (e.g., a link to a research article) “Most times” or “Always.” Only a small number of researchers (18%) reported that they “Never” share practices or strategies they developed based on their research. Thus, researchers are active in sharing research and in making products for practitioners. The histogram of the *Brokerage-Interpretation* scale scores

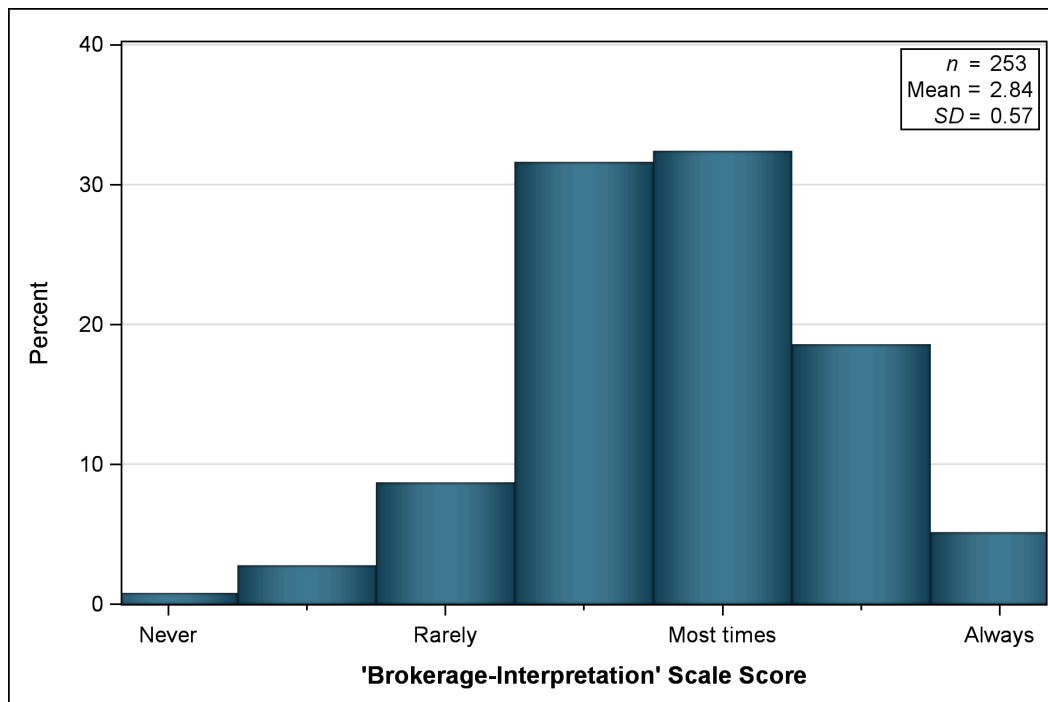
suggests that sharing interpretable products was a relatively frequent activity for respondents (Figure 47).

Figure 46. Brokerage Interpretation Activities



Note: $n = 253$

Figure 47. Histogram of Brokerage-Interpretation Scale Score



Researchers and practitioners answered three items about how they interpreted research when sharing it with others. However, the *SEE-S* and the *SEE-R* had different response values for the highest response levels. For the *SEE-S*, the categories were “Never,” “Rarely,” “Sometimes,” and “Often,” and for the *SEE-R* the categories were “Never,” “Rarely,” “Most times,” and “Always.” To compare respondents on both surveys, we trichotomized the Brokerage-Interpretation items by deriving one category from the two highest response levels (a category labeled here as “More often”). The distributions of those trichotomized items and the results of chi-square tests are included in Table 7. The results suggest that researchers, compared with school-based practitioners, were more likely to share the actual research product or an interpretation of the research. Still, practitioners were modestly more likely to share strategies based on the research. This suggests that researchers may need to ensure that they find the practical relevance for educators and share that along with their interpretations, for practitioners are interested in knowing how or why research should change what they do. Being more likely to share strategies reflects how practitioners are likely more interested in what research can help them to do.

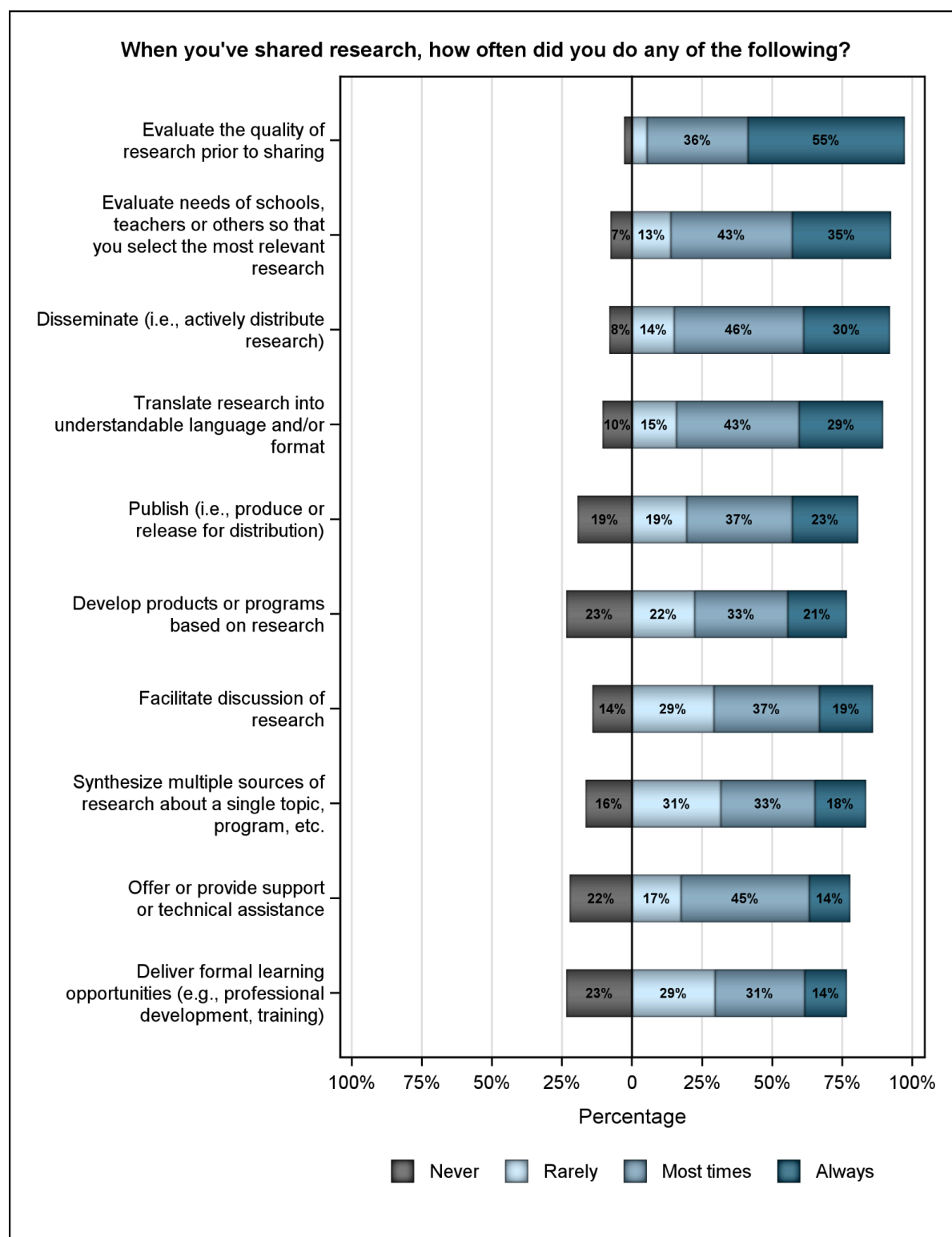
Table 7. Distributions of Trichotomized Brokerage-Interpretation Items

Scale	Researcher		Practitioner		χ^2	<i>p</i> value
	n	%	n	%		
Sharing the Product					101.0	<.0001
Never	8	3.2	324	13.1		
Rarely	11	4.4	650	26.3		
More often	234	92.5	1,497	60.6		
Sharing the Interpretation					10.0	.007
Never	17	6.7	279	11.3		
Rarely	60	23.7	710	28.7		
More often	176	69.6	1,481	60.0		
Sharing Strategies					7.5	.024
Never	48	19.0	318	12.9		
Rarely	61	24.1	602	24.4		
More often	144	56.9	1,543	62.7		

Researchers frequently engage in a variety of brokerage activities when sharing research.

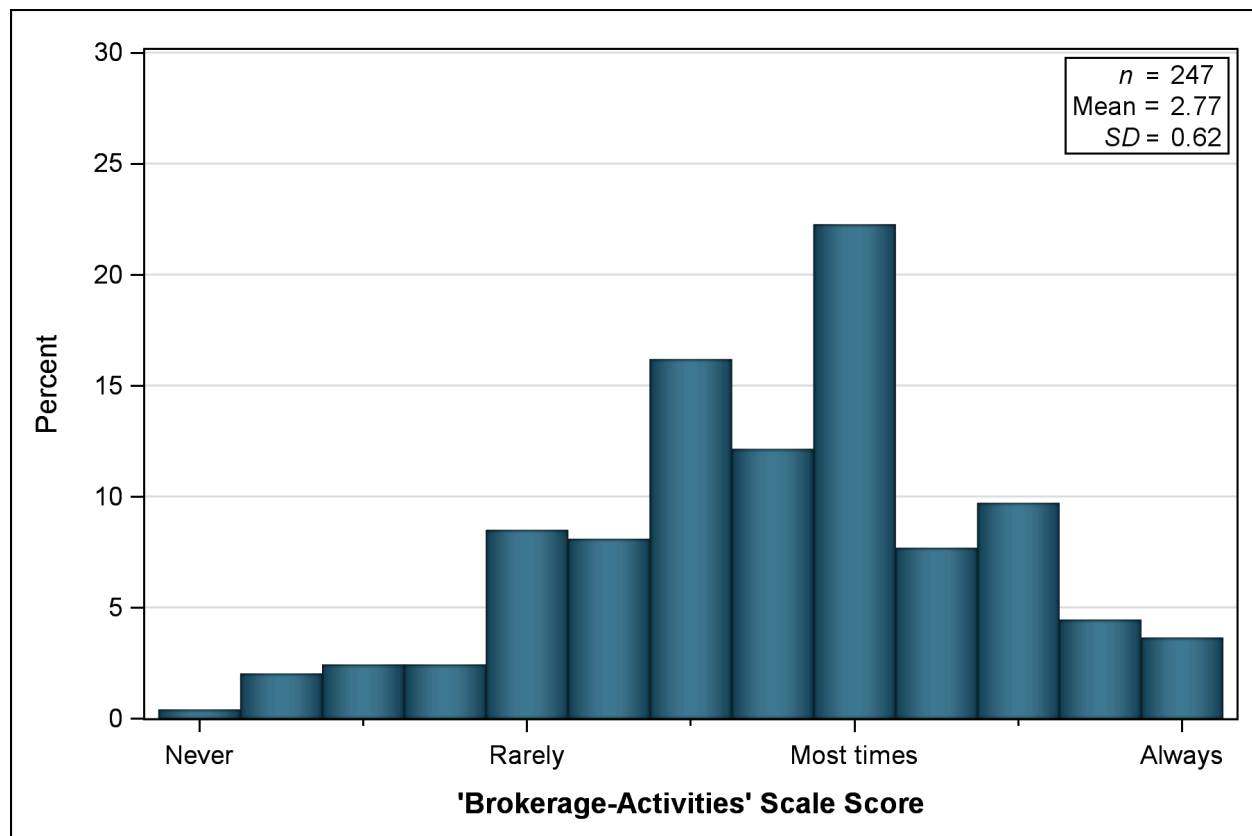
Researchers who shared educational research were asked about their activities when sharing research evidence. These items focused on evaluating the evidence or context, dissemination, and assisting with moving the evidence into practice (see Figure 48). As Figure 48 shows, researchers reported engaging in various knowledge mobilization activities to support research use. They reported engaging less often in activities centered on facilitating the use of research. The histogram of the *Brokerage-Activities* scale scores also indicates that respondents tended to engage in these activities frequently as the mean is slightly below the ‘Most times’ value of the individual items (Figure 49). And very little of the distribution is below the “Rarely” point of the scale.

Figure 48. Research Brokering Activities Reported by Education Researchers



Note: $n = 247$

Figure 49. Histogram of 'Brokerage-Activities' Scale Score



A comparison of the *Brokerage-Activities* scale scores for researchers and practitioners suggests that researchers more frequently engaged in activities to help practitioners find and use research (Table 8). These results may illustrate the differences in the roles of practitioners and researchers, with researchers perhaps more likely to be conducting research and discussing it with others and carrying out activities that help research become useful to and usable by practitioners. (After we dichotomized the individual *Brokerage-Activities* items, we found that researchers had a greater self-reported frequency of engaging in all activities, on average, than practitioners except for “deliver formal learning opportunities,” for which we did not find evidence of a difference between researchers and practitioners.)

Table 8. Researcher and Practitioner Means on “Brokerage - Activities” Scale

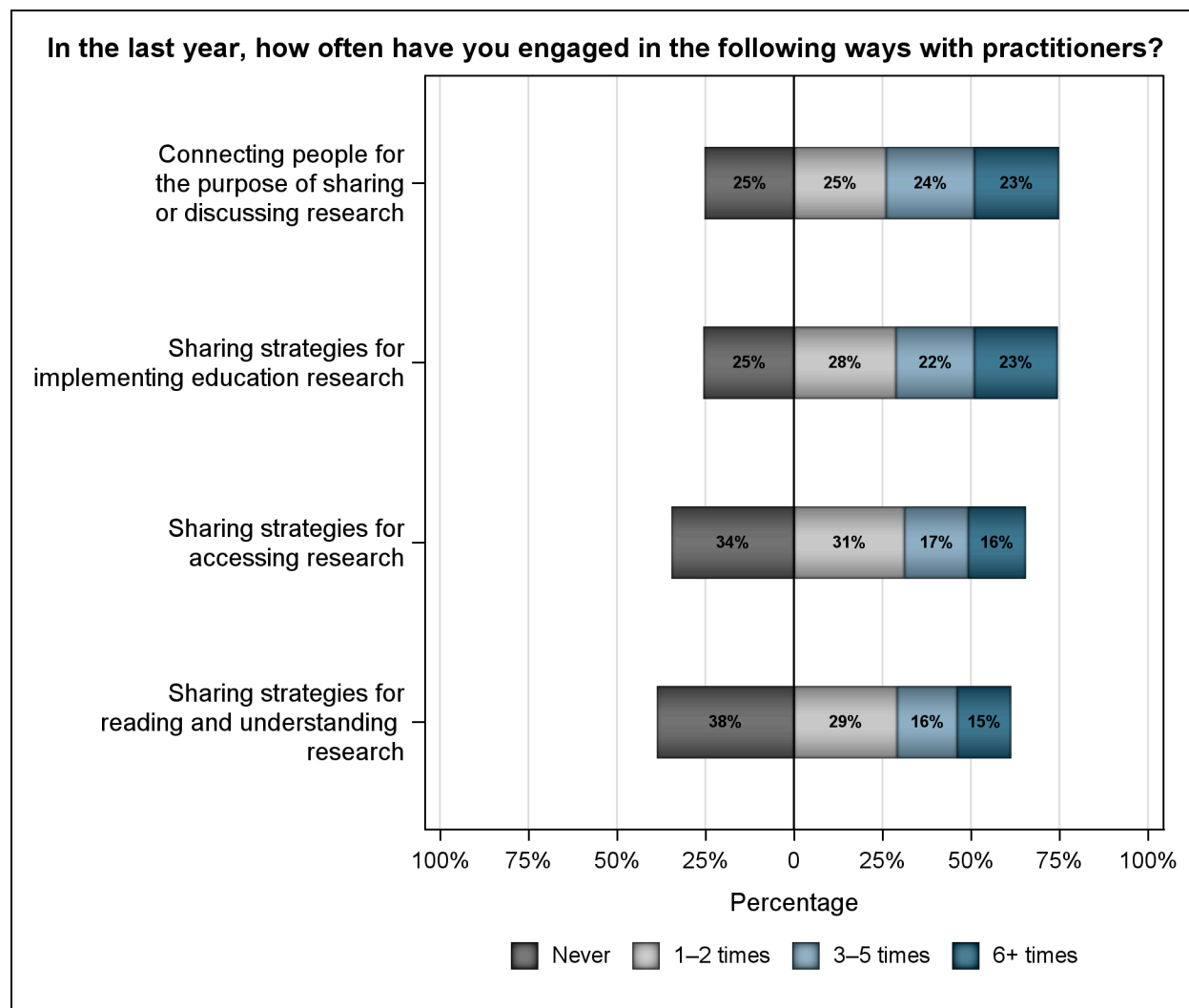
Scale	Researcher			Practitioner			p value
	n	mean	sd	n	mean	sd	
Brokerage Activities	247	2.77	0.62	2,003	2.22	0.69	<.0001

Note. For all t-tests, there was evidence that comparison variables had unequal variances.

Researchers only occasionally engaged in capacity development activities that empower practitioners to use evidence.

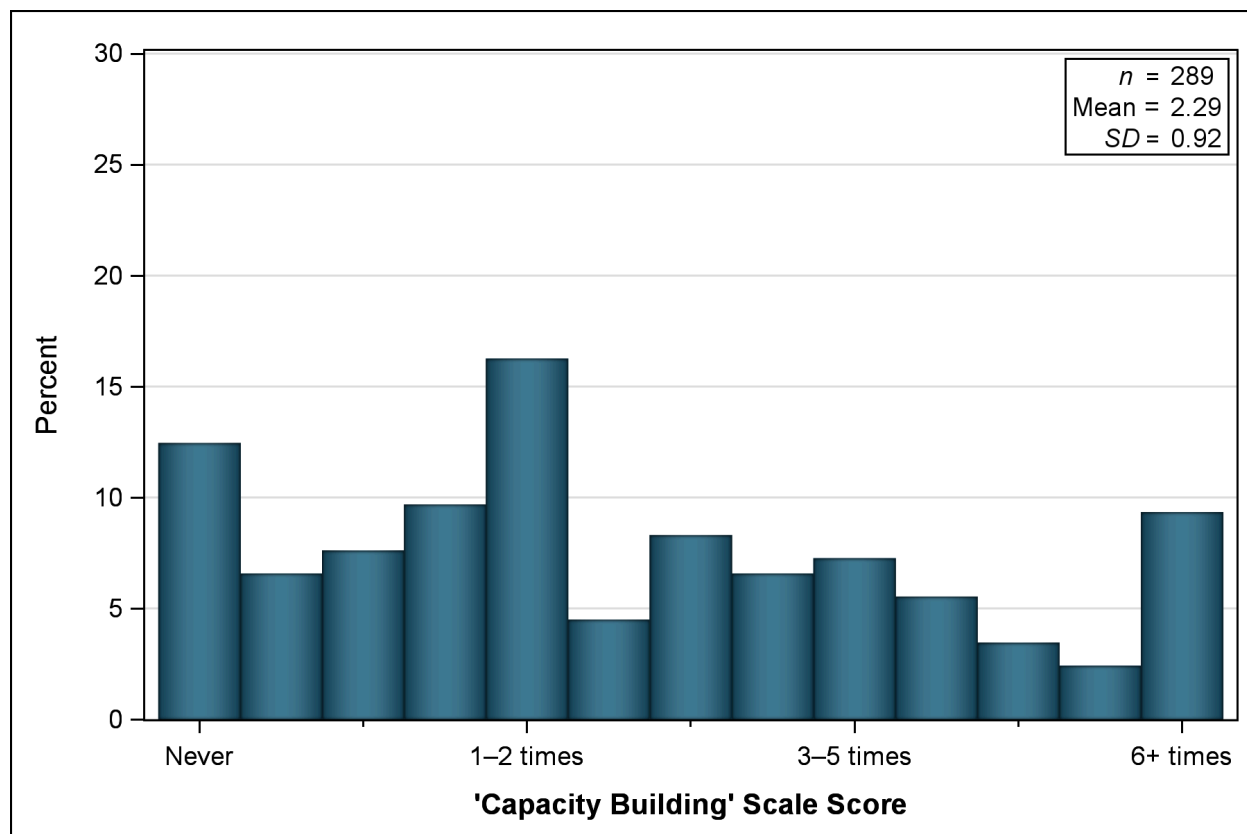
Respondents were also asked to report on their past year’s efforts that build the capacity of practitioners to use research. Our sample said that they occasionally engaged in capacity-building efforts of this type. For example, 75% of respondents indicated that in the last year, they had connected people to share research 1–2 times, and 75% of respondents also reported sharing strategies for implementing research at least 1–2 times (Figure 50). The histogram of the *Capacity Building* scale scores is relatively uniform and suggests that frequent engagement in these activities in the last year was not common (Figure 51).

Figure 50. Brokerage Activities that Build Capacity as Reported by Education Researchers



Note: $n = 289$

Figure 51. Histogram of 'Capacity Building' Scale Score



As with the scores for the *Brokerage-Activities* scale, researchers, on average, were more frequently engaged in activities related to capacity building (Table 9). Researchers may be more engaged in these activities because of an interest in wanting research to have a measurable impact on schools or other educational settings. These differences in scale scores are more pronounced than those differences between the scale scores for practitioners and researchers in the “Assumptions and Perspectives on Research” section of the survey. (To examine differences on the scale items between practitioners and researchers, we dichotomized the four items and conducted chi-square tests of independence and found that researchers had greater frequency, on average, on each item.)

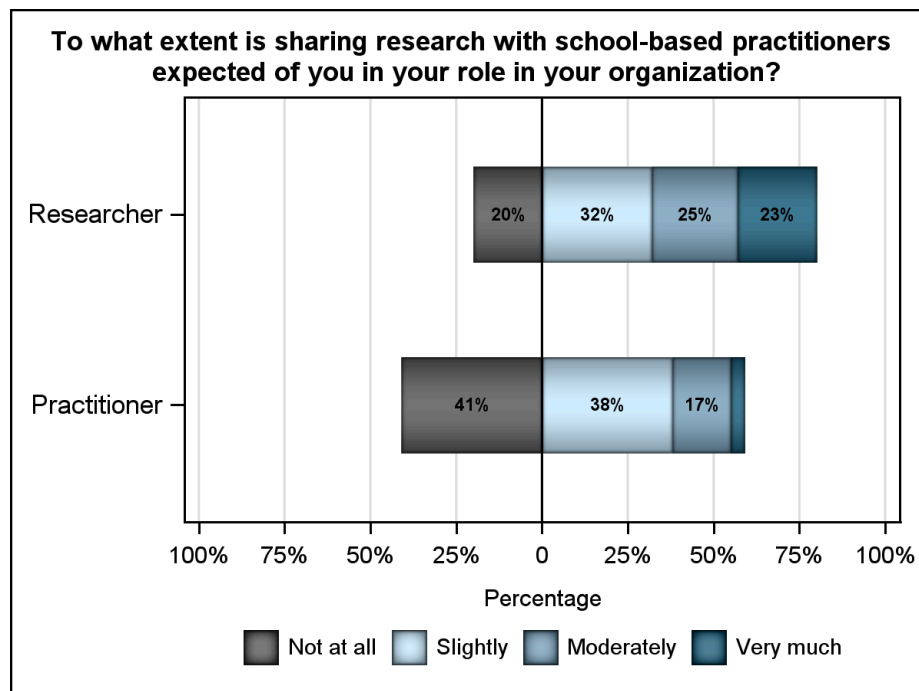
Table 9. Researcher and Practitioner Means on 'Capacity Building' Scale

Scale	Researcher			Practitioner			p value
	n	mean	sd	n	mean	sd	
Capacity Building	289	2.29	0.92	3,891	1.71	0.79	<.0001

Note. For all t-tests, there was evidence that comparison variables had unequal variances.

Most of the respondents indicated that they were expected to share research with school-based practitioners or other people whose work directly influences the work of practitioners (Figure 51). Almost 50% indicated that there is at least a moderate expectation that they share research with school-based practitioners. But, still, 20% of respondents indicated that there is no such expectation to share research with school-based practitioners.

Figure 51. Expected Role of Sharing Research with School-Based Practitioners



Note: Researcher $n = 285$; Practitioner $n = 3,958$

As for the expectation of sharing research with practitioners, researchers were more likely than practitioners to state that this was an important expectation, $\chi^2(1) = 204.1, p < .0001$. Practitioners are perhaps expected to use evidence in their daily practice, but it is uncommon for practitioners to have a formal responsibility to share research. The results of the *SEE-S* suggest that practitioners more often share their personal professional experience than external research (May et al., 2022). Researchers, on the other hand, are more likely to have formal expectations to engage with practitioners and share research findings with them.

Conclusions and Lessons Learned

In this section, we summarize the results of our large-scale survey study that investigated the research production practices and beliefs of U.S.-based education researchers. Based on our conceptual framework, we use survey responses from 341 education researchers to explore eight areas of interest: (1) the kinds of research evidence researchers produce in their research studies, (2) who researchers engage as participants during different stages of the research process, (3) how researchers disseminate their research findings, (4) how researchers intend for their findings to be used in different stages of the decision-making process, (5) researchers' perspectives and assumptions about research and the extent to which they align with practitioners' perspectives (6) how researchers connect with the community of educational practitioners, (7) researchers confidence in engaging with practitioners and connecting research and practice, and (8) the degree to which practitioners engage in research brokerage. In this section, we discuss our key conclusions about these eight research questions. Looking across these findings, we also provide some key lessons that emerge in this work. These themes have implications for the research enterprise and also suggest directions for future study.

Conclusions

Q1. What kinds of research evidence did researchers produce in their research studies?

Researchers in our sample often produced impact evaluations that assessed the effects of interventions on students within local schools or districts. Looking at our survey of evidence use

in schools (*SEE-S*), we similarly found that educators frequently use this type of research in school-based decision-making (May et al., 2022). Taken together, these results are not surprising. Over the last few decades, education research methods have shifted to favor intervention study designs that provide evidence of activities or strategies that improve student outcomes. This shift is due in large part to the passing of federal statutes that describe this type of research as ‘rigorous,’ requiring schools and districts to use evidence from these types of studies over others when making decisions, as well as the prioritization of funding for this type of research (Cook & Cook, 2013; Creemers & Kyriakides, 2006; Farnsworth & Solomon, 2013; Gopalan et al., 2020).

Education researchers who completed the *SEE-R* were less likely to use case studies and ethnographic methodologies. These types of methods typically describe processes of service delivery (how does the intervention work?), appropriateness (is it the right intervention for these practitioners?), and satisfaction with service (are users, providers, and other stakeholders satisfied with the intervention?) (Nutley et al., 2013). Turning once again to our findings from the *SEE-S*, we find that educators believe the relevance and usefulness of research could be improved if research considered the feasibility of implementation within schools and districts (May et al., 2022). In other words, educators desire the types of evidence that case studies and ethnographic methodologies can provide. Our findings highlight a longstanding tension in the education community on the appropriateness of hierarchies based on study design. While impact evaluations can answer questions about the effect of a program on particular students, teachers, or school outcomes after a program has been implemented, practitioners have other questions about how or why impact occurred (Henriques et al., 2020). In a discussion of how to create more useful and influential educational research, Burkhardt and Schoenfeld (2003) call for more research that is ‘context sensitive’ (i.e., conducting research to understand what factors are critical and which are not). Lingard (2013b) similarly calls for context to be brought from the background into the foreground of educational research and highlights the need for “theoretical, methodological, and epistemological diversity” (p. 46) to ensure useful evidence that pays attention to what works, for whom, in what circumstances, and why. In line with these sentiments, we believe there is a potential opportunity for researchers and funding agencies to

consider the importance of engaging in these types of research to address the types of evidence practitioners need to support their decision-making about whether interventions should be adopted.

Q2. Who do researchers engage as participants in different stages of the research process?

Our findings suggest that the level of community engagement is limited. Researchers most often reported consulting with school-based administrators and practitioners in developing their research projects—typically involving them in identifying problems for research. However, researchers were less likely to engage these groups in conducting research, interpreting results, and reporting and disseminating results. Other stakeholders—such as community organizations, education public interest organizations, and parents—were rarely engaged by researchers. These findings align with data from the *SEE-S* that indicate that educators were rarely involved in research activities—less than a quarter of the respondents reported being involved in any education research project.

Once again, our findings highlight a longstanding tension in educational research that centers on the nature and extent to which practitioners and other community members should be involved in research production (Emrick & Peterson, 1980). Proponents of community engagement argue that “those on the ‘inside’ of public services have a different epistemology from those on the outside, including academics, and this different way of knowing needs to be taken into account in the research process” (Sawtell, 2019, p. 21). Practitioner and community involvement have the potential to improve the mobilization, uptake, and implementation of research findings (for examples of collaborative approaches to education research, see Parsons et al., 2022; Penuel et al., 2007; Potvin et al., 2021). However, the benefits mentioned above come with inherent challenges that, if not anticipated and planned for appropriately, can pose obstacles to a research study. Noteworthy challenges in community-engaged research revolve around the time and funding necessary for sustaining productive relationships (Polanyi & Cockburn, 2003). Community members may be skeptical about engaging in education research due to well-documented breaches in human subjects protocols within their communities

(Brooks et al., 2014). Additional challenges involve navigating differences in expectations between academic and community-based settings. The interplay between research and practice cultures and their potential impact on a research study further adds to the complexity (Agard et al., 2019). As such, we recognize that engagement with practitioners and other community groups will vary according to the research aims, project, and target population. In other words, engagement should occur in ways that suit particular circumstances. However, we believe the potential benefits of embracing community-based research often outweigh the possible challenges of research collaboration. Engaging in active collaboration with practitioners and other community groups increases the likelihood that research findings will directly contribute to improving teaching and learning outcomes.

Q3. How do researchers disseminate the findings of their research studies?

Our results suggest that researchers' dissemination efforts largely focus on communicating research findings to a national audience (through peer-reviewed journals and at academic conferences), rather than to local audiences. This focus by researchers on publishing for a national audience is in contrast to the local data and research that practitioners report relying on to inform organizational decision-making processes. Our findings are in line with Tseng (2012) who states that "researchers often seek to inform federal policymakers, but miss the mid-level actors and organizations that are better positioned to draw on research to shape youth's daily settings and lives" (p. 5). Like Tseng (2012), we contend that state and local agencies are a critical group of research users. This includes state departments of education and local education agencies. Within these agencies, mid-level administrators shape the practices of concern to many researchers.

We also found that while researchers use a variety of strategies for disseminating their work, they most often use traditional academic formats in lieu of user-friendly formats that practitioners find engaging (Farley-Ripple et al., 2022b). For example, *SEE-S* respondents indicated that most commonly used professional resources (e.g., professional development materials, books) and media products (e.g., multimedia, news, and social media), while

researchers in our *SEE-R* sample were far less likely to use these types of strategies to disseminate research evidence. Furthermore, researchers indicated that their study's dissemination efforts rarely focused on practitioners.

It's important to note that researchers in our sample perceived that their findings and conclusions made explicit connections to practice. However, as described above, data from the *SEE-R* suggest that researchers are not targeting their efforts on critical groups of research users or using their study's resources to develop practitioner-friendly resources. As such, researchers' claims that their findings address issues of practice may be overstated. For researchers aiming to achieve impact, it is advisable to explore opportunities for creating resources that more effectively meet the needs of practitioners. However, we recognize that generating high-quality research demands a significant amount of time, and expecting researchers to shift their focus from research production to the time-intensive commitments of knowledge mobilization may be an impractical expectation (Cooper et al., 2018). In agreement with Cooper et al. (2018), we suggest researchers leverage intermediary organizations and available institutional knowledge mobilization units to help support their efforts in disseminating to practitioner audiences.

Q4. How do researchers intend for their findings to be used in different stages of the decision-making process?

Most researchers in our sample reported that their research was intended to help identify and select potential strategies for addressing the problems of education practitioners. It was less common for researchers to report that their research was designed to assist schools in identifying a problem or implementing solutions. Looking at our findings from the *SEE-S*, we see that practitioners often used evidence to identify and select strategies to implement (May et al., 2022). However, practitioners also reported frequently using evidence to identify problems and implement solutions. This suggests that while there is some alignment between the ways researchers intend for their studies to be used and how the evidence is being used by practitioners in decision-making processes, there is an opportunity for further alignment between educational research and practitioner needs. Future research may investigate how to

assist researchers in drawing connections between their research and the decision-making processes of educational practitioners or other stakeholders (such as test developers or academic technology developers) who play a role in education.

Q5. What are researchers' perspectives and assumptions about research, and how do they compare with practitioners'?

Looking at researchers' values about the different qualities of research, we found that researchers believe that peer review, comprehensive reporting of methods, and statistically significant results are important to the credibility and trustworthiness of a research study. These findings align with our other data from *SEE-R* that indicate that researchers are most likely to develop traditional academic products (e.g., journal articles) that would contain this type of information. Turning to data from the *SEE-S*, we see that practitioners' perspectives and assumptions about the credibility of research are largely aligned, with practitioners also agreeing that peer review, detailed method sections, and statistically significant results are important characteristics that impact research credibility. We do note that practitioners were more likely to agree (than researchers who completed the *SEE-R*) that large sample sizes and random assignment research designs were important characteristics. Ozga and colleagues (2006) and Lingard (2013a) have argued that this preference is linked to government mandates that privilege particular theoretical and methodological approaches to the study of education.

Our results suggest that most researchers in our sample have created products designed for practitioners at some point in their careers. However, we point to our other findings from *SEE-R* to assert that the development of these products is sporadic, with researchers largely creating traditional academic products (e.g., peer-reviewed journal articles). Practitioners who completed the *SEE-S* indicated they were less likely to rely on traditional academic products. Instead, they favored professional resources (e.g., professional development materials, books) and media products (e.g., multimedia and news). The literature has long emphasized a notable gap in perspective, as demonstrated by numerous studies indicating that the type and characteristics of research products play a significant role in shaping their utilization within

educational settings. (Corcoran et al., 2001; Finnigan et al., 2012; Gross et al., 2005; Penuel et al., 2016; Reichardt, 2000; West & Rhoton, 1994)

When creating products to inform practitioner audiences, researchers reported that it was important for these products to be easy to understand and access. Turning once again to data from the *SEE-S*, we see that practitioners' perspectives and assumptions are aligned to researchers' views on product characteristics. Specifically, practitioners also agreed that it is important for research products to be easy to understand and access.

While researchers generally expressed confidence in engaging with practitioners and overwhelmingly recognized it as their duty, many researchers felt their institution did not provide resources and support for engaging with practitioners. We see alignment with *SEE-S* respondents (i.e., practitioners) who indicated that they had limited involvement in research and rarely had direct contact with researchers. Several recent studies carried out in the United States and abroad have demonstrated that direct relationships between the research and practice community “are a promising—and maybe even necessary—strategy for implementing today’s equity-oriented vision” for education (Penuel et al., 2017, p. 523).

When asked about the overall field of education research, while *SEE-R* respondents agreed that research addresses the most important issues that schools face, respondents were less likely to agree that most educational research was actionable, produced quickly enough for schools/districts to make use of it, takes into consideration the varying levels of resources available to schools/districts to implement findings. Looking at data from the *SEE-S*, we see similarities and differences in patterns of responses between practitioners and researchers. Most notably, we found that while researchers did not believe research suggests actionable steps, educators were most likely to report that research did provide actionable steps to take in practice. We saw that there was general alignment across the other items. Broadly comparing practitioners' and researchers' responses to items on the overall field of education research, we found that practitioners were much more likely to agree or strongly agree that education research was relevant and useful than researchers who completed the *SEE-R*. Further research

is needed to explore why this difference exists, for it was striking that researchers themselves perceive that educational research is less likely to be relevant to practice.

In summary, there were several similarities between researchers' and practitioners' perspectives. This alignment holds promise for deepening research use within schools (Farley-Ripple et al., 2018). However, our findings also highlighted some gaps in assumptions and practices between the research and practice community, and these differences represent opportunities for improving alignment across the system.

Q6. How do researchers connect with the community of educational practitioners?

The findings from our study indicate that researchers are keen to establish direct connections with practitioners; however, such connections tend to be infrequent and usually involve only a limited number of practitioners. We learned that researchers' connections to practice are often indirect and mediated through diverse channels such as media outlets and organizations. Looking at how practitioners responded to the *SEE-S*, we found that researchers and practitioners rely on some common resources to connect. Common resources used by both researchers and practitioners include professional associations, news sources, blogs, and social media. Shared connections with professional associations are especially crucial, as these organizations play a significant role in educator and researcher networks. They play an important knowledge-brokering role in sharing education research and context-specific knowledge. In addition, these organizations can work to connect and foster relationships between researchers and practitioners. We also found some notable disconnects between how researchers and practitioners connect. Looking at the *SEE-S*, we see that practitioners relied on PD providers, books, and magazines, while researchers were much less likely to use these mechanisms to connect with practice. In addition, researchers were more likely to connect with federal, state, or other government agencies to connect with practice, while education practitioners were less likely to use these sources to connect with research evidence. These findings call for further investigation, but indicate divergent perspectives on how educational decision-making and practice are supported and implemented across the education system. For

instance, researchers' associations with government agencies suggest a belief in the importance of influencing policy and regulation at higher levels of the system. On the other hand, educators' reliance on websites, professional development providers, and magazines implies a more decentralized set of influences on classroom activities. This misalignment may pose challenges not only for establishing effective pathways between research and practice but also for system-wide coordination and improvement.

Q7. How confident are researchers in our sample about engaging with practitioners and connecting research and practice?

Researchers reported lacking formal training in knowledge mobilization, including a limited focus on this topic in graduate programs and other professional development opportunities. However, despite this, researchers report being generally confident in their ability to engage in knowledge mobilization efforts, including directly communicating with practitioners and adapting research to local contexts. Our analysis showed three subscales for dissemination of research: Capacity to Disseminate Information, Capacity to Communicate with Practitioners, and Capacity to Adapt Research to Practitioners' Contexts. Of those three subscales, researchers were less confident in disseminating research findings to practitioner audiences. This subscale included determining the best way to disseminate findings to reach practitioner audiences, creating written products that practitioners can understand, and evaluating the real-world impact of researchers' studies. Our work aligns with findings from Cooper and colleagues (2018) that found that Canadian education researchers felt the least prepared to use technology to disseminate research, find and work with intermediaries, and interact with media and reporters" (p. 13). While researchers indicated they had confidence in their ability to engage in many KMB activities, as we noted above, researchers' actual activities to engage practitioners and connect their research to practice are infrequent and sporadic. Our research did not explore connections between researchers' perceived competence and their KMB activities. However, other research has found a mismatch between researchers' reported and demonstrated KMB competency (Murunga et al., 2020).

Q8. To what degree do researchers in our sample engage in research brokerage activities?

We explored the experiences of education researchers trying to engage with the world of education practice using research evidence and ideas, sometimes working in what are described as ‘research brokerage’ (or knowledge broker) roles. Brokering is defined as people engaged in multiple functions to connect research and practice (Neal et al., 2022). Common brokering functions include information management, facilitation, relationship building, and capacity development (Glegg & Hoens, 2016; Neal et al., 2018; Ward et al., 2009). When sharing research, researchers in our study reported frequently engaging in information management functions (Ward et al., 2009). This includes activities to critically appraise evidence, translate research into understandable formats, interpret the information in the practitioners’ local context, and share research products (e.g., articles, reports, books/book chapters, or summaries based on independent research for program evaluation). Researchers also reported frequently sharing interpretations or summaries of the research they provide and practices or strategies based on the research being shared. Researchers were less likely to report engaging in capacity development roles (Ward et al., 2009), such as offering technical assistance, delivering formal learning opportunities, or sharing strategies for accessing and understanding research. Similarly, facilitation (e.g., supporting research discussions) and relationship-building activities (e.g., connecting people for the purpose of sharing research) were reported less often by researchers in our sample. These findings align with our Center’s case study data on research brokerage (Shewchuk & Farley-Ripple, 2022; 2023) that suggest that some activities or functions are preferred to others. However, it is unclear why researchers in our sample preferred to engage in specific functions over others. A more detailed understanding of this issue requires additional information regarding the specific cases or contexts in which researchers are most successful in brokering research and practice.

Comparisons of researcher and practitioner responses to the brokerage items suggest that researchers are more likely to report that sharing research is expected as a part of their role within their organization. This (lack of) expectation within the practitioner community may

explain why *SEE-S* respondents' mean scores were lower on the "Brokerage-Activities" and "Capacity Building" scales when compared to *SEE-R* survey respondents.

Turning back to our other findings in the *SEE-R*, we see a disconnect between researchers' perceived expectations to engage with practitioners, researchers' actual level of engagement with these audiences, and the amount of organizational support they receive to engage in such activities. Specifically, while perceived expectations to engage in this type of work were high, the level of institutional support was perceived to be low. In agreement with Cooper et al. (2018), we argue that low levels of institutional support likely constrain researchers' capacity to find opportunities for and engage in brokerage activities. To deepen connections between research and practice, universities and other research institutions can work to embed capacity at the institutional level. This may consist of valuing research and practice connections in promotion processes and creating dedicated roles and departments focused on building connections between research and practice. We believe these institutional resources are also necessary due to the realistic constraints on researchers' time. Research production activities are time-intensive and take a majority of researchers' time. For brokerage efforts to be robust, time spent connecting research and practice must be equally time-intensive. While researchers can and should engage in brokerage activities, it is unrealistic to expect them to divert substantial efforts from research production (the main focus of their jobs). Therefore, investing in organizational capacity and infrastructure is important to support researchers in connecting research and practice (Sa et al., 2011).

Lessons Learned About Research Production in Education

Looking across the findings from *SEE-R*, we highlight some key lessons that emerge in this work.

Different types of research are necessary to support practitioners' needs.

One valuable finding pertains to the importance of generating different types of research that address different types of questions and deliver different types of answers. While impact evaluations and randomized controlled designs remain the 'gold standard' for evaluating effectiveness, hierarchies that rank evidence and place these studies 'on top' provide a limited

research heuristic for solving the problems faced by education practitioners. Education practitioners pose numerous inquiries about interventions that extend beyond mere effectiveness. For example, practitioners want to comprehend the intricacies of implementing an intervention, such as potential challenges, unforeseen complications, and the nuances of adverse effects when implementing an intervention in schools. Qualitative studies, expert opinions, and surveys offer invaluable insights for those seeking to answer these and other questions about why interventions work in real-world contexts. Therefore, in agreement with Petticrew and Roberts (2003), we believe that distinct types of evidence best address diverse research questions and that prioritizing the relevance of the question being posed holds more significance than engaging in debates over the "best" method.

Research-production practices and conditions vary widely.

One of our key findings is that dissemination, communication, and brokering practices vary across education researchers. While this report does not explore the sources of the variability, our findings related to researchers' capacity development and organizational supports offer potential insights on improving practices in these areas. Across organizations, researchers reported that engaging with practitioners was expected of them, but we also found variability in conditions related to institutional structures, processes, and incentives available to researchers to support their efforts in connecting with practitioners. These varying organizational conditions likely contribute to the different practices of researchers (Jacobson et al., 2004). This suggests that research organizations must go beyond a rhetorical commitment and take a leadership role in promoting research and practice connections. This may include changing to promotion and tenure practices, resources and funding, structures, and policies and mandates to encourage and reward connections between research and practice communities (e.g., Frenk, 1992; Wingens, 1990). Relatedly, research organizations and other system-level actors (e.g., funders) can develop capacity-building opportunities for researchers seeking to learn more about how to disseminate, communicate, and broker to and for education practitioners. Findings from this study suggest that professional development focused on how

to disseminate research findings to practitioner audiences may be particularly helpful to education researchers.

Intermediary organizations offer a realistic means of addressing gaps between research and practice communities.

We note that the limited and infrequent direct interaction between research and practice documented here and in the *SEE-S* descriptive report (Farley-Ripple et al., 2022b) points to the potential of intermediary organizations to create, enhance, and support connections among schools, researchers, and other community partners to achieve research-use goals. These organizations have resources and skills for facilitating connections among diverse stakeholders, increasing awareness of the empirical evidence on a topic, increasing the accessibility of research by tailoring products, supporting research use in schools, and facilitating professional learning and skill development around knowledge mobilization and research use (Cooper, 2014; Neal et al., 2022; Rycroft-Smith, 2022). While we encourage researchers to personally engage in dissemination, communication, and brokering strategies to support the movement of their work into practice communities, we also recognize the limits of researchers' roles in this process. Reiterating our suggestion from the *SEE-S*, we believe that researchers would benefit from more information about how to engage the intermediary space to better communicate research and produce better-informed research.

The study of the education research enterprise at scale presents opportunities and limitations.

Our findings are unique in that they shed light on the complexity of the research practices and conditions surrounding the U.S. research enterprise *at scale*. The findings offer a system-wide view of the structures and practices that encourage engagement between the research and practice communities. Our findings demonstrate the widespread production of (certain types of) research evidence and perceived rhetorical commitments to connecting with practice communities in many research organizations. They also highlight variability in practices and conditions and an unequal distribution of capacity for mobilizing research findings, which,

unchecked, will perpetuate the gap between research and practice and serve as a barrier to system-wide improvement. Our findings point to potential levers and opportunities for improvement, among them enabling connections to practice at research institutions, preparing researchers to mobilize research findings, and leveraging intermediary organizations to encourage research use.

However, it is important to acknowledge the limitations of this study. Firstly, our objectives were solely descriptive, and future steps involve exploring the connections between conditions and practices, as well as elucidating variations across research organizations. Secondly, our findings rely on self-reports, offering perspectives on research-production practices more than actual behaviors. Additionally, some items are based on recall, potentially compromising the accuracy of reports on decision processes. Thirdly, adopting a large-scale perspective sacrifices a nuanced understanding of how these practices and conditions manifest in real-world situations. Although we partially address this in our mixed-methods multiple-case study on the knowledge mobilization practices of researchers (Farley-Ripple et al., 2023), our ability to draw comparisons and conduct in-depth observations over extended periods is limited. Finally, nevertheless, the examination of research production in education is still limited (for examples of literature on this topic see Cooper et al., 2018; Fischman et al., 2018; Zuiker et al., 2018), making this contribution a valuable complement to other research in the field.

Study Limitations

One limitation of this study is the lack of scores for a construct such as “Depth of Production,” which was acknowledged in an earlier section of this report. One particular goal of the *SEE-S* was to examine the depth of use of research for organizational decisions with a detailed survey about the ways in which evidence was used at different parts of the organizational decision-making process. With multiple participants from the same institution who cited the same organizational decision, it was possible to estimate the proportion of decisions that used external research evidence and to estimate *Depth of Use* scores for the schools that had a sufficient number of enough participants familiar with the organizational decision. In the

present study, however, the goal was more to characterize how researchers produce research, how they make research accessible and understandable to practitioners, and their perspectives and assumptions about research in general.

Another limitation of the *SEE-R* was that the items for the *Brokerage-Interpretation* scale were incorrectly assigned response values that were different from those assigned to the matching items in the *SEE-S*. This limited our ability to compare the original items, and it was necessary to trichotomize those items on the *SEE-R* and the *SEE-S* to be able to draw comparisons between how researchers and practitioners responded to them.

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Appendix A: Technical Appendix

Measurement Study: Development & Validation of the *SEE-R*

In Appendix A, we describe the process used to develop the *Survey of Evidence in Education for Researchers (SEE-R)*, including the use of interviews to inform item development, pilot testing, and the design and implementation of the field trial. This section of the report also 1) provides results of descriptive analyses of demographic variables and 2) details how the items were analyzed for development of the *SEE-R* scales.

Survey Development

Development of the *SEE-R* began in the fall of 2015 and concluded in the fall of 2019. Our approach to instrument development followed a multi-phase approach, utilizing both qualitative and quantitative methods to produce reliable and valid survey measures. Our development process included drafting blueprints of various instruments utilizing our framework, exploratory interviews, and multiple rounds of cognitive interviews and pilot testing. Preliminary psychometric evaluation of items intended to represent specific constructs were also conducted after each stage of piloting.

Measurement Blueprint Development & Revision

Production of the *SEE-R* began with the development and revision of a measurement blueprint based on our conceptual framework, which includes parallel components for practitioners and researchers. The blueprint named and defined each construct, and it provided a target number of survey items for each construct. After drafting the blueprint, it was reviewed by an advisory panel of experts from both the researcher and practitioner communities. The purpose of this revision process was to ensure all relevant constructs were identified and defined. The team relied on these definitions to maintain shared understandings and to guide future stages of

development of the *SEE-R* and the parallel surveys for educators (i.e., the *SEE-S* for schools). The finalized constructs for researchers are described in the main body of this report.

Exploratory Interviews

The instrument development process included a number of exploratory interviews with members of the communities of interest (i.e., practitioners, researchers, brokers). At the time of the exploratory interviews, practitioners who participated were actively employed at a public K-12 institution. Researchers who were interviewed were employed at a research university. Brokers were employed at organizations, outside of universities or public K-12 institutions, focused on providing services for schools and educators (e.g., Rodel Foundation, Friday Institute, Search Institute). The study's principal investigators used the conceptual framework to inform the creation of a series of semi-structured interview protocols for each community of interest. Interview protocols were piloted with another researcher prior to their use. Interviews were approximately one hour in length and were conducted over the phone. Audio was recorded to allow for transcription. The exploratory interviews were intended to gather information about the relevance of the framework, and also to identify aspects that were missing. The purpose of these interviews was to gather information that led to the development of synthesis documents that would serve as the basis for item development.

Practitioner Interviews

The practitioner interviews covered three primary domains: 1) decisions and problems, 2) resources used to address problems, and 3) the role of research in decision processes. Practitioners were first asked to describe some of the problems their school was working to address. Interviewers also asked about the kinds of decisions made to address those problems. Following this, interviewees were asked to describe the decision making process; who was involved, what specific process was followed, and their personal involvement in those processes and decisions.

Interviewees were also asked about their understanding and use of research; both in their own practice and related to the problems and decisions they referenced earlier. Last, practitioners

were asked about their experiences searching for research and their connections with a researcher or research organization.

Researcher Interviews

Interviews of researchers focused on 1) research problems and 2) dissemination and connection to practice. Researchers were first asked about their current work, including issues they are conducting research about, the factors that shaped their choices about which work to pursue, and goals for their work. They were then asked about their dissemination practices. Interviewees also responded to questions about how their work impacts practice, and aspirations for further impact. Lastly, they were asked about their relationship to the practitioner community and their ideal views of the nature of that relationship.

Broker Interviews

The broker interviews focused on understanding the role the broker and their organization plays in connecting research and practice. The interview protocol focused on 1) organization mission and problem focus, 2) conceptions and use of research, and 3) efforts to connect research and practice. Brokers were first asked to describe the focus of their work and the strategies employed to address specific problems of practice. They were then asked to describe their general beliefs about research and how research should connect to practice in an ideal situation.

Interview Analysis

Interview transcripts were analyzed using the qualitative analysis software Dedoose Version 7.0.23 (SocioCultural Research Consultants, 2016). The survey blueprints served as the basis for the development of an a priori coding framework. Transcripts were coded iteratively. Summaries of information relevant to the development of the survey were created. These summaries then led to a report for each construct that described 1) the important issues derived from the data, 2) what was necessary to capture on the survey, and 3) the vocabulary to use when surveying practitioners (and researchers).

Survey Item Development and Revision

As described in detail in previous sections, survey development began with the creation of a blueprint for each survey, derived from the conceptual framework guiding this study. Survey topics (e.g., evidence, search/dissemination, usefulness of research, capacity) were defined based on a review of the literature and project aims. The construct reports generated from the exploratory interviews were then used to create the first draft of the *SEE-R* (in parallel with the *SEE-S*).

Cognitive Interviews

Following the initial development of survey items, cognitive interviews were conducted with educators to further refine the survey. The cognitive interviews were carried out as follows. First, draft *SEE-R* survey items were created in Qualtrics, an online survey platform. Convenience sampling was used to recruit researchers (n=18) and practitioners (n=35). Interviewees completed the survey while discussing their reactions to and interpretations of the survey items with an interviewer. The purpose of cognitive interviews is to aid in the design of survey questions that accurately reflect the intent of the question (Campanelli, 1997; Willis & Artino, 2013).

During each interview, the interviewer instructed the interviewee to think aloud as they moved through the survey, sharing their understanding of the survey items and responses to them. The interviewers also had a short protocol with specific questions to ask the participant. The survey was divided into four sections based on topic (e.g., Depth of Production). Three rounds of cognitive interviews were conducted for each topic area, with five interviews per round. Transcribed data was synthesized by members of the research team, after which revisions to the surveys were made. Subsequent rounds of interviewing and refinement were carried out until the feedback from participants did not suggest further revision to the instruments.

Pilot Testing

The first pilot of the *Survey of Evidence in Education for Researchers (SEE-R)* was offered to 262 researchers in the spring of 2018. These were researchers who, when attending a conference

session at a major education conference in 2017 (AERA, SREE), indicated an interest in taking the pilot survey. Each researcher had their own unique survey link. Of those sent a unique link to the survey, 79 completed the survey resulting in a response rate of 30.1%. Constructive feedback was received from these participants.

A second pilot recruited researchers through Twitter messages, emails to listservs, and advertisements on the Research4Schools website, the website for the Center for Research Use in Education. The second pilot had two phases. The first phase involved broadly promoting a universal link to the complete set of draft survey questions. During this phase, 57 people responded to the survey. In order to address the feedback that the survey was too long and to increase the number of researchers involved in the second pilot of the survey, the survey was divided into two segments, “Depth of Production” and “Assumptions and Perceptions.” A universal link was again distributed. Respondents were randomly assigned to complete one of the two segments of the survey as they agreed to complete the survey. During this phase, 134 people responded to the segment of the survey they received.

Survey Revisions Based on Pilot Results

The pilot survey contained 509 items. After the pilot rounds, the survey was revised to have items, having deleted 51.1% (n=260) of the original items. Of the items in the field trial, 65.1% were items that were presented the same way in both the pilots and field trial, 21.9% were items that were revised based on the experience of the pilot trials. Of the items in the field trial, 12.9% were new questions added to the survey to provide information for the constructs being assessed.

Field Trial Study Design

Here, we describe the field trial to validate the *Survey of the Evidence in Education for Researchers (SEE-R)* as a reliable and valid measure of researchers’ production of and perspectives about research. We aimed to survey a diverse sample of education researchers across the United States. The sections that follow include information about the target

population, our sampling procedures and sample, data collection process, and the procedure used for developing our survey items and scales.

Sampling Procedures

To yield representative data for the *SEE-R*, the following strategies were used to generate the sample of education researchers asked to complete the *SEE-R*. Please see the earlier section titled “[Population](#)” for a description of the target population.

A. Academic researchers from “education” academic departments (e.g., Schools of Education) **and Research Centers at R1 universities with Very High Research Activity:** After gathering the count of faculty within the Colleges or Schools of Education and Education Research Centers at the R1 universities, 20 universities were randomly selected, with probability of selection proportional to the number of faculty, from the population of 131 research universities. Sampling was done using SAS statistical software via the PROC SURVEYSELECT procedure. The names of the faculty in the selected Colleges/Schools of Education and Research Centers at these 20 universities were then gathered from department websites. From these lists, 300 faculty were randomly selected and email addresses were obtained from department directories; however, 24 of the faculty selected were dropped from the initial sample due to missing email addresses or changes in affiliation. Because the initial survey response rate in sampling this group fell short of our goal, six additional institutions were sampled (again with probability proportional to size) and 75 faculty from these universities were randomly sampled and added to the researcher sample for a total of 351 academic researchers surveyed.

B. Institute of Education Sciences-funded Researchers: The Institute of Education Sciences (IES) is the statistics, research, and evaluation arm of the U.S. Department of Education. The mission of IES is to provide scientific evidence on which to ground education practice and policy and to share this information in formats that are useful and accessible to educators, parents, policymakers, researchers, and the public. IES is a major funder of educational research through its centers, and we included in the *SEE-R* sample all researchers (i.e., Principal Investigators) who had received funding to conduct research from the National Center for Education Research

(NCER), National Center for Special Education Research (NCSER), and National Center for Education Evaluation and Regional Assistance (NCEE) beginning as early as 2012 and completed by 2019 and who had a current email address. A total of 386 education researchers with funding from IES were offered the survey.

C. National Science Foundation-funded Researchers: The National Science Foundation (NSF) is an independent federal agency created by Congress in 1950 "to promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense..." The researchers who received funding through the "Discovery Research PreK-12 program (DRK-12)" and the "Innovative Technology Experiences for Students and Teachers program (ITEST)" are of interest in this study as the programs seek to significantly enhance the learning and teaching of science, technology, engineering, mathematics and computer science (STEM) by preK-12 students and teachers, through research and development of STEM education innovations and approaches. Researchers who received funding as early as 2012, completed the research by 2019, and had a current email address were part of this sample. A total of 294 of these education researchers were offered the survey.

D. Researchers from the Regional Education Laboratories: There are 10 Regional Education Laboratories (REL) across the United States and Territories that partner with educators and policymakers to increase the use of research and evidence, enhance education programs, and, ultimately, improve student performance. The RELs conduct the majority of their work through sustained partnerships that bring together people with disparate areas of expertise and interest to provide technical support, conduct research, and offer learning opportunities that inform changes to policy and practice in an effort to improve educational outcomes for students. Each REL facilitates several research–practice partnerships, bringing together various stakeholders focused on using research to address high-leverage issues in education. Typically, these topics are also relevant beyond the region. The RELs work in these partnerships with school districts, state departments of education, and other education stakeholders to conduct three main activities:

- 1) Training, Coaching, and Technical Support for Using Evidence (TCTS),

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- 2) Applied Research, and
 - 3) Dissemination of Findings

The directors of all of the RELs were asked to nominate 3 to 5 REL staff to complete the *SEE-R* and to identify the title of the P-12 education research project that would be described as they responded to the *SEE-R*. The nominees could be any staff or contractor “who played a lead role on a research project intended to inform policy/practice (e.g., people who are best able to report on the details of a project, including its design, people involved, products produced, dissemination activities, and related technical assistance).” REL directors were able to self-nominate themselves. A total of 34 education researchers associated with a REL research project were offered the survey.

E. Augmentation sample: This sample was generated from individual educators’ open-ended responses in the field trial of the *Survey of Evidence in Education for Educators (SEE-S)*. The responses identified education researchers who are sources of research to the educator completing the *SEE-S*. Of the researchers named, 48 were invited to complete the survey.

Recruitment

An email describing the goals of the study was sent to each individual researcher in the sample. The emails were unique to each of the five groups of researchers in the sample. The email sent to the education researchers funded by IES, funded by NSF, and associated with a REL included the name of a specific funded project to describe as the survey was completed. The email included a unique link to informed consent which was followed by the *SEE-R*. Surveys were administered via the Qualtrics online survey platform. Each participant was given four weeks to complete the survey. Weekly reminders were sent to non-respondents and partial completers.

Field Trial Data Collection and Response Rate

The *SEE-R* was administered to education researchers from May 2020 through April 2021 in waves as described here:

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- A. “Education” academic departments (e.g. Schools of Education) and Education Research Centers at R1 universities were surveyed from May 2020 through October 2020.
 - B. Researchers funded by the Institute of Education Sciences (IES) were surveyed from August 2020 through November 2020.
 - C. Researchers funded by the National Science Foundation (NSF) through the “Discovery Research PreK-12 program (DRK-12)” were surveyed from October 2020 through November 2020.
 - D. Researchers associated with Regional Education Laboratories were surveyed from January 2021 through February 2021.
 - E. Researchers in the Augmentation sample were surveyed from March 2021 through April 2021.

Table A1. Response Rate by Sub-Sample

Sample	N survey invitations	N completed at least the first section	Response Rate
Researchers at “Education” academic departments and Education Research Centers at R1 universities	351	62	17.6%
IES-Funded Researchers	386	187	48.4%
NSF-Funded Researchers	294	49	16.6%
REL Researchers	34	32	94.1%
Researchers in the Augmentation Sample	48	11	22.9%
Total	1,113	341	30.6%

The response rates of the subsamples (Table A1) varied from a low of 16.6% to a high of 94.1%. The overall response rate was 30.6%. The average time it took for an individual to complete the survey was 28 minutes.

Field Trial Sample Demographics

We initially collected 480 responses from education researchers. However, we only included respondents who completed at least the first section (Depth of Production) of the *SEE-R* survey into the final sample of researchers. Thus, a total of 341 education researchers make up the final sample of the *SEE-R*. Table A2 illustrates the characteristics of the researchers in our sample. The majority of researchers enrolled were tenured faculty (53%). Most researchers in our sample were the principal investigators of the studies they reported in the survey (80%).

Table A2. Characteristics of Participating Researchers

Characteristic	<i>n</i>	%
Project Role		
Principal Investigator	273	80%
Co-PI	53	16%
Project Coordinator	2	1%
Research Assist./Associate	2	1%
Data Analyst	1	<1%
Other	10	3%
Years at Organization		
1 year or less	16	5%
2-3 yrs	23	7%
4-6 yrs	52	15%
7-10 yrs	68	20%
11-15 yrs	67	20%
16-20 yrs	54	16%
21+ yrs	61	18%
Position		
Tenured faculty at a college/university	182	53%
Tenure-track faculty at a college/university	25	7%
Non-tenure-track faculty at a college/university	41	12%
Non-faculty researcher at a college/university	10	3%
Researcher at a non-profit organization	46	13%
Researcher at a for-profit organization	23	7%
Researcher at a federal or state office or department	0	0%
Researcher at a school district	1	< 1%
Other Researcher	13	4%
I do not conduct research	0	0%
Years of Experience		
1 yr	1	< 1%
2–3 yrs	4	1%
4–6 yrs	18	5%
7–10 yrs	40	12%
11–15 yrs	80	23%
16–20 yrs	66	19%
21+ yrs	132	39%

N=341* Individuals who completed all portions of the survey (e.g., Depth of Production)

Sociodemographic Characteristics of Participating Researchers

A number of different researchers were eligible to take the *SEE-R*. Among these, the majority self-reported as female (60%) and White (86%). Most researchers had obtained PhDs (89%)

Table A3 depicts the distribution of participants by sociodemographic for the *SEE-R*.

Table A3. Demographic Characteristics of Participating Researchers

Demographic Characteristic	<i>n</i>	%
Gender		
Male	133	39%
Female	205	60%
Prefer to self-describe	1	<1%
Prefer not to say	2	1%
Degree Attained		
Bachelor's	4	1%
Master's	10	4%
PhD	304	89%
EdD	23	6%
Race		
Black	11	3%
White	293	86%
Hispanic	13	4%
Asian	16	5%
South Asian or Pacific Islander	6	2%
American Indian or Alaskan Native	2	1%
Other	2	1%
Prefer Not To Say	5	1%

Methods for Item Analyses & Derived Variables

Several techniques were used for item analysis, scaling, and calculation of derived variables. The first stage of analyses involved calculation of simple frequencies for the response categories of

each closed-response item. These were used to confirm the absence of ceiling or floor effects and to confirm the appropriateness of response categories. We then conducted psychometric analyses to determine whether responses to sets of items could be combined to form a summary scale reflecting an underlying latent construct (i.e., a common theme). The psychometric analyses involved exploratory and confirmatory factor analysis, reliability analysis, and calculation of survey scales for sets of items believed to measure a latent construct.

The scales were developed by using Exploratory Factor Analysis to examine the factor loadings for latent constructs. Exploratory factor analysis was conducted with PROC FACTOR and confirmatory factor analysis was conducted with PROC CALIS using full information maximum likelihood to assess the fit with all main scales. The fit of the model was acceptable with a Bentler CFI of 0.78 and an RMSEA of 0.0542. These fit statistics are not as good as the fit statistics for the full model of the latent constructs for the *SEE-S* (for which the Bentler CFI was 0.90). The sample size of the *SEE-R* is considerably smaller, and future research may be necessary to determine the best factor structures in the *SEE-R*.

Several of the sections of the *SEE-R* included items that were designed to measure latent constructs—many of which were also measured on the *SEE-S* survey. Other latent constructs that were measured on both the *SEE-S* and the *SEE-R* with the same individual survey items were *Problems of Practice*, *Ease of Access*, and *Helpful Features*, *Reputation-Based Trustworthiness*, and *Methods-Based Credibility*. (Both surveys included a latent construct *Processes and Incentives*, but they consisted of different survey items.) Because one goal of our study was to examine the potential mismatch between researcher and practitioner perspectives, we retained some scales (*Reputation-Based Trustworthiness* and *Methods-Based Credibility*) even though the scale reliabilities were comparatively low (see fit statistics in Table A4). Thus, these scales are not used to identify differences among researchers as much as they are used to examine differences between the respondents from the two populations of school-based practitioners and researchers.

The descriptive statistics and reliability of the survey scales are included in Table A4.

Table A4. Descriptive Statistics and Reliability of Survey Scales for SEE-R

Construct	N	# of Items	α	Range	Mean	Standard Deviation
Problems of Practice^b	312	5	.87	1-4	2.46	0.66
Processes and Incentives	307	10	.91 ^a	1-4	2.78	0.56
Products - Characteristics						
Ease of Access ^b	259	6	.67	1-4	3.70	0.34
Helpful Features ^b	259	4	.67	1-4	2.87	0.62
Trustworthiness and Credibility						
Reputation-Based Trustworthiness ^b	314	4	.48	1-4	2.48	0.50
Methods-Based Credibility ^b	314	5	.48	1-4	3.09	0.47
Capacity to Engage in Knowledge Mobilization	289	9	.91	1-4	3.05	0.70
Disseminate Information	289	3	.82	1-4	2.81	0.79
Communicate w/ Practitioners	289	3	.87	1-4	3.33	0.74
Adapt Research to Context	289	3	.87	1-4	3.02	0.86
Brokerage - Capacity Building^b	289	4	.86	1-4	2.29	0.92
Brokerage - Activities^b	247	10	.85	1-4	2.77	0.62
Brokerage - Interpretation	253	3	.52	1-4	2.84	0.57

^a The reliability for *Processes and Incentives* was calculated as $r_{xx} = 1 - (\text{SEM}/\text{SD}_x)^2$ where SEM is the median standard error of measurement and SD is the standard deviation of estimated scores from a Graded Response Item Response Theory (IRT) model estimated using the *mirt* library in R v3.6.4 (Chalmers, 2012).

^b The survey scale also was used in the *Survey of Evidence Use in Schools - Practitioners*

Appendix B: Factor Loadings for Survey Scales

Table B1. Factor Loadings for *Characteristics of Products* Sub-Scales

Scale	Variable (When research findings are intended to inform practitioner audiences, how important is it to you to create products which)...	Ease of Access	Helpful Features
	...are actionable (provide specific steps to take)?	.08^a	.29
	...are concise?	.46	.06
	...are easy to understand?	.36	.01
	...are easy to access?	.68	.04
	...are free to access?	.66	-.13
	...can be found online?	.59	.05
	...are transmitted verbally?	.28	.37
	...use graphics to illustrate findings?	.32	.29
	...provide a demonstration of findings or model strategies?	-.10	.71
	...are syntheses of research?	-.01	.63

Note: ML-based model produced communality estimates above 1 and unstable scoring coefficients. Thus, we switched to a principal components model using squared multiple correlations as communality estimates. The item correlations for *Helpful Features* range from 0.25–0.48 with a median of 0.32 and for *Ease of Access* range from 0.11–0.45 with a median of 0.23. ^aItem is included with ‘Ease of Access’ to facilitate comparisons with the ‘Ease of Access’ scale from the *SEE-S*.

Table B2. Factor Loadings for *Problems of Practice* Scale

Scale	Variable	Factor Loading
Problems of Practice	Most education research suggests actionable steps that practitioners could feasibly take to improve their practice.	.69
	Researchers have a solid grasp on evolving problems in schools/districts.	.72
	Research addresses the most important issues schools/districts face.	.82
	Research takes into consideration the varying levels of resources available to schools/districts to implement research findings.	.78
	Research is produced quickly enough for schools/districts to make use of it.	.75

Note. Item correlations range from 0.49–0.65 with a median of 0.56.

Table B3. Factor Loadings for *Reputation-Based Trustworthiness* Scale

Scale	Variable	Factor Loading
Reputation-Based Trustworthiness	The study was published in a peer-reviewed journal.	.31
	The study has been highlighted in a major national newspaper, on a national television network, or on a major radio program.	.45
	The study was conducted by a researcher or research firm you and/or your colleagues know.	.33
	The number of times the study has been cited (e.g., as reported by Google Scholar).	.59

Note: ML-based model produced communality estimates above 1 and unstable scoring coefficients. Thus, we switched to a principal components model using squared multiple correlations as communality estimates. The item correlations range from 0.04–0.34 with a median of 0.20.

Table B4. Factor Loadings for *Methods-Based Credibility* Scale

Scale	Variable	Factor Loading
Methods-Based Credibility	The research study produced statistically significant results.	.25
	The study reported findings for all outcomes, positive or negative.	.25
	The sample size was large.	.69
	The research described the methods used in detail.	.27
	The study randomly assigned students/teachers/schools to a treatment or control condition.	.59

Note. The item correlations range from 0.02–0.42 with a median of 0.16.

Table B5. Factor Loadings for *Processes and Incentives* Scale

Scale	Variable <i>Please rate your level of agreement with the following statements:</i>	Factor Loading
Structures, Processes, and Incentives	In addition to peer-reviewed academic journals, my organization expects that research be disseminated through other avenues (e.g., policy briefs, practitioner-focused publications).	.70
	My organization emphasizes engaging with practitioners in discussions around research.	.86
	My organization allocates time for communicating with practitioners about our research.	.81
	My organization emphasizes my work connecting research to practice in promotion and/or tenure decisions. <i>[asked only of academic researchers]</i>	.68
	Making connections with practice/practitioners is part of how I am evaluated in my organization. <i>[asked only of non-academic researchers]</i>	.75
	Leaders within my organization are active in supporting engagement with practitioners.	.82
	Connecting (e.g., sharing research, challenges, ideas, etc.) with practitioners is one of my responsibilities as a researcher.	.34
	My research has more impact when we connect with practitioners as part of the research process.	.38
	My organization gives awards or recognition to researchers who show excellence in connecting research and practice.	.44
	My organization expects me to track and/or document the use of my research by practitioners.	.51

Note: Given that two items were administered to different sub-groups (academic researchers versus researchers in non-academic organizations), we used the EM algorithm to obtain means and covariances for all items and used those to conduct an exploratory factor analysis and obtain factor loadings presented in this section. Reliability for the Processes and Incentives scale was calculated based on the median standard error of measurement (SEM) of scale scores estimated using a graded response IRT model with the {mirt} package in R. The item correlations range from 0.07–0.70 with a median of 0.33.

Table B6. Factor Loadings for *Capacity to Engage with Practitioners Scale*

Scale	Variable <i>Please rate your confidence in...</i>	Factor Loading
Capacity to Engage with Practitioners	...talking or emailing with practitioners about research relevant to issues in their school/district.	.72
	...engaging with practitioners as research partners.	.82
	...soliciting input from practitioners on an aspect of a project.	.75
	...helping practitioners adapt a program/intervention to their context.	.81
	...providing technical assistance/facilitating implementations.	.72
	...providing a workshop/professional development to stakeholders about how to implement your research.	.75
	...determining the best place/way to disseminate findings in order to reach practitioner audiences	.74
	...creating written products that practitioners are able to understand.	.70
	...evaluating the real-world impact of your own research.	.64

Note. The item correlations range from 0.42–0.75 with a median of 0.53.

Table B7. Factor Loadings for *Capacity to Engage with Practitioners* Sub-scales

Scale	Variable <i>Please rate your confidence in...</i>	Disseminate Information	Comm. w/ Practitioners	Adapt Research to Context
Capacity to Engage with Practitioners	...talking or emailing with practitioners about research relevant to issues in their school/district.	.00	.69	.10
	...engaging with practitioners as research partners.	-.04	.94	.02
	...soliciting input from practitioners on an aspect of a project.	.08	.77	-.02
	...helping practitioners adapt a program/intervention to their context.	.18	.11	.64
	...providing technical assistance/facilitating implementations.	-.04	-.06	.97
	...providing a workshop/professional development to stakeholders about how to implement your research.	.07	.22	.56
	...determining the best place/way to disseminate findings in order to reach practitioner audiences	.89	.01	-.03
	...creating written products that practitioners are able to understand.	.52	.27	-.01
	...evaluating the real-world impact of your own research.	.72	-.07	.10

Note. The item correlations for the *Disseminate Information*, *Communicate with Practitioners*, and *Adapt Research to Context* range from 0.52–0.65 with a median of 0.63, 0.63–0.75 with a median of 0.70, and 0.66–0.74 with a median respectively.

Table B8. Factor Loadings for *Capacity Building* Scale

Scale	Variable <i>In the last year, how often have you engaged in the following ways with practitioners?</i>	Factor Loading
Capacity Building	Sharing strategies for accessing research.	.91
	Sharing strategies for reading and understanding research.	.88
	Sharing strategies for implementing education research.	.69
	Connecting people for the purpose of sharing or discussing research.	.66

Note. The item correlations range from 0.53–0.81 with a median of 0.60.

Table B9. Factor Loadings for *Brokerage - Activities* Scale

Scale	Variable <i>When you've shared research, how often did you do any of the following?</i>	Factor Loading
Brokerage - Activities	Evaluate the quality of research prior to sharing.	.27
	Evaluate needs of schools, teachers or others so that you select the most relevant research	.44
	Deliver formal learning opportunities (e.g., professional development, training).	.65
	Offer or provide support or technical assistance.	.61
	Publish (i.e., produce or release for distribution)	.61
	Develop products or programs based on research	.62
	Disseminate (i.e., actively distribute research)	.68
	Synthesize multiple sources of research about a single topic, program, etc.	.71
	Translate research into understandable language and/or format.	.71
	Facilitate discussion of research.	.64

Note. Item correlations range from 0.05–0.59 with a median of 0.35.

Table B10. Factor Loadings for *Brokerage - Interpretation* Scale

Scale	Variable <i>Generally when you've shared [products], how often have you shared...</i>	Factor Loading
Brokerage- Interpretation	An actual product (e.g., the article, a link to the article, etc.)	.32
	Your interpretation or summary of the findings	.78
	Practices or strategies you developed based on the research	.50

Note. Item correlations range from 0.16–0.39 with a median of 0.25.

Appendix C: Proportions of Network Ties in Researcher Networks

Table C1. Proportions of Network Ties in Researcher Networks

	Proportion of all nominations	Percent of individuals with at least one tie	Composition of networks (Individual)	
N	1,572	179	179	
Individuals	%	%	Mean	SD
Community Leader	1.1%	10.1%	0.01	0.03
District Administrator or Staff	6.6%	20.1%	0.06	0.13
External PD Provider	0.7%	30.2%	0.01	0.05
External Researcher	2.3%	3.4%	0.03	0.12
Funder	0.8%	5.6%	0.01	0.03
Instructional Coach	1.5%	4.5%	0.01	0.06
Intermediary	1.5%	8.4%	0.02	0.10
Interventionist	0.4%	2.2%	0.00	0.02
Non-profit Leader	2.0%	12.3%	0.02	0.06
Other individual	5.8%	27.4%	0.06	0.12
Other School Staff	0.1%	1.1%	0.00	0.01
Policy-maker	1.8%	9.5%	0.02	0.11
Principal/Assistant Principal	2.4%	23.5%	0.02	0.09
Professor	3.0%	15.6%	0.03	0.08
Program Developer or Publisher	0.6%	6.7%	0.01	0.04
Program Director	2.7%	3.4%	0.03	0.11
Teacher	3.2%	14.0%	0.03	0.08

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Table C1 (continued). Proportions of Network Ties in Researcher Networks

	Proportion of all nominations	Percent of individuals with at least one tie	Composition of networks (Individual)	
N	1,572	179	179	
Organizations	%	%	Mean	SD
Advocacy Group	1.8%	12.3%	0.01	0.05
District	4.6%	0.6%	0.05	0.14
Federal Education Agency	4.3%	22.9%	0.04	0.10
Foundation	1.0%	5.6%	0.01	0.07
Government Agency	1.8%	13.4%	0.02	0.06
Independent Research Center	1.7%	12.8%	0.02	0.05
Other organization	3.8%	18.4%	0.05	0.16
Professional Association for Practitioners	11.8%	8.4%	0.17	0.28
Professional Development Provider	1.5%	12.8%	0.02	0.07
Program Developer or Publisher	1.1%	3.4%	0.01	0.04
State Education Agency	1.5%	8.9%	0.02	0.10
University-based Research Organization	3.9%	26.8%	0.05	0.13

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Table C1 (continued). Proportions of Network Ties in Researcher Networks

	Proportion of all nominations	Percent of individuals with at least one tie	Composition of networks (Individual)	
N	1,572	179	179	
Media Sources	%	%	Mean	SD
Blog	2.0%	47.5%	0.02	0.09
Book	0.6%	13.4%	0.00	0.02
Dissertation	0.1%	9.5%	0.00	0.01
Magazine	1.5%	10.1%	0.02	0.08
News Source	4.1%	19.6%	0.04	0.09
Other media	1.0%	7.3%	0.01	0.04
Peer-reviewed journal	3.8%	2.8%	0.04	0.11
Professional Development Training Materials	0.4%	15.1%	0.00	0.02
Reports	0.4%	11.7%	0.00	0.01
Research Database	1.4%	8.4%	0.01	0.04
Social media	4.6%	24.0%	0.05	0.14
Summaries/briefs	0.7%	5.6%	0.00	0.02
Website	4.3%	24.0%	0.04	0.09