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The Current Knowledge Base on the Use of Research Evidence in Education Policy and Practice: A Synthesis and Recommendations for Future Directions

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Introduction

Over the last few decades, policy, practice, and research communities have called for increased evidence use in educational decision making. This push has been especially focused on alignment between educational researchers' findings and policymakers' decisions, targeting one particular type of evidence used in decision-making processes referred to as 'research evidence.' Research evidence (RE) is a key type of evidence that has been mobilized toward improvement at all levels of the public education system in the U.S. (Finnigan & Daly, 2014).

Attention to use of research evidence (URE) derives from earlier conceptual work in the 1970s and 1980s by Carol Weiss and Nathan Caplan, among others, that provided much of the theoretical grounding for both the broader focus on connecting research and practice or policy, and the more specific ways that use of evidence varies, such as instrumental, conceptual, symbolic, or tactical use. (See Neal et al., 2019 for details regarding the evolution of our understanding of URE and contributions of various scholars during that time period).

Designbased approaches that emerged in the 1980s in the field of learning sciences as a way to strengthen connections between research and practice led to a parallel movement toward research-practice partnerships (Tseng & Coburn, 2019). These two broad areas—use of research evidence and RPPs—align and intersect with broader knowledge utilization and knowledge mobilization efforts over this same time period. In essence, key drivers toward the resurgence of attention toward research use in education were the parallel scholarly and practical efforts around UREs and RPPs that recently have become more integrated.

While the passage of the No Child Left Behind Act (NCLB) and the creation of the U.S. Department of Education's Institute of Education Sciences (IES) ushered in an era of evidencebased improvement in the early 2000s, the "explosion" of research on URE occurred in the last decade as part of the capacity-building in the field (Farley-Ripple, et al., 2020; Tseng & Coburn, 2019). Funding opportunities for research on URE grew substantially during this time. In fact, Farley-Ripple et al. (2020) identified more than 80 funding sources supporting research on URE, including governmental or philanthropic entities in the U.S. and internationally. At the same time both IES and foundations like the William T. Grant Foundation and the Spencer Foundation supported substantial work around RPPs. In addition, the William T. Grant Foundation developed a line of inquiry specifically around research on the URE in policies and practices that affect young people (Tseng, 2012), with the initial studies related to URE in education documented in Finnigan & Daly (2014). More recent studies, including those focused not just on use but ways to improve URE, as well as studies of URE outside of education, are supported by the Foundation and featured on its website. Finally, IES invested in two knowledge utilization centers, the National Center for Research in Policy and Practice and the Center for Research Use in Education, driving substantial research on URE at the school and district level.

This paper synthesizes what we know about URE in the U.S. educational system over last decade as this knowledge base was expanding and identifies where gaps remain in our understanding of URE. The focus is on the scholarly work from 2011 to 2021 because of the substantial empirical work conducted during this time. This paper is divided into the following sections:

- Defining RE and URE in education;
- Extant knowledge about URE in education and the mechanisms or conditions that facilitate URE; and,
- Gaps in knowledge about URE in education and recommendations for filling those gaps.

Importantly, as described in the following pages, quantitative, qualitative, and mixed methods studies during this time period indicate that practitioners and policymakers are, in fact, using RE. They report using it in instrumental, strategic, and conceptual ways. The studies indicate that certain mechanisms and conditions, such as brokers and intermediary organizations and incorporation of URE into norms and routines, facilitate URE. While the studies of URE over the last decade provide important insights and improve our understanding of connections between research and policy and practice, gaps remain. The next generation of research on URE will require different theoretical frameworks and methodological approaches to fill these gaps.

Defining RE and URE

Research evidence is often vaguely referred to and not clearly delineated. RE, as used throughout this paper, refers to knowledge generated through systematic empirical studies that undergo a rigorous process aligned with the type of study conducted. RE may result from qualitative, quantitative, or mixed methods study designs, and in each case there are guidelines for execution and standards for judging the rigor of the design and the quality of results and interpretations (Gitomer & Crouse, 2019). RE may be reported in books, reports, articles, research summaries, training courses, expert testimony, or other outlets and formats. Importantly, RE is only one type of evidence used by policymakers and practitioners with different types of evidence used strategically alone or in combination at different points of the policy or decision-making process (Asen, et al., 2013; McDonnell & Weatherford, 2020). Contrary to prior beliefs and conventional wisdom, RE is not inaccessible or devalued. Indeed, educational leaders report valuing research and using research quite widely (Penuel et al., 2017). Just as RE is not always clearly defined, URE is often vaguely or broadly referred to. 'Use' in URE refers to the process of actively engaging with and drawing on research evidence[1] to inform, change and improve decision making or practice (Finnigan & Daly, 2014). Much of the focus on URE is based upon an underlying assumption that high quality RE could be productively and thoughtfully used in ways that increase knowledge within educational systems to increase improvement at some part of the system, e.g., the student, classroom, teacher, leader, school or district, or policy level, or for the system as a whole. Most research is also grounded in an assumption that much of the challenges or failures at these levels or in the overall system relate to a disconnect between research and practice/policy, hence the push toward increased or better quality URE discussed above. Renewed interest in the research community about evidence use follows from increased attempts to disseminate research information with limited success, and the recognition that educational practitioners draw upon evidence in ways that are more dynamic and nuanced than previously understood (Finnigan and Daly, 2014).

Efforts to link RE and decision makers assumes that RE is both rigorous (i.e., high quality) and relevant (Tseng & Nutley, 2014). To this end, a great deal of focus has been on the producer side of research evidence. Governmental agencies in particular (e.g., IES and the National Science Foundation) focused on ensuring rigor and relevance through their Request For Proposal (RFP) guidelines and panel review processes as far as what types of scholarship was encouraged and supported during this time. Much attention by funders, especially foundations that sponsor educational research, and scholars was also on the dissemination or "translation" of research, again targeting the producer side of RE. Focusing on the production and dissemination of research can be best understood as identifying ways to increase access to high quality and relevant research with an assumption that this research is inherently useable or applicable to the needs of those who will use it. Yet RE is only one type of evidence available to practitioners and policymakers and users may not always find RE to be useable.

[1] As Neal et al, (2019) point out, 'data use' and 'data-based decision making' in education are distinct from URE because data itself is not research, though these constructs share some similarities with URE as far as different types of use and ways that these inform decision making.

As the knowledge base began to grow, greater understanding of the myriad of types of evidence and value placed on different types led to increased attention to the use and users of RE by both funders and scholars. For example, both interventions and research began to pay closer attention to users' ability to evaluate and discern the difference between quality of evidence and the conditions that supported URE. Scholars documented the growth and influence of nongovernmental actors in educational politics and policymaking and these groups became an important component of URE (e.g., Henig, 2013; McDonnell & Weatherford, 2013; Reckhow, 2013; 2016; Reckhow & Tompkins-Stange, 2018; Scott, et al., 2015; Tompkins-Stange, 2016). Furthermore, Tseng (2021) and others began to argue for greater attention to the democratization of the research agenda, broadening the understanding of the role of the user. In essence, the field began growing in two important ways over this time. First, scholarship on URE began taking into account the larger ecosystem, as well as broadening the understanding of the roles, of producers and users. Second, the field began to more widely understand URE not as the linear transmission of something, e.g., translating results into a format that would be used by a policymaker, but rather as part of a process, e.g., a process of learning around a particular area of practice or a process of policy development and implementation. As Tseng and Nutley (2014) describe:

> [R]esearch use is contingent, interactive, and iterative. It involves people individually and collectively engaging with research over time, bringing their own and their organization's goals, motivations, routines, and political contexts with them. Research also enters the policy process at various times—as problems are defined (and redefined); ideas are generated; solutions are identified; and policies are adopted, implemented, and sometimes stalled (p. 165).

URE, thus, became better understood as a complex web of users (and non-users) and a process of use that led to greater attention to the structures, relationships, politics, and conditions that facilitate or hinder use in practice and policy.

While the scholarship around RE and URE has been a growing area of focus as a way to inform and influence instructional approaches and organizational and policy decisions, it is important to acknowledge that research has not always been used for good, and field of RE/URE has overlooked key communities, lenses, and perspectives. As Kirkland (2019) argues, URE is not a neutral act and RE has been misused in ways that reinforce racial injustice and systemic racism and is both embedded in—and is itself—a system of power. He contends that throughout history RE has been used to enforce White supremacy and anti-Black Racism through narratives of deficit and deviance as he shares in the following passage:

> The (mis)use of research evidence, from test scores to skull sizes to "validated" assumptions about what constitutes beauty, has been used to construct the ideology of race—to set in motion the racial hierarchy that both elevates and centers Whiteness while simultaneously reducing and criminalizing Blackness. The (mis)use of research evidence has seen Black bodies reduced as the object of White oppressive fetish (e.g., the Black body as empirically sexualized and contrived as abnormal, a monstrosity, etc.), preoccupation with social control

(e.g., the Black body as target of sterilization), and experimentation (e.g., the Black body as experiment for White medicine) (p.1).

From a research and a practical standpoint, understanding the process of URE requires knowledge around a particular problem or set of problems; understanding the policies or strategies to address these issues; clarity regarding what needs to be done to implement these policies or strategies; and finally a grasp of who must be involved to implement these policies or strategies and an understanding of why action is required. Nutley et al. (2003) refer to these as 'know-about', 'know-what', 'know-how', 'know-who', and 'know-why', emphasizing that 'know-what' is frequently emphasized while the other types of 'knowing' are critical to understanding processes regarding research evidence. An important and foundational aspect of URE is that research is rarely used in a discrete and linear way, but rather "…unfolds within a social ecology of relationships, organizational settings, and political and policy contexts" (Tseng, 2012, p. 16). For RE to become part of a learning and decision making means that URE must be considered as part of a multi-dimensional, complex, social and interactive process.

Extant Knowledge about URE in Education

Instrumental

A number of studies have focused on what is being used and the types of use (e.g., using Weiss' lens) particularly at the K-12 school system level. In part, this attention has been a key focus because even though there is great attention to national and state educational reform, it is at the local level that educational improvement happens (Penuel et al, 2017). As mentioned above, the two national centers also focused directly on schools and districts, thereby increasing the scholarship on URE at this particular level of the system. Importantly these results typically are focused on instrumental types of use – or use that results in a particular program or policy decision.

What we know about instrumental URE is that it varies within and across districts even in longer-standing RPPs (Honig, Venkateswaran, McNeil, & Twitchell, 2014; Penuel, Farrell, Allen, Toyama, & Coburn, 2016). RE plays a limited role in the decision-making of central office staff (Farley-Ripple, 2012), local school boards (Asen et al., 2011, 2013), and principals (Finnigan, Daly, & Che, 2013; Finnigan, et al., 2021) with other types of evidence being used more frequently. Prior research suggests that educators turn to people first and prefer evidence curated by colleagues to inform their decisions (Finnigan, Daly, & Che, 2013; Penuel et al., 2017); central office staff prefer publications from professional organizations, conferences, internet, and leadership books over research evidence (Farley-Ripple, 2012); and school board members rely on a variety of evidence (e.g., experience or testimony) in deliberations, rarely using RE in these processes (Asen et al., 2011, 2013). Educators hold a variety of definitions of what counts as evidence as they consider educational issues or problems, ranging from empirical studies, to local evaluation reports, to expert opinion to popular press (Finnigan, Daly & Che, 2012). This fact underscores the notion that while all levels of the educational system might agree that research is important and needed, these levels vary widely on whether they use RE (versus other types of evidence) in instrumental ways.

The large-scale studies at the K-12 level conducted by the national centers expanded the knowledge base about instrumental URE. Penuel et al.'s (2017) descriptive study involved a representative sample of districts across the U.S. and included 733 school and district leaders. This study found that 60% of respondents reported using RE frequently or all of the time in what would be categorized as instrumental ways, e.g., for a variety of decisions, including choosing curricula, allocating resources, adopting or eliminating programs, and designing professional development. Research from these national centers also found that RE either heavily influenced or had some influence over many of the decisions school and district leaders make, e.g., for decisions about full-day kindergarten or teacher professional development or around how to address student tardiness, as well as decisions at the classroom level, e.g., around student groupings or progress monitoring, though it was one of several types of evidence brought to bear on these decisions (Blackman, et al., 2018). Penuel et al. (2017) note that their findings that RE was accessed, used, and valued surprised them given prior studies, but this could be the direct result of the policy attention and capacity-building described above as far as the attention given to URE over the last few decades, not to mention the fact that these are self-reports of URE. In my own work we found that *which* leaders had access to or were using RE in instrumental ways was important. For example, our social network analysis of the underlying networks of district leaders (including central office leaders and principals) found that principals of underperforming schools were on the periphery (or outer areas) of advice networks in districts compared with principals of higher performing schools, and principals of low performing schools became disconnected from RE as a result of leadership churn (Finnigan, Daly & Che, 2013, Finnigan et al., 2021). This disconnect may help to explain why underperforming districts and schools–even faced with accountability consequences–frequently continued to draw on approaches that were not rooted in an empirical base.

A comparable body of scholarship on instrumental URE at the higher education level was not apparent. One recent study by Hollands and Escueta (2020) found that higher education administrators reported URE in instrumental ways around decisions relating to educational technology products and strategies, but that the evidence administrators referred to as RE would rarely meet the definition used in their study (and here). Instead, higher education decisionmakers were often producing and using their own evidence (i.e., evidence that did not meet scientifically rigorous standards). While they referred to use in more instrumental ways, these authors note that higher education administrators also discussed needing buy in by faculty members and students, pointing to difficulty in teasing out different types of uses and suggesting, as others have, that the time might be ripe for new theoretical approaches to understanding URE. During the last decade, empirical studies of instrumental URE at the education policy level, as far as governmental actors and agencies and the courts, are also limited. Haskins and Margolis (2014) described one strategy that was used to improve URE through an analysis of how federal dollars were allocated according to different tiers of evidence as part of the federal Investing in Innovation (i3) fund. McDonnell and Weatherford (2013, 2014) in their study of Common Core State Standards (CCSS) and URE and in their more recent book (2020) found that various studies and syntheses were significant in developing the standards for what students were expected to learn in different grades. For example, a particularly influential body of research was focused on children's learning progressions in math and English Language Arts. They noted that the RE that was used to inform the CCSS came from diverse sources (academic journals, books, and reports) and were published by a variety of actors (the National Research Council, federal agencies,

professional associations, Achieve, ACT, and the College Board). At the state policy level, Massell, et al. (2012) found that state education agencies (SEAs) used research instrumentally in the creation of school improvement frameworks. More recently, research from one of the national centers found that state curriculum supervisors used RE in determining whether to purchase an intervention or in designing professional development for teachers or administrators (Blackman et al, 2018). These studies used a combination of self-reports, document analysis, and budgetary allocations to identify instrumental URE in policy decisions.

Strategic (Symbolic) Use

In addition to instrumental URE, Finnigan and Daly (2014) pointed out that most of the use of evidence at all levels of the educational system in their compilation of studies were strategic or symbolic. In other words, RE was used to sway opinions or confirm ideas. In many cases, "the research says…." was a common refrain even though individuals couldn't point to specific studies or data. Particularly at early points in advocating a position at the local, state, or federal level, RE was more often used strategically to gain buy in or support. In that way even if the RE was limited or inconclusive, it was used as part of arguments for supporting or removing a particular policy or practice because of the high level of importance placed upon evidencebased decision-making. A second and related reason RE was used in this way was related to legitimacy—if one can offer evidence, particularly a compelling anecdote or a rigorously designed study—then one may be more likely to be able to persuade others of the importance of a particular approach because it has been sanctioned or legitimized by this external "expert" source. At both the district and national level, this allowed individuals to support their proposed courses of action to move beyond an ideological debate (Finnigan & Daly, 2014).

RE is frequently used in this way to demonstrate credibility, to symbolize shared ideals or beliefs, or as a proxy for values (Asen et al., 2011, 2013). Farley-Ripple (2012) found symbolic use of RE was common in decision-making processes in central offices. Penuel et al.'s (2017) more recent study builds upon these prior studies and similarly finds that educators report symbolic URE including rhetorical efforts to convince others of a particular point of view on an issue or using research to support a particular decision. They found that more than two-thirds of leaders reported symbolic or strategic uses either frequently or all of the time. While strategic URE could also be used to discredit others or convince others to dismantle a program, this was much less common with only 21% of leaders reporting this. At the policy level, Bogenschneider, et al. (2019) found that policymakers most often used research for persuasion, either to gain support or counter opposing views. This symbolic or strategic use of RE was also found in a study by Horn, et al. (2018) that focused on how policy actors use RE in their *amicus* briefs to sway court decisions, in the case of their study, the U.S. Supreme Court decision in *Fisher v. University of Texas at Austin*. As they note, seeking to guide the court on educational policy issues is a way that individuals and organizations that are not party to a case can do so, and frequently they use social science research to support their arguments. Symbolic URE as a prominent approach has been found at all levels of the educational system and using different research methods, but few studies have teased out the quality of the RE being used in these strategic or persuasive ways. As Hollands, et al (2021) note, practitioners and policymakers may not have a robust understanding of the available RE on a topic. Given the prominence of symbolic uses and the misuse of RE described above, this is an important cautionary note as various actors strategically use RE to shape educational debates and decisions.

While many of the studies of symbolic URE focus on points in time, McDonnell and Weatherford (2013, 2020) expand our understanding of URE by considering how and where RE intersects with points in the policy-making process. They demonstrate how policy entrepreneurs use RE for different purposes throughout different policy stages (depending on availability and political context). They noted several points in time that policymakers used RE in symbolic or strategic ways. For example, RE was used during the problem definition stage of the policy process primarily in defining a set of problems for which they already had a solution (i.e., a symbolic use). During policy design, they also noted symbolic uses of RE to persuade stakeholders about various aspects of the policy. In fact, the general promise of basing Common Core State Standards on research, they argue, was a useful tool for both persuasion and legitimacy. Finally, during policy enactment another strategic or symbolic aspect of URE was identified by the authors as far as communicating with and persuading specific audiences about the usefulness and importance of CCSS by linking to the RE on which it was based.

Conceptual Use

My colleague and I have argued previously that URE requires both a "readiness" to engage in a learning process around evidence and structures and relationships that facilitate this type of learning (Finnigan & Daly, 2014). The idea of "learning" around evidence was in fact one of the most compelling notions that emerged across several of the chapters in our book with attention to the dynamic and iterative process that undergirds both the development of RE and URE. As we noted then, many conceptualize evidence as a very specific or tangible thing to use, like a book or a group of studies or expert opinion, that then results in a change in policy or resource allocation or are used to persuade others of that change. These conceptualizations are aligned with instrumental and symbolic uses, respectively. But what the scholarship on URE over the last few decades has shown us is that one particular type of use–conceptual use–may be both the most important (e.g., because it leads to the more strategic uses) and the hardest to study. Thought of from a learning orientation URE is just one component, albeit important, of a larger process that involves individual and organizational learning. In other words, learning involves co-interpretation and co-construction of different types of evidence into both new understandings of particular curricular, organizational, or policy issues as well as actionable steps for policy or practice.

Self-reports of conceptual use indicate high levels of this type of URE. Penuel et al.'s (2017) national study found that school and district leaders reported most areas of conceptual use at high levels. For example, 93% of leaders said that RE "brought attention to a new issue." They also found that leaders were most likely to say that they frequently or all of the time encountered research that had expanded their understanding of an issue (71%). They reported that RE had provided a common language and set of ideas (57%) or a framework for guiding reform efforts (52%) in their schools and districts. About one-third of leaders reported that research had brought a new issue to their attention (36%) or changed the way that they looked at a problem (35%). Other empirical studies found similar frequency of conceptual use (Farley-Ripple, 2012). Conceptual use is a critical aspect of learning processes, but to truly understand conceptual use will require particular study designs and methodological approaches as discussed in the final section to triangulate these results with other data (i.e., beyond self-reports) and allow for greater depth of understanding of the stages or quality of conceptual URE.

Emerging research suggests that our current frameworks do not fully capture the ways that RE is used by policymakers. In fact, Bogenschneider, et al (2019) found several roles that research plays in policymaking that have not had sufficient attention in prior research including providing a larger context for thinking about issues; educating others; asking important questions; and enhancing debate, dialogue, collaboration and compromise (p. 790). Conceptual use also requires attention to the politics of URE in ways that have not been adequately explored. Understanding the political economy of knowledge uptake in the policy process is important to understanding why research evidence is less common in national policy debates, as well as how to more strategically facilitate URE when a policy window opens (Reckhow, et al., 2021). These studies point to emerging understandings of the alignment between the kind of "softening" process (Kingdon, 1984) that is often considered in political studies on policy adoption and conceptual URE. In a sense the focus of many studies of URE have been on particular outcomes resulting from URE that are more easily targeted, reported, and measured, as in the case of instrumental and symbolic uses, but findings relating to conceptual uses of RE suggest that we need greater attention to what it means to use RE as part of policy and decision-making cycles, which requires theoretical or conceptual frameworks that build upon the learning and relational aspects of URE as well as the political processes.

Extant Knowledge about the Mechanisms or Conditions that Facilitate URE

Importance of Brokers, Intermediaries, and Networks

One of the most important findings from the last decade of research is that URE by policymakers and practitioners is facilitated by certain people who serve as "research brokers" as well as intermediary organizations and networks. These studies are important because they help us to better understand the ways that researchers connect with policymakers and practitioners indirectly rather than directly, meaning through other individuals and organizations. For example, my work with colleagues (Daly et al., 2014; Finnigan et al., 2021) found that key individuals in school districts served as brokers. Unfortunately, high levels of churn in these leadership roles meant that the ties relating to RE were constantly being disrupted. In a similar vein, Neal et al., (2015) studied the structure of connections that "bridged" the practice world and the research world. They found that school staff often played brokering roles, e.g, gatekeeping brokerage roles, or roles where someone in one community, say a researcher, shares information with someone in another community, say a principal, who then shares that research with people in the same community, but that these were not always useful in connecting what they called the educator-researcher communication chain. This study aligns with other work that found that staff at county-level school districts played important brokering roles (Neal et al., 2015) and that district staff have filled gaps between producers and users of evidence (Finnigan & Daly, 2014) and served as gatekeepers between research users in different parts of the system (Finnigan et al., 2021). In these cases, the brokers serve in intermediary positions but they are internal to the organization vs. external entities. In all cases, brokers can play a critical role in the

flow of ideas and practices because they filter what is known—in this case they filter what is known about RE.

The push for greater URE combined with an often disjointed relationship between the research producers and the research users allowed new groups to emerge or position themselves as the "interpreters" of evidence (Debray et al., 2014; Scott & Jabbar, 2014). Brokers operate within a type of market, as policymakers and practitioners require information to make decisions and intermediaries respond to this demand (DeBray et al., 2014). Intermediaries have taken on important roles in the packaging of research and the management of perceptions to "sell" policymakers or practitioners on a set of findings, as well as to validate whether evidence is credible. Of course while filling a larger "need" of the system to bridge researcher to user, another "need" was being filled as many of these organizations spent considerable resources moving their own agendas forward, frequently unchecked (Scott & Jabbar, 2014). Intermediary organizations were found to be active in promoting, participating in, or opposing incentivist educational policies like charter schools, vouchers, "parent trigger" laws, and merit-pay systems for teachers (Scott et al, 2015). These intermediary groups have also played the role of local distributors of federal funds in some cases, thereby aligning resources with their agendas and the RE they elevated or shared with decision makers (Debray et al., 2014; Scott & Jabbar, 2014). One type of intermediary organization, professional associations, have emerged as a key source of research for school and district leaders (Penuel, et al., 2017). Hopkins et al. (2018) found that for a state-level science policymaker network individuals in the key professional association – the Council of State Science Supervisors – served as brokers by enabling association members' access to diverse sources of research and facilitating between-state research exchanges.

The role of intermediary organizations can be understood not just by the type of organization they are but also by their purpose of serving in this role, e.g, for example disseminating information or advocating for members on behalf of their materials or ideological interests (McDonnell & Weatherford, 2020). Advocacy organizations can be especially influential in URE through their impact on media (Malin & Lubienski, 2013, 2015). In addition, the influential role of philanthropy as a broker of RE–and the ideological and political agenda of these entities—warrants further attention (e.g., Henig, 2013; Reckhow, 2012; 2016; Reckhow & Tompkins-Stange, 2018; Tompkins-Stange, 2016). The fact that policymakers often access RE and other types of evidence through networks of like-minded organizations (Goldie, et al., 2014), suggests these networks remain an important component to understanding URE at all levels of the educational system, and, as described later, network studies can help to unpack the underlying structures of those connections and the types of RE that moves throughout them.

Political and Social Context

URE occurs in a robust network of interconnected relationships, whether one focuses on the school, district, state, or federal government. Several studies that involved case studies and network analysis found that trust plays a role in URE (Asen, 2014; Daly & Finnigan, 2012; Finnigan & Daly, 2014). People make determinations about the RE, and whether they will use it, based upon the person providing the evidence. In other words, the same type of evidence brought by a trustworthy or untrustworthy source will have a different result in a person's response to that evidence, i.e., whether it resonates or they are skeptical of it. As such, we must be mindful of not only the fact that individuals have social relationships, but the quality of the relationship between those individuals as it is consequential for URE. What the work in our book (Finnigan & Daly,

2014) suggested was that institutional support around evidence use was critical. In addition, these studies suggested that those who served in supporting roles to others, e.g., by facilitating access to evidence, interpretation, and action steps, should not necessarily be the same people who supervise these individuals particularly given a high level of distrust across our educational systems.

Some studies have pointed to the attitude or skills of individuals that increase URE. For example, Penuel et al (2017) found modest associations between positive attitudes toward research and URE.[2] However, these authors also note that since practitioners and policymakers are rarely operating in isolation, the broader context and culture are important to understanding URE. In other words, URE requires an infrastructure to embed the RE into a system (Farrell, Coburn, & Chong, 2018; Honig, Venkateswaran, & McNeil, 2017). The Center for Research Use in Education (2018) found that professional learning communities (or groups of teachers who meet regularly to discuss their practice), instructional leadership teams (or groups of teachers who meet with the principal to collaborate to improve learning), and instructional coaches (or mentors who support teachers in developing and strengthening their teaching skills) were the most prevalent structures reported by teachers that facilitated the connection of research and practice in their contexts. These structures are often used to create shared, formal learning opportunities for educators to tackle classroom or school-level challenges, drawing research into that process.

Coburn et al.'s (2020) focus on organizational routines provides important insights into how structures facilitate URE. The study uncovered how multiple, interrelated routines were important to understanding URE in school districts. This longitudinal qualitative study identified another type of use: latent use. Latent use happened as district leaders in one routine embedded research in artifacts, which then guided the work of leaders in other routines. While district leaders did not explicitly discuss URE as part of these routines, RE was often embedded into artifacts that were part of these routines and therefore was shaping decision-making processes. In addition to structures, other conditions that support URE are a strong culture of research use (Penuel et al., 2017) and a climate of trust, learning, and risk taking (Daly & Finnigan, 2012; Finnigan & Daly, 2014). Finnigan et al (2013) found that URE was limited by pressures to determine improvement strategies based upon monetary resources that were available (or not), and Hollands et al., (2021) note that the pressures associated with the requirement to use certain types of RE in federal policy may actually limit more constructive uses and ultimately improvement. These studies of political and social contexts focus on URE at the school and district levels but likely could inform scholarship at the higher education and educational policy levels, as well.

Gaps and Recommendations for Future Research Directions

Identifying gaps in any particular body of research can be difficult because of the many ways of thinking about the field and different perspectives one brings to that work. From my perspective through reviewing and synthesizing the last decade of this research and as a scholar

[2] Outside of education, Palinkas et al. (2016) and Wulczn et al. (2015) are examples of studies that point to individual attitudes and skills as factors in URE.

within this field, I believe there are four important gaps that should be targeted in this next stage of studies of URE, some of which have also been described by others (e.g., Gitomer & Crouse, 2019). In the case of each gap, I briefly recommend how scholars could tackle these areas by raising key questions, designing particular studies, or looking to related work in fields outside of education to inform future directions for scholarly work and funding.

Gap 1: Methodological Gaps

Quality of URE

Over the last decade our understanding of URE has grown with many studies reporting self-reported use of RE by practitioners and policymakers. Some studies have been able to triangulate these self-reports, e.g., by tracing URE through analysis of documents, testimonies, legislation, observational studies, or through social networks. However, we do not yet know enough about the quality of the RE practitioners and policymakers are using or the quality of use. As Gitomer and Crouse (2019) point out, despite progress in understanding URE, significant questions about what URE means and how to assess it in practice remain. Published and disseminated research can vary a great deal as far as methodological rigor, the quality of data collection and analysis, and the appropriateness of interpretation of results. The initial work in this area helped us to understand–broadly–whether RE was being used at all, but the next step is to consider the quality of URE. Studies of URE quality will need to be conducted using rigorous and appropriate research designs and methodological approaches for quantitative, qualitative, or mixed methods studies.

Measurement of Conceptual Use and Study of the Learning Process of URE

As Oliver and Boaz (2019) argue, decision making processes are complex and messy and knowledge construction is political and contested. And many of the qualitative case studies of URE have helped to unearth this. They have also highlighted the importance of individual and organizational learning processes that are part of URE as discussed throughout. In essence, the emerging work around the instrumental and symbolic uses of RE provide us with a greater understanding of the more strategic or tactical approaches to URE in ways that align with rational understandings of decision making as far as specific moments when RE is used to persuade or inform. But whether practitioners or policymakers have a deeper understanding of the particular issue, whether conceptual use is a necessary pre-cursor to quality URE, whether an RE is part of an iterative or cyclical nature of learning, whether conceptual use is part of or takes different forms in the "softening up" of a policy process, and other important and related questions remain to be known. Measures of URE, to date, are mostly self-reports (Neal et al., 2019), which limits the field as far as our interpretation of these data.

Scholars who study URE have argued that the lion's share of research use is conceptual, shaping in slow and diffuse ways the way people think about problems and how to solve them (Weiss, 1997; Tseng, 2012). Conceptual use of research has further reaching and longer-term consequences than instrumental, tactical/ political, and other types of use, but it is more difficult to measure and track over time (Tseng, 2012). According to Penuel et al (2017), more opportunities to discuss research is strongly associated with instrumental and symbolic uses suggest that conceptual framework and methodological approaches need to account for differences in the social context for each type of use as well as how conceptual use may be

embedded in these other uses. Conceptual use, they contend, may be more likely in both social settings and individual types of reflection.

Recommendation 1: Studying quality of use and conceptual use requires several related approaches. The first is additional measurement work around quality of URE and individual and organizational or policy learning and development as a result of RE. The second is more longitudinal designs to trace URE over time. The third is additional qualitative or mixed methods studies. For example, when findings point to greater instrumental use among leaders, it is important to consider the measures used and whether these results have been triangulated or corroborated by other data. The fourth is attention to broader outcomes as far as how RE impacts policy and practice, considering not just how research informs specific decisions by educational leaders but how research informs design of program evaluation or development of their school or district's strategic efforts. Beyond self-reports, Neal et al (2019) provide details about some of the current measurement issues relating to URE in education, including that these are primarily at the individual level, involve multi-item scales, and have issues with non-response bias, and suggest that we might look to related studies in health care for measures that could potentially be adapted to the education context. It is also important to begin to develop new measures in alignment with theoretical frameworks around learning and political processes to strengthen our understanding URE. Network studies would also help to strengthen our understanding of quality of URE and provide additional ways to measure both the ties around RE and the conditions supporting the learning and political processes involved.

Gap 2: Critical Lenses/Methods

As Gitomer and Crouse (2019) point out, few studies of evidence use have adopted critical theories to frame research questions, methods, and interpretation of findings. Using these theoretical frameworks could make evidence more useful to the communities it is trying to impact, help to disrupt power or interrupt policies that harm marginalized groups, and alter the way we think about and measure research production, interpretation, and use (Doucet, 2019). A similar call was made more specifically about RPPs when Calabrese Barton & Bevan (2016) argued for RPPs to "create explicit mechanisms for participants to directly confront the historical and systemic sources of racism and inequality that underlie the educational challenges they have been formed to address" (para. 2). More recently, Kirkland (2019) argued that RE is both "impoverished and incomplete" when it does not explicitly address how it constructs and is constructed by race. Critical URE work might build on the literature showing how intermediaries (as described above) facilitate relationships between some research producers and some research users and not others. This understanding of the politics and racialized impact of URE is crucial to our advancing our understanding of this field of work.[3]

Drawing on critical theory leads to important research questions that, to date, have not been addressed and utilizes critical methodological approaches, such as critical policy analysis (Diem & Young, 2018) and Quantcrit (Garcia, et al, 2017), that could bring new understandings to this body of scholarship. At this point there are many gaps to fill. For example, studies of URE

[3] For more details see virtual panel discussion "Critical Race Perspectives on the Use of Research Evidence" hosted by the William T. Grant Foundation and including Vivian Tseng, Jamila Michener, Janelle Scott, and Fabienne Doucet. http://wtgrantfoundation.org/panel-discussion-critical-race-perspectives-on-the-use-of-research-evidence

could target questions regarding whether the composition of the research team, lenses and methods used by researchers, or democratization of the research agenda influences URE (especially whether it increases the quality of URE) by practitioners or policymakers. As Doucet (2021) noted, "When BIPOC (Black, Indigenous, and People of Color) communities are involved in defining the problem space and generating actionable solutions, issues of racial and other forms of equity can be centered, rather than treated as a variable or contextual characteristic" (p. 9). Using these lenses and methods, in other words, could expand not just the research that is produced but also our understanding of when, how, and why it is used (or not) by practitioners and policymakers. These prior calls suggest that URE might be related to individual's own racial/ethnic backgrounds, or might be related to engagement with and understanding of different communities that are marginalized not only in policy and in practice but in the research itself as far as how issues are framed, questions are developed, and data are interpreted.

Recommendation 2: Bringing critical lenses and methods to URE could include several strands of work. First, using a critical lens to conduct a meta analysis of the last decade of URE research might expose or interrogate conceptual findings, uncover questions about power dynamics, or reveal patterns around deficit views or interpretations that could spur new studies of URE. Second, studies of URE, particularly use by certain groups or use of certain bodies of research could involve intersectional lenses used in other fields, as discussed by Doucet (2019), for example, disability studies (DisCrit), gender and sexuality studies (QueerCrit), or particular racial or ethnic groups (AsianCrit, BlackCrit, LatCrit, TribalCrit). Third, critical methods could bring new understandings to this body of scholarship. Critical policy analysis could expand both the conceptual frameworks of URE in the policy process, leading to asking different kinds of questions. Critical policy analysis is a form of policy studies that exposes inconsistencies in what policies say and do and examines power relationships and in all aspects of policy the policy process (Young & Diem, 2018). Critical lenses are often associated with qualitative work but a subfield called "QuantCrit" has a long history of challenging the neutrality or objectivity of numbers and categories (Garcia, et al, 2017). QuantCrit lenses and methods could be especially useful in critically analyzing how URE is measured, considering new ways to quantify types of use, conditions for use, quality of use, etc., and understanding how (or whether) use of RE disrupts inequities in policy and practice. A recent article by Suzuki, et al (2021) provides examples of when developmental science studies have engaged in QuantCrit approaches and describe three "moments of intervention" in study design that could be useful to URE studies moving forward: (1) development of the research question(s) and identification of analysis variables; (2) decision-making about the role of race in planned analyses; and (3) interpretation of the results through a theoretical framework.

Gap 3: Interventions that Develop or Strengthen Conditions for High-Quality URE

Some of the more recent URE studies are focused on interventions and the William T. Grant Foundation's grant cycles over the last few years have focused on improving URE, but the cycle of developing, piloting, and evaluating interventions, of course, takes time and are costly. Interventions are more prevalent on the user side (e.g., building knowledge, skills, capacity for research particularly by teachers or leaders in the K-12 school system), than the researcher side (e.g., university training of researchers in pre- or post-doctoral programs). Also rare are interventions that consider both researcher and user as part of a joint and collaborative process or

interventions that focus directly on intermediaries. Furthermore, while the field has grown around the conditions that support and hinder URE, more work is required to understand the leverage points for creating these conditions. Penuel et al. (2017) suggest, for example, that studies of intentional efforts to promote research access and use through professional associations could be compared with other more traditional approaches to connecting research and policy/practice to strengthen the work in this area. While there are some interventions to foster research use and strengthen conditions for URE, it is not clear that they adequately build off of the expanded research base over the last decade (in essence, these interventions need to build off of the current RE on URE!). This is especially true as far as moving beyond rational decision making approaches and toward interventions based upon relational and learning approaches to URE.

Recommendation 3: The body of work has grown over the past decade but has not yet been fully incorporated into broader theories and logic models around the interventions to improve URE. For example, interventions that focus on the user side of URE (i.e., practitioners and policymakers) must be broadened in light of the evidence to focus not just on instrumental uses but also conceptual uses and the conditions necessary to support use. Research on how best to promote different types of research for different leaders and to address different kinds of problems of practice is long overdue (Penuel et al., 2017). For instance, future research might explore how a book study intervention among a group of administrators or an intervention that involves learning about a set of research studies for a group of policymakers could lead to greater conceptual use, i.e., their in-depth interpretation of key ideas, which could then lead to application of this RE to district or policy decisions or strategic efforts. Finally, interventions that focus on either coalitions of users or networks of use could build upon the work within child welfare of inter-organizational collaboration and URE (e.g., Aarons et al., 2014; Palinkas, Brown, et al., 2015; Palinkas, Wu, et al., 2015).

Interventions that focus on the researcher side and URE are rare and evaluations of training programs focused on URE are not available. In fact, I was not able to find any research or evaluations of researcher training programs or models that are guided by the research on URE. Specifically, in my review I did not find any studies of U.S. educational researcher training programs that provide researchers with an understanding of the research on URE and provide ongoing training to develop the knowledge and skills of researchers to help them understand and navigate the ecosystem of users/non-users and better understand the organizational learning and political processes (or existence of any training programs that align with the RE on URE). Some efforts to improve researchers' understanding of URE have come through foundations supporting intermediaries to provide workshops or technical supports to researchers, e.g, Scholars Strategy Network's Training Researchers to Inform Policy. In addition, IES funds pre and post-doctoral training programs and over the years has supported grants like Training in Education Research Use and Practice for researchers, policymakers, and practitioners to join together in sharing research findings with regard to a particular focus area. More recently the post-doctoral training program RFP (see the most recent RFP: https://ies.ed.gov/funding/pdf/2022_84305B.pdf) emphasizes research training that involves "working with educational policymakers and practitioners." The current knowledge base around URE should inform those training programs, and funded programs should be evaluated to better understand how researcher training impacts the knowledge and skills of researchers and their relationships with practitioners and

policymakers and the ways that they communicate or engage their research as one aspect of URE. Since schools of education and intermediary organizations are often research producers, it would be important to consider training of researchers within both of those groups, including training as public scholars, training researchers to be research partners, building researchers' understandings of the educational systems and contexts and historical injustice in those systems they study.

URE studies could also focus on interventions by universities (and potentially research producing intermediaries) that are related to supports, resources, and rewards systems. While these kinds of changes have been discussed as ways to improve URE on the researcher end, there are few, if any, studies that help us to understand the impact of these potentially high leverage strategies. Larger systems continue to focus on "impact factors" that measure influence on other scientist and not "practice impact." As we consider the next steps forward in the study of URE, we must also consider the larger incentive structures in educational systems, and the ways that universities, in particular, do not reward translational activity, public scholarship efforts, collaborative partnerships, or other more accessible venues for connecting research and policy or practice. Pilot or exploratory interventions could begin to focus on not just training but university conditions and reward structures much in the same way this body of work has previously focused on the research users. Different skill sets and capacities must be built as is understood by a focus on researcher training, but as it stands now the pressure is generally on individuals to figure out how to move their work into the practice or policy communities, develop relationships with policymakers and practitioners and/or develop collaborative efforts and joint learning with research users with limited institutional support. As DuMont (2019) notes, access to evidence is insufficient without avenues for engagement–interventions must prioritize a focus on the relational and learning aspects of engagement no matter the target of the intervention.

Gap 4: Focus on the Larger Educational System and the Politics of URE

A final gap in the research relates to the greater attention to URE in the K-12 arena compared with other parts of the system, namely higher education, policy, and coalition groups. The extent to which higher education administrators use RE in instrumental or conceptual ways has not gained as much attention in recent years. This is particularly interesting as many institutions of higher education have faced a racial reckoning on their campuses but it is not clear when or how they are using RE to make related decisions, for example, about how to reduce or address institutional racism. This lack of attention to URE at the higher education level is extremely relevant and important given the widespread implementation of anti-bias trainings (for faculty, students, public safety officers, etc) vs. more structural or systemic approaches in spite of research that suggests these types of training will have limited impact in reducing bias or changing the workplace (Dobbin & Kalev, 2018).

McDonnell and Weatherford (2021) recently noted the need for more policy analysis research relating to URE. While some studies, as mentioned above, have focused on how URE enters the policy process there is a great deal more work that could be done given the different levels of policy and stages of policy. Furthermore, as Tseng (2012) noted years ago, as a field we must better understand how the political and policy processes work separately and together to influence what RE is used and how it is used. Another gap is in understanding how RE is diffused in ways that increase the scale or impact URE at both the practitioner and policy level, but new theoretical lenses are needed to understand diffusion as part of a learning process.

Studies of coalition groups, networks, professional associations, and other intermediary groups continue to be a ripe area of study. My recent study of diffusion at the K-12 level found that traditional diffusion theories, which assume an S-type curve of diffusion, were not useful in understanding how ideas spread given the high levels of churn among district leaders and the relational or social side of learning that facilitates URE (Finnigan & Daly, in process).

Recommendation 4: At the higher education level, studies of URE could include studies of pressing higher education issues, whether diversity, equity, and inclusion efforts, community engagement programs or strategies, virtual learning, staff and student wellness, or student belonging studies, and types of URE or conditions supporting URE by the president and cabinet, student affairs administrators, deans and departments chairs, faculty involved in governance, or student leaders. At the policy/politics level, greater attention to conceptual uses of RE by policymakers could be useful as well as conceptual URE by general citizens and how this alters their engagement or voting around education issues. Future studies could also focus more directly on the political dimensions of RPPs (Coburn and Penuel, 2016) and the political nature of URE (Scott & Jabbar, 2014). These studies could focus on both when and how RE is used at these levels, and the quality of URE.

Finally, beyond better understanding of the larger system, including the various research producers and brokers, intermediaries or networks, it is important to closely examine their purposes and incentives for using RE (McDonnell and Weatherford, 2020), as well as considering these in light of the three other gaps, i.e., how these relate to our understanding of quality of URE and conceptual use, how critical lenses and methods help us to interrogate their purposes or roles, and what types of interventions build upon the importance of these groups to improve URE by policymakers or practitioners. Additional attention to how URE fits within a complex and iterative policy cycle is needed (Fedorowicz & Aron, 2021). Studies of the politics of research use should focus on the power dynamics of the various actors in the ecosystem, especially those that have gotten less attention but have been using RE to shape URE more broadly, including social media platforms and news media. In addition, youth activists have been using RE in important ways over the last few decades as they fight for or against particular educational issues, e.g., police in schools. Attention to how student URE is different from or similar to the URE of other stakeholders could provide important insights to the field and link to other theoretical and empirical areas, e.g., social movements.

Conclusion

While the growing body of scholarship in the U.S. on URE provides important insights regarding the interconnections between research and policy and practice, it also uncovers necessary areas of focus and methodological approaches for the next generation of research in this area. Some key gaps in the current knowledge base on the URE in education policy and practice relate to the quality of URE and conceptual URE; critical lenses and methods; interventions, particularly those on the research producer side (i.e., to develop knowledge and skills of researchers with regard to URE) or to develop the conditions for URE; and with regard to the complex ecosystem of research users and producers and the political ecology of URE. The

gaps identified should be attended to in the next iteration of scholarship on URE to 1) improve URE and our knowledge base around it, and 2) to reduce the misuse of RE.

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