

TEACHING RESEARCH EVIDENCE USE THROUGH THE EDUCATION DOCTORATE

The education doctorate provides advanced leadership preparation to educators in several English-speaking countries. We explore how four American education doctorate programs teach evidence use. Educational leaders are key brokers of research evidence but usually lack the necessary skills. We employed a multiple case study design. Data were collected by document review; interviews with faculty, students, and university administrators; and direct observations of learning situations. We explored how the programs developed students' skills at assessing, conducting, and communicating research. The programs' strength is in developing students' capacity to assess research and conduct applied studies. They were developing ways to enhance students' ability to communicate research studies and understand the political, culture-building aspects of communicating evidence. Individual dissertation programs taught graduates to design research fitting the local contexts. Group dissertation programs taught graduates to build teams and address conflict. Findings offer suggestions for teaching capacity to generate, communicate, and use evidence for all EdD programs. By pointing out gaps in preparation, we suggest that EdD programs should attend more to preparing graduates to communicate findings and understand the communication challenges they face. This is one of the few studies to explore how EdD programs promote capacity to conduct and use research.

The education doctorate (EdD) has often faced two contradictory critiques. Initially, the degree was criticized for not adequately preparing its graduates for research. Such commentary is often framed as a generic critique of all doctoral work in education, decrying what is seen as the dubious quality of all research preparation in education. Sometimes it assumes that the purpose of all doctoral degrees is to prepare graduates to do research and that “scholarly habits of mind” are somehow equally good for educational researchers and leaders (Prestine & Malen, 2005). Contrarily, some critiques suggest doctoral-level leadership preparation does not prepare leaders for the fast-paced, practical world they face, blaming the excessive focus in preparation programs on developing research skills as part of the problem (Murphy, 2007).

Some understanding of research is important because leaders are the critical brokers for ensuring effective use of research in educational organizations (Neal, Neal, Kornbluh, Mills, & Lawlor, 2015). This is true when considering the extensive body of conventional researcher-driven research (Finnigan & Daly, 2014; Honig, Venkateswaran, & McNeil,

2017) or collaborative research for local improvement (Bryk, 2015; Mintrop, 2016). Leaders must understand research to lead its constructive use within their jurisdictions. But while that understanding may overlap with what researchers need to know, the focus on application makes leaders' needs different from researchers'.

This manuscript reports findings from an exploratory multi-case study of how EdD programs develop educational leaders' capacity to use research in their work. We conclude that these programs teach leaders to conduct research for local use rather than to "advance the field." However, preparation for brokering is largely about developing communication capacity. These programs are just beginning to find ways to prepare leaders to address the communications challenges they face in their daily work lives.

Research and Communication Capacities

Recently, the volume of research on the EdD has grown extensively. Studies report on alumni perceptions of the benefits of their programs (Zambo, Buss, & Zambo, 2015), the development of students' professional identities (Buss & Avery, 2017), the operation of exemplary programs (Cosner, 2019; Honig et al., 2019), and the possible solution to crucial instructional problems (Belzer & Ryan, 2013; Hochbein, 2016). By exploring how EdD students learn to understand research (Osterman, Furman, & Sernak, 2014), these studies provide a basis for a broader view of how EdD programs develop students' capacity to use research.

Leadership research generally examines leaders' internal work to improve and equalize student learning (Hallinger & Kovacevic, 2019). Still, some researchers have studied how leaders bridge their schools and districts to the larger environment. This interest is most apparent in studies of how leaders deal with the policy environment (Sykes, O'Day, & Ford, 2009). Another environmental sector is the world of research. The long history of using educational research to improve American schooling (Lagemann, 2000) illustrates the weaknesses of the strategies that have been tried to help educators use research (Finnigan & Daly, 2014; Louis & Dentler, 1988). One reason is that educational leaders lack research use capacity. This capacity has two parts: the ability to understand research and to communicate it effectively to relevant audiences.

Research Skills

Program designers have debated which research skills are critical for practitioners. Shulman and colleagues (2006) suggested that doctoral level leaders should be able to carry out local research and evaluation to supports their units' work. Additionally, leaders should be able to critically and evaluate the relevance of research. Lysenko and colleagues (2016)

noted the importance of leaders' research appraisal skills. Others suggest that leaders need research-related skills because they often are the links between schools to the research world (Finnigan & Daly, 2014; Neal et al., 2015). Teachers often rely on leaders to learn how to use data (Cosner, 2011; Datnow & Hubbard, 2016).

Still, because leaders' understanding of research evidence is limited, they prefer summaries to originals (Penuel, Farrell, Allen, Toyama, & Coburn, 2018). Coburn and Turner (2011, p. 179) claim that educators "have limited knowledge about the mechanics of data analysis, including how to ask questions, select data to answer the questions, use technology to manipulate the data, and draw valid interpretations." Furthermore, leaders rarely know how to find research information (Farley-Ripple, 2012). Hence, leaders often adopt new practices with little or questionable evidentiary support (Ringwalt et al., 2011).

Communication Skills

Understanding research is not enough to facilitate use. Findings must be conveyed to others. This is the work of brokers. Neal and colleagues (2015) show that while many intermediaries communicate research, the last link in the chain from researcher to user is usually a leader. Principals and district leaders are crucial to bringing research into schools (Daly et al., 2014), and the uptake of research-based practices is more constructive when brokered by internal leaders (Honig et al., 2017).

Communicating research requires four capacities. One is their social capital (Daly, 2010), the network of social connections brokers bring to a setting. Social capital ensures that the broker/leader has access to information to pass on through their network of contacts. Social capital also promotes relational trust and enhances individuals' willingness to accept messages and influence from trusted leaders (Moolenaar & Slegers, 2010). The second capacity is the broker's *ability to effectively convey the evidence*. Effective communication requires translation and alignment between the perspectives of researchers and users (Wenger, 1998). Brokers must deliver messages that are on-time, relevant, valid, and understandable (Olejniczak, 2017). Evidence brokering in schools is done orally because leaders spend so much time interacting directly with others (Sebastian, Camburn, & Spillane, 2018).

While brokering is often a neutral process of knowledge sharing (Meyer, 2010), it can become political when proposals are contested. The third capacity is the political use of evidence (Nutley, Walter, & Davies, 2007). Brokers use evidence to persuade listeners (Rogers, 2003). Evidence use skills can be adversarial when leaders use them to advocate for unpopular decisions or address opposition. Analysts have examined the rhetoric of political discourse (e.g., Stone, 1989) but have not paid particular attention to leaders' persuasion (but see Coburn, Toure, & Yamashita,

2009). Sometimes, communication goes beyond simply conveying to establishing authority or building relationships and trust (Vickers, Goble, & Deckert, 2015).

Finally, communication tasks often extend to *culture building*. This includes ensuring that everyone in the unit uses evidence appropriately and effectively, even when the leader is not directly involved. Studies of teacher data use illustrate the contribution of leaders in getting evidence used (e.g., Cosner, 2011). Many decisions regarding curriculum, schedules, and other policies, as well as instruction, are not made by leaders. Yet, leaders act to ensure that others use evidence effectively by:

- 1) Establishing the expectation that decisions will be evidence-based,
- 2) Modeling evidence use;
- 3) Ensuring that potential evidence users have the knowledge and skills to do so; and
- 4) Ensuring that potential evidence users have the time, access to information, and other resources necessary for successful evidence use (Anderson, Leithwood, & Seashore Louis, 2012; Cosner, 2011; Leithwood, Harris, & Hopkins, 2008).

Leaders' capacity to do so depends on their relevant knowledge and their moral fortitude and commitments. In sum, brokering overlaps with general educational leadership (e.g., Leithwood et al., 2008).

These two capacities promise to support both the effective communication of external research and internal, improvement-science type research and evaluation. Next, we present the how we conducted this multiple case study.

Methodology

Site Selection

This paper is part of a larger multiple case study (Yin, 2018) that investigated how EdD programs that are members of the Carnegie Project on the Education Doctorate (CPED) promote evidence use in their students. IRB for this research was received at the principal investigator's institution.

We examined four EdD programs across the country—Arizona State University, Boston College, Portland State University, and Michigan State University. We purposefully selected institutions that

- Belonged to the Carnegie Project on the Education Doctorate (CPED);
- Had redesigned their programs in the last decade to more effec-

tively prepare “scholarly practitioners” which required emphasizing research use;

- (In three of four cases) had recently won the CPED dissertation-in-practice or program-of-the-year awards;
- Were evenly split between individual- and the more unusual group-dissertation format.

Data Collection

Data were collected during four-day site visits by a two-member team. To guide the visits, a case study protocol (Yin, 2018) was developed including interview and observation protocols. Before arriving, we collected documents, including program handbooks, course syllabi, and sample dissertations. At each site, eight to eleven faculty were interviewed after receiving signed consent. Interviews were recorded and ranged from 45 minutes to an hour. Faculty interviews addressed the program’s history, individuals’ vision for the program, how they taught students to understand and use research evidence, other program goals, and interactions with peers and students. Six to eight student interviews were conducted across first-, second-, and third-year students. Questions focused on their personal background, experience with coursework and dissertations, and interactions with faculty and fellow students. Interview guides were designed to triangulate faculty and student perspectives.

Additionally, researchers observed several student activities, including student data analysis activities, group analyses of educational programs and teaching tools, and debates about policy issues. Researchers also observed as dissertation groups organized and analyzed recently collected field data. Field notes were taken on all observations.

Analysis

Audio-recorded interviews were transcribed and—along with field notes from observations—entered in a computer-assisted qualitative data base. Our initial coding scheme began with a few broad descriptive codes that captured program features we expected to prove important to which we added a few additional descriptive categories to capture unexpected program features or our developing conjectures. For inter-rater reliability, all four researchers initially coded two interviews and compared results to ensure common understanding was shared. This process refined code definitions.

To synthesize interview, document, and observation data, we generated a case record for each site (Patton, 2014; Yin, 2018) based on a common outline reflecting our research interests in how program features and interaction among program participants promoted research evidence

use in each site. Common tables facilitated cross-site analysis of program vision, program structure, and participation. As a member check, records were shared with all interviewees for review and permission to use the names of the sites. This review usually led to minor changes and clarifications (Patton, 2014).

The case records clarified the variety of strategies used to develop students' capacity to use research evidence and the differences in approaches across programs. One research team member then synthesized data from all four case records across a limited set of relevant codes to identify strategies and similarities and differences within programs. This cross-case analysis was then carefully checked by other members of the team.

Subjectivity and Limitations

With respect to researcher subjectivity (Patton, 2014), the two senior authors each have over a decade of work with EdD programs. Both university professors, one helped lead the revision of his university's education doctorate and then taught in the program. The other works for a national association of EdD programs.

Our study is limited by our small sample size and because our data focuses more on what is taught than what is learned. We inferred from syllabi and descriptions of classroom activities and other learning tasks what the instructional intention was and, where possible, reinforced that with student observations on what they learned rather than examining capacity use in action.

Findings

The following describes our findings about how four EdD programs taught students to understand and communicate research.

Research Skills

We first describe how these programs taught students to find, understand, assess, and conduct research. We then explain how the individual dissertation helped students develop practical skills relevant to their settings.

Finding Research

Every program had students conduct literature reviews which required finding literature. Programs provided varying levels of guidance. Students reported simply being assigned literature reviews but also meeting with librarians to learn how to find and organize documents. Either

way, students learned to conduct searches more efficiently, identify more credible sources, and organize and store citations for later use. This work helped students learn to find research. According to one, "...one of the things I truly appreciate about the program I would never have been able to access the database and know how to... conduct a research process at all."

Understanding/Assessing Research

Students spent more time learning to understand and assess research. Students had to read peer-reviewed journal articles, research syntheses, conceptual pieces, and popularizations of research ideas. Through class discussions and written assignments, students learned to synthesize and critique a body of literature. Faculty would ask questions like "Where do you go in the articles... to evaluate the methods?" Students were also required to compare author ideas.

Assessing research was especially challenging for students. Although educators use a variety of criteria to assess research, an important issue in graduate school is research trustworthiness or credibility. Professors understood the need to help students address credibility issues. One said, "You can find data to support just about anything, but was the study any good?" Issues of general understanding and assessing credibility overlapped. Before assessing credibility, instructors ensured that students understood an empirical piece's argument and how their predisposition might affect their interpretation. Professors also highlighted how author preconceptions might influence a paper. One professor talked about getting students "to see the logic or theoretical or causal assumptions.... I do try to... pay more attention to how researchers are articulating that, and how those pieces show up as variables."

These discussions made students aware of what one called "researcher spin," or how a reader's conclusions would depend on "how you frame it, how you explain it, those kinds of things." Students reported becoming more critical. One said, "I question now, a lot more."

Most analysis of credibility focused on logical and methodological issues. However, faculty also conveyed that some sources were more credible than others. One professor explained that "They talk about why would reviews of research from very reputable journals be more worthwhile than slogging through just anything..., and how do I start to think about the tiers of journals." When asked if students learned that some articles might be more credible than others, one student responded "We did. What journals, even [and]... where the peer reviews ... have that standing."

Conducting Research

Students also learned to conduct research. Every program required students to take two or three methods courses. They also embedded methods practice into substantive courses. Students typically had hands-on experiences designing interview guides and questionnaires and then collecting and analyzing quantitative and qualitative data, often using relevant software.

Most programs designed their curricula to help students to see how they could apply the methods they learned about as part of their work. Faculty understood “it is unlikely... that our superintendents are quantitative statisticians who are entering data and running the tests, but rather they are working with statisticians.” Programs showed the connection between research methods and leaders’ work several ways. One program integrated research methods into substantive courses like “Data and Decision Making.” Two programs used their methods courses directly to help students to design dissertation data collection approaches. Since dissertation problems were always practical, students learned to use research methods to address issues like those they would face at work. Only rarely were research courses taught by methodologists from other departments.

Students also learned to use research methods during non-methods course work. Two programs required students to conduct equity audits (Skrla, Scheurich, Garcia, & Nolly, 2004). Students collected and analyzed data from their organizations to assess the equity treatment and outcomes students received. These audits used simple statistics to address realistic issues at work.

Individual Dissertation

The individual dissertation helped students understand how to conceptualize a research problem of local interest. EdD dissertations differed significantly from the traditional PhD dissertation in their justification. Most social science research is justified as a contribution to a discipline (Creswell & Plano Clark, 2018). The EdD *dissertation in practice* identifies and clarifies a challenge in a specific educational setting to find a solution (Belzer & Ryan, 2013). In these programs, “doing the dissertation” began before admissions with students first describing their problem in their program applications.

Learning to name and frame applied problems adequately, however, required understanding the systemic context and using previous research to deepen the problem. At one program, faculty reported that students lacked local knowledge about their issue to define a researchable problem. Therefore, early courses helped students develop deeper comprehension of their setting and views of the issue. As one professor noted, “When you come in..., the only things that you’re sure of... is that

you have a problem... You don't know if anybody else in your workplace thinks that's a problem." Through assignments that required information gathering and engagement with stakeholders, students learned to clarify the presenting problem. The challenge was more complicated when students suffered from what several faculty called "solutionitis" (Bryk, 2015), or selecting a remedy prematurely. Faculty coaching guided students to get the information needed to develop a broader view of the issue.

Beyond understanding the situation, students were expected to use research conceptually (Nutley et al., 2007) to inform their definition of their problem of practice. One course paper required students to write about the problem of practice in the first section, and then write three different sections that analyze it based on their three chosen theories, and think about how the research questions are different, and how the problem is different, and at the end... evaluat[e] how it felt to use those three different theories.

Faculty agreed that the purpose of the literature review was to deepen the student's understanding of the problem. As one said, "I don't want to argue whether [the student's literature] is a theory or not... Does it help them understand their problem...? That's the only reason those frameworks should be in [the literature review]."

Another individual dissertation program shared the desire to have students use research to deepen their understanding of a problem. During the first year, students took courses on learning, leadership, and policy. Their major task was to apply what they learned in these courses to their initial problems. Using research to refine the problem of practice would continue in courses they took simultaneously in their concentration field. One first-year student explained how the courses complemented each other, saying that "the two theoretical classes that we've taken... I don't think I'd be able to really understand how my problem of practice can be viewed through educational theory without having taken those courses." Using literature to deepen the problem of practice continued through the dissertation process and work with the advisor.

Communication Skills

This section examines how these programs build skills in conveying information and dealing with politicized contexts. It then highlights the advantages of the group dissertation for building communication skills. Finally, it examines how the programs address the development of communication capital and preparing leaders to create a context for evidence use.

Conveying Information

These programs focused on conveying information through writ-

ing. Faculty said, “We try to create a lot of systems to ensure that our doctoral students are well-prepared to do the academic writing.” One program created a special seminar, “to develop professional skills – particularly in the area of academic writing.” Books for this seminar emphasized APA format and other conventions of academic writing. Even outside of special courses, faculty worked extensively with students on this skill. One taught a course on literature reviews intending to “develop a professional scientific writing style” and “understand and apply rules of APA style.” Students found this “professional seminar... has been beneficial in terms of sharpening my thinking as a writer.”

Academic writing, however, is not particularly helpful in communicating to parents, school board members, or the professionals working in schools or universities. While the programs did not focus on “communications for brokers” as explicitly as they did on academic communication, they provided opportunities to develop communication skills more in line with workplace demands. Courses required providing feedback to real users. For instance, one human resources course required students to give an oral report to the superintendent of the district providing the data, complete with a PowerPoint. The final written product for this course included a brief report to the client highlighting recommendations and supporting findings. Students who did equity audits also had to report back to the studied districts.

Sometimes reporting was an opportunity, not a requirement. At another program, students analyzed a workplace problem of practice. Students would suggest an intervention and sometimes field test it during the course. This exercise encouraged students to communicate with their colleagues about their projects along the way to gather collegial input. Finally, leadership courses at two universities required students to do exercises that facilitated learning to communicate with stakeholders.

Political Communication

Tactical-political communication issues arose when students gave feedback to users at a university that required dissertation teams to report results to their districts. Superintendent mentors coached students on how to frame their district presentations specifically, as one said, “so the superintendent would know how to frame [a] message to the... the community... in a way that is supportive so that the knowledge can be gleaned from it.” This advice helped students address sensitive topics like the recruitment and retention of minority staff in a largely white district. In the programs where students did equity audits, instructors coached students on how to share results with target districts.

One program gave students conceptual tools to think about the politics of communication. Students were introduced to the idea of the “causal story,” *i.e.*, the narratives that actors use to organize the facts, ar-

guments, and symbols to explain a phenomenon and argue for a decision (Stone, 1989). This course combined political economy topics with research methods. According to the professor, “We talk a lot about causal stories.... Why do you resonate with a particular article? Is it because they make the persuasive argument,... they have really good evidence, or... because you agree with what they’re saying?” The instructor showed how causal stories were woven into an article’s measures and statistical procedures. Thus, students learned to identify the causal stories of others and to construct their own. One student explained how one might use “data to tell the story that you want to tell.” This approach helped students become more sophisticated at understanding the persuasive approaches of others—especially researchers—as well as designing and reporting information more persuasively while learning about some ethical issues involved.

Group Dissertation

The group dissertations emphasized internal communication to plan and jointly conduct a study. This could be a challenging task, as illustrated by one student who said, “[At work] I have a great idea. I bring together people, and I get them to do it for me.... So, we’re all used to... running the whole thing. Now we’re all sitting around a table.... That was really much more difficult than I thought it was gonna be.”

Student teams had to negotiate divergent interests into a common problem and a common final product. Describing the process of putting group proposals together, one professor explained to students, “You have a pay now or pay later decision.” Each person could write their own literature review but that meant throwing much of it away. Or they could start out negotiating a group proposal which wasted less writing but required more up-front coordination. A student reported, “We all had pretty clear ideas but wrangled that. That was a really challenging process... It was good because all of us had to kind of compromise and figure out.” In retrospect, students saw the development of this capacity to work with and listen to others as a benefit of the process.

Social Capital

Social interaction helps students develop their social capital. Students had substantial opportunity to interact with and learn from classmates. One explained that “I learned about leadership in the formal way... But what I thought was really important [was] that we were able as a group... to wrestle with our day-to-day leadership woes... We’re talking about the actual problems that are surfacing in our work every day right there.” Programs provided several mechanisms to build relationships among students. For instance, many courses had group learning activities. Moreover, in most programs, students—who were geographically dis-

persed—found electronic means to increase interactions with their peers.

In addition, students helped each other with job searches. They also shared practical information relevant to their work. One central office leader told how she had to facilitate a meeting between principals and a special education director who didn't get along with the principals and introduce a new practice. To get coaching on how to proceed, she telephoned a fellow student while driving to "the meeting and getting a framework for starting a conversation rather than establishing a mandate."

Creating a Culture for Evidence Use

Creating a culture for evidence use was rarely addressed in these programs, even in organizational theory or leadership courses. We only noted one instance that explicitly addressed this issue. This was a course on "Collaborative Approaches to Data-Informed Decision-Making" that prepared students to lead teams or whole schools to conduct research by giving them the skills to teach others and establish the routines necessary to support a culture of evidence use. Using books like *Data Wise* (Boudett, City, & Murnane, 2006) and *Leading Professional Learning Communities* (Hord & Sommers, 2008), the course helped students learn to work in teams to collect and analyze data and to use the data to make decisions. Course objectives included:

- Communicate effectively and efficiently about data and resulting decisions in both written and oral presentations;
- Organize and lead efficient, productive, and collaborative professional meetings around data usage; and
- Develop and implement effective professional learning communities.

Students were required to analyze their own skills for leading learning communities, collectively analyze the workplace data collection and analysis processes in which they participated, and prepare materials and activities for real future group data use projects.

Conclusion

This exploration of how four EdD programs develop research evidence use capacity highlights an evolution in teaching research skills. While the research skills taught in these programs are much like those in programs for researchers, the focus on application to professional practice through applied dissertations and applied research course projects should help students use those skills at work.

What really differentiated the EdD from the PhD, however, was the emphasis on communication capacity. However, compared to the in-

struction on research, this work was in its infancy. For the most part, students learned by conducting activities that required reporting back to research users and sometimes reflecting on what happened. These activities necessitated learning to communicate to reach the audience using multiple channels. Some attention was also paid to the politics of research communication, although primarily on making the message palatable to the audience. Models of more sophisticated analyses of persuasive communication, how to adjust to an audience, and ethical issues were just developing. Rarer still was attention to helping students learn to build a culture that supports evidence use through instilling norms and building skills for evidence use. Developing capacity to communicate is still rare but—in our view—is the next area of development for these programs. Expanding this focus on communicating research could help educational leaders be the research brokers they are so well placed to be.

Different program designs emphasized developing different skills. The individual dissertation's strength was in its ability to teach students to craft studies that address real problems in specific settings. This ability increased the likelihood that the resulting research will be taken seriously by its intended users. The strength of the group dissertation was in developing participants communication skills and aptitude for the give-and-take to work effectively in teams. This aptitude is not only helpful for conducting useful research but also for a great deal of leadership and brokering work in complex educational organizations.

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