The Role of Evidence-Based Practice in Collaborations between Academic Librarians and Education Faculty

Nancy E. Adams, Maureen A. Gaffney, and Valerie Lynn

abstract: This qualitative study describes collaborations between academic librarians and faculty in education-related disciplines involving evidence-based practice (EBP), an approach that combines the best available research with the professional’s experience and expertise. The authors analyzed narratives of academic librarians and their educator partners using the lens of cultural historical activity theory (CHAT), a sociocultural idea about the interaction between human beings and their material and social environment. The authors identified four themes in the participant narratives: EBP as research-based practice; EBP as the librarian’s tool for initiating collaboration; varying degrees of EBP-related collaboration; and epistemological tensions involving the application of EBP in education. These findings illustrate the constructed nature of authoritative knowledge as described in the Association of College and Research Libraries (ACRL) Framework for Information Literacy for Higher Education.

Introduction

Educators use information literacy skills to design instruction, select educational materials, engage in practice improvement, and develop research proficiency in their students. The Council for the Accreditation of Educator Preparation (CAEP, formerly the National Council for Accreditation of Teacher Education), an accrediting body for teacher training programs, requires programs to document the ability of trained educators to use “online research databases, digital media, and tools and to identify research-based practices that can improve their students’ learning, engagement, and outcomes. They should know why and how to help their students access and assess critically the quality and relevance of digital academic content.”

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College and Research Libraries (ACRL) recognizes the importance of information literacy in teacher education in its Information Literacy Standards for Teacher Education. The assignment of librarian liaisons to schools of education in academic institutions also signifies the importance of information literacy.

Information literacy (IL) is an important foundation for evidence-based practice (EBP). The EBP approach originated in medicine. It is defined as the use of research-based evidence to support decision-making in professional practice. A practitioner bases decisions on the best available published evidence, combined with the practitioner’s own experience and judgment, and guided by the values of the client and the community. Gordon Guyatt, Drummond Rennie, Maureen Meade, and Deborah Cooke describe the EBP model as involving a cyclical process of asking, acquiring, appraising, and applying evidence. According to EBP, all evidence is not created equal. Information from empirical studies is the most highly valued type of evidence for decisions in professional practice. Specifically, information from randomized, controlled trials provides the strongest argument for a cause-and-effect relationship between two variables and represents the greatest certainty for making decisions.

In the field of education, EBP is codified into laws as No Child Left Behind (NCLB), which requires teaching practice to be established on “scientifically-based research” that incorporates valid methods and rigorous analysis and that appears in peer-reviewed publications. In ACRL’s Information Literacy Standards for Teacher Education, Standard Five addresses the evaluation of information, stating that teacher education students should “ascertain reliability [and] validity” and “determine flaws in the scientific method used.” In education, however, EBP is a contested construct. Advocates for EBP argue that rigorous scientific research should serve as the primary basis for instructional decision-making and policy, but others maintain that professional judgment and experience are a primary source of teacher knowledge.

In academic health sciences, where EBP originated, librarians and health sciences faculty often partner to teach students the principles of EBP, finding and appraising the quality of research evidence. We wondered if academic librarians and educational faculty could solve the puzzle of a contested construct, EBP, in the context of a professional collaboration. How would the medical model of EBP apply to the educators’ ways of knowing and experiencing their discipline? What might constrain or facilitate the relationships between librarians and educators? Would institutional and political contexts affect the collaboration? As representatives of librarians and educational faculty, the authors committed to studying how academic librarians and education faculty might collaborate to teach EBP.

Faculty and Librarian Collaborations Involving EBP

The literature on collaboration between academic librarians and faculty in schools of education reveals varied participant experiences. Many collaborations between educa-
tion faculty and academic librarians focus on preparing teachers to develop information literacy skills in their future students. However, few of these publications explicitly mention EBP and its role in the professional practice of the educator.

A 2010 survey of 160 educators in teacher preparation programs in 16 states of the United States showed that two-thirds of the respondents worked at colleges or universities in which an academic librarian was assigned as a liaison to teacher education programs.15 Two-thirds of the teacher educators who responded affirmed that they collaborated with librarians to teach some aspect of information literacy with the goal of producing future teachers able to formulate search strategies, efficiently find information, and identify and evaluate appropriate information sources. Teacher educators identified a lack of time and a perceived lack of expertise as common barriers to incorporating IL learning objectives into their teaching.16

A metasynthesis of the literature found 39 publications from 1998 to 2009 that described the integration of information literacy into teacher preparation programs. Collaboration was one of the overall themes discussed in the articles, which found that, while academic librarians frequently taught IL skills in teacher education programs, there was little evidence of true collaborative design and delivery of instruction. When collaboration did exist, it increased the likelihood of integration of information literacy skills across the teacher education curriculum. The literature also concluded that many graduates of these programs were poorly prepared to apply IL skills in practice.17

Literature describing EBP-focused collaboration between academic librarians and education faculty is limited. Two studies published after the metasynthesis described earlier explicitly refer to EBP and to collaboration between librarians and education instructors. Sarah van Ingen and Susan Ariew studied an intervention that provided instruction on formulating focused research questions and effective search strategies.18 An academic librarian and a teacher educator collaboratively designed and presented the instruction. Elementary education majors who received the intervention exhibited a statistically significant increase in proficiency in research skills. They developed manageable research questions, formulated search statements, and selected relevant articles more effectively than the control group who did not receive the intervention.

Mark Emmons, Elizabeth Keefe, Veronica Moore, Rebecca Sánchez, Michele Mals, and Teresa Neely described a curricular collaboration between academic librarians and education faculty to integrate information literacy instruction.19 They reported statistically significant outcomes for students in a teacher education program who received the intervention. The intervention included instruction in formulating a search strategy, comparing the value of information sources for a specific need, and evaluating research articles. However, the authors did not fully describe the evaluative strategies that were taught to the students; therefore it is unknown whether the intervention included skills in appraising the methodology of research studies or recognizing markers of rigor in scientific studies.
The literature review reinforced our perception that studying professional and personal collaborations of academic librarians and educational faculty would help us understand our evolving professional relationships. We would have an informed appreciation of the experiences of our colleagues who addressed the impact of a contested construct, EBP, on their decisions and interactions. More importantly, we believed the study would stimulate conversation within and between the professions that might challenge perceptions and encourage reflection, providing an opportunity to enhance practice.

Theoretical Framework

We determined that the insights we sought would be found in the personal stories of education faculty and academic librarians describing their experiences with collaborations. The role of EBP would become clearer. We considered several methods to study the stories but selected narrative inquiry as the most appropriate way to “understand and inquire into the experiences of our participants.” Narrative inquiry, as a methodology, is sensitive to how experiences change over time. We wanted to understand the unique stories of how the collaborations began and were sustained. Additionally, narrative inquiry pays attention to how culture, personal perceptions, social interactions, and context contribute to and mold the lived experiences of participants.

Sensitive to the relational complexities and context of the study—higher education institutions—we sought a theoretical framework to guide our interpretations and analysis of the narratives. A theoretical framework is a useful tool that serves to focus attention on specific aspects of interest within the phenomenon under study. The theoretical framework we selected for this study is cultural historical activity theory (CHAT) as explicated by Yrjö Engeström. CHAT directs the researcher’s attention to the larger social, cultural, and physical environment in which all human activities take place. This complex web of factors is called the activity system, as illustrated in Figure 1. At the heart of the activity system are its subjects, an individual or group acting to achieve an object. For example, the activity of education faculty subjects is directed toward the object of helping students become teachers. This activity is mediated by various components of the activity system: (1) the material and abstract tools at their disposal, such as dialog, information, and physical objects, such as technology; (2) the community, consisting of the group or society surrounding the activity system; (3) the written and unwritten rules of behavior, which may include laws or cultural expectations; and, finally, (4) the division of labor in the community by which the subject, acting on behalf of and within the community, achieves the object. Arrows between the components in the triangle signify the interrelatedness among the components of the activity system. Importantly, CHAT also helps us identify tensions or contradictions that may exist between parts of the activity system, within a single component, or between one activity system and an adjacent one.

The field of information science employs CHAT extensively to study information-seeking behavior, but the library literature uses it less often. However, Yrjö Engeström, one of the foremost theorists of CHAT, applied it toward the analysis of workplace learning in libraries undergoing change. Information scientist Eric Meyers also used CHAT to study tensions within the activity system of school librarianship.
Research Design

We conducted a narrative inquiry using data collected from four pairs of education faculty and librarian who met our inclusion criteria: collaboration in teaching some aspect of EBP to preservice and graduate education students. The Penn State Hershey Institutional Review Board approved the project as exempt research, IRB#43127. We used a purposive sampling approach to identify collaborations that met our criteria.26 The authors sent recruitment messages to several e-mail lists, including the Education and Behavioral Sciences Section (EBSS) and the University Libraries Section of ACRL, and distributed flyers at EBSS events at the 2013 American Library Association (ALA) conference. We contacted members of the ACRL Instruction for Educators Committee and authors of published articles relating to the topic. Finally, we e-mailed 36 education librarians at institutions with teacher preparation programs accredited by the National Council for Accreditation of Teacher Education. Using this process, we identified four academic librarians and their education faculty partners who met the inclusion criteria.

While this may be considered a small sample size, narrative inquiry is a qualitative research method amenable to smaller sample sizes. In qualitative research, sample size does not determine the reliability or validity of the findings. We identified exemplars, "models of how a practice works," believing that other practitioners will see themselves in these stories.27

After obtaining consent, we conducted telephone interviews to elicit participants’ stories about their collaborations. To enhance rapport with participants, authors Nancy Adams and Valerie Lynn, both academic librarians, interviewed the librarian participants;
Maureen Gaffney, an instructor in education, interviewed educators. We interviewed each participant once between March and November 2014. Interviews were audio recorded and transcribed.

We created an initial codebook based on data from the interviews using the constant comparative method, comparing newly gathered data to the data previously collected. Two authors, Gaffney and Adams, coded the data independently, then all three authors convened to resolve discrepancies in coding. Lynn served as the tiebreaker when the primary coders’ interpretations of data varied. NVivo qualitative data analysis software was used to manage data during coding. In an iterative process, we refined our codebook and then coded all data a second time using the refined codebook, again discussing discrepancies to resolve them. Finally, we ran reports in NVivo on each major code from our codebook and then analyzed the data to determine major themes.

The composition of our research team enhanced our study—the team consisted of two academic librarians (Adams and Lynn) and one member of the education faculty who teaches preservice teachers (Gaffney). The three authors brought to the project a deep understanding and personal knowledge of the historical pressures and concerns in each discipline, which mitigated the effect of the lack of prolonged engagement with or persistent observation of the research participants in their environment that is optimal with the use of CHAT. As a multidisciplinary team, the authors brought to bear the perspective of each discipline in the analysis. Furthermore, with previous experience in nursing (Gaffney) and as health sciences librarians (Lynn and Adams), we were familiar with the mechanics and epistemological aspects of EBP, which is a prevailing paradigm in health care.

Participants in Context

Table 1 presents characteristics of the participants, identified by pseudonyms. Three pairs of partners worked in large research universities, while the fourth pair was employed in a smaller liberal arts college. Each partnership’s collaboration focused on students in the field of education: teacher preparation programs, graduate level courses preparing practitioners, or scholars in education-related disciplines. The collaborations represent diverse disciplines within schools of education.

Participant Narratives

In this section, we present a narrative describing each librarian and educator pair and their collaboration, using CHAT as the theoretical framework through which to view mediating factors, such as the rules affecting the collaboration, the conceptual tools the partnership used, and the objects and outcomes of the collaboration.

James and Kate

This collaboration involved an undergraduate special education teacher preparation program. As a field, special education is heavily influenced by the federal laws No Child Left Behind and Individuals with Disabilities Education Act. Both laws are immersed in the EBP paradigm, requiring “rigorous” evidence, such as randomized controlled trials, as the basis for decision-making.
### Table 1.
Research participants

<table>
<thead>
<tr>
<th>Participant Pseudonym</th>
<th>Role</th>
<th>Institutional context</th>
<th>Focus of collaboration</th>
</tr>
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<tbody>
<tr>
<td>James</td>
<td>Academic librarian, liaison to education faculty, former teacher</td>
<td>Large research-intensive university</td>
<td>Special education (pre-K–12) and elementary education (K–8)</td>
</tr>
<tr>
<td>Kate</td>
<td>Faculty in special education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Belinda</td>
<td>Academic librarian</td>
<td>Small liberal arts college</td>
<td>Graduate courses in education, including “fifth year” credential programs and master of arts in teaching leadership</td>
</tr>
<tr>
<td>Kami</td>
<td>Faculty in educational psychology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sue</td>
<td>Academic librarian</td>
<td>Large multicampus research-intensive university</td>
<td>Undergraduate and graduate teacher preparation programs in physical education</td>
</tr>
<tr>
<td>Annette</td>
<td>Faculty in physical education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mara</td>
<td>Academic health sciences librarian with master’s degree in public health, specializing in systematic reviews</td>
<td>Large research-intensive university</td>
<td>Master’s and doctoral programs in human resources development</td>
</tr>
<tr>
<td>Emily</td>
<td>Faculty in human resources development</td>
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</table>
James, a librarian, initiated the collaboration. He and a librarian colleague approached the dean of the School of Education with a proposal to incorporate information literacy into their curriculum. The dean put him in contact with faculty from the dual-licensure undergraduate program in special education and K–8 elementary education. The commonality between EBP and IL was immediately apparent to Kate, an educator, although James, a librarian, had heard of EBP only in the context of medicine:

When we met with the faculty, this is where the idea of evidence-based practice arose because we were describing information literacy. [Kate] was saying, “That sounds just like evidence-based practice.” That’s exactly what happened . . . In essence, we started talking about what information literacy and evidence-based practice had in common and then we just took off from there.

James, in conjunction with the educators, began to analyze the ACRL standards to formulate an information literacy program for the dual-licensure special education and K–8 degree program. In his words, the program had the goal of “preparing students so that when they went into the classroom, they would be able to use evidence-based practice.”

Kate described her goal as an educator this way:

I wanted to prepare our students for the changing context of teaching, and with an emphasis on evidence-based practices, pretty much to the exclusion of everything else and the whole testing environment. I wanted to make sure that we were preparing teachers who felt confident in their knowledge of evidence-based practices, so that they would be able to advocate, both for the students and themselves.

The program embedded information literacy content throughout a three-semester course sequence. James and Kate designed and administered an IL assessment before and after the course sequence as a pretest and posttest. They planned the courses to help students understand the nature of evidence and its origins, including peer-review, opinion versus conceptual articles, and different genres of information. In addition to the coursework and assignments, students participated in an undergraduate research symposium at which they presented research about real-life problems. According to James, “The context of their presentation was always presenting the evidence that would help answer or solve a problem in their classroom when they were doing their student teaching.” James and Kate concurred that this activity was one of the most successful aspects of their collaboration.

James’s integration into the curriculum evolved over time. At first, he explained, “They put me on their syllabus as just a part of the class. I wasn’t teaching it . . . I was a step towards embedded in those classes, but I wasn’t embedded all the way . . . We worked really close together and integrated.” As the collaboration progressed, James recognized a transition in his role:

I think we went a little further than the traditional library. I think we also talked a lot about the nature of the evidence, the politics of the evidence, in terms of there’s a belief that the research, as written in the law, should be quantitative kind of evidence, whereas, we talked about the value of qualitative evidence, as well. As a librarian, I was able to bring that, which might be something that ordinarily the faculty in the classroom might do.
Kate’s perception about the role of librarians changed as a result of this collaboration:

I think there’s also a lack of understanding and a lack of really seeing university librarians as university faculty. I have to admit that I hadn’t even really thought about it until I got involved in this. I just think that there’s maybe a lack of knowledge about how important and how collaborative university faculty can be . . . I think that the university [librarians] are vastly underused. However, if we were to do what James and I did, the library would probably need more faculty.

Eleven years later, information literacy skills in support of EBP were still integrated into the dual-licensure program. From James’s viewpoint, librarian involvement had shifted away from the collaboration: “I’m a little disappointed that I think it kind of faded away this year. On the other hand, they integrated it into their curriculum in such a way that it may have not been necessary to have a librarian in the classroom.” Kate also indicated that the intensity of the collaboration had waned, although information literacy skills in support of EBP were still integrated into the curriculum:

We’re in a very comfortable place, we’re in a very sustainable place. We still do it across three semesters, but I would say we don’t have the same depth of collaboration. That’s something that I’m sad about, but at the same time, I’m also very impressed that I think after 11 years or something, we’re actually still doing it and that it can be done.

Belinda and Kami

Belinda, an academic librarian at a small liberal arts college, collaborated with undergraduate and graduate education faculty. Kami, an education faculty member in the two-year master of teaching leadership degree, entered this partnership more than 10 years ago. Belinda “inherited” a one-shot instruction session from another librarian that, in her words, “was supposed to give students all they needed to know to be able to do research for the literature review at the graduate level.” Soon realizing there was more to learn than could be accommodated by a single session and witnessing student distress from information overload, Belinda worked with a group of five education faculty to analyze program objectives and map them to the ACRL information literacy learning objectives. After five years of gradual progress and communication with course instructors and program directors, the result was a two-semester research seminar with six hours devoted to librarian-provided instruction. Kami described the collaboration as evolving over time:

It’s been really interesting and like I said, the collaboration has evolved very organically in part, I think, because I was really open and realized very quickly that the role of the library and the library sessions that Belinda and the other librarians were providing was essential actually to my class, for my students . . . as the courses have evolved through my own teaching and development, my teaching style and course content, that collaboration has evolved.

Library skills are highly integrated into the program. Students learn how to refine a research topic and find and evaluate various genres of information to use in their literature review. The literature review for their thesis provides a practical focus for
the instruction. According to Kami, these skills enable her students to become “critical consumers of research” able to use evidence from published research to improve their practice—another way of defining EBP in an education setting: “We want the students very much to say, ‘I’ve identified a problem.’ We’re really asking them to identify and use research to help them come up with ways of implementing new practices in their classroom.”

Belinda, a librarian, was adept at using external requirements such as regional accreditation standards to argue for greater integration of ACRL standards within graduate instruction. She saw such integration as her primary goal: “That was my job, to be sure that they had information literacy and that it was practiced in some way.” The passage of No Child Left Behind, with its requirement of EBP, provided an additional basis for this integration: “When the laws changed . . . that said education wasn’t evidence-based practice, then that’s when we started talking about it that way [as a curricular integration piece] . . . The evidence-based practice piece actually kind of came with that No Child Left Behind legislation.” While Belinda, a librarian, was instrumental in establishing the need for the seminar course, Kami, the instructor, facilitated additional library and education collaborations: “Then when we had multiple faculty members teaching the same courses, to make sure that everybody’s on board, that people are involved in the meetings, everybody’s on the same page kind of thing.”

Belinda was aware of the disciplinary focus of her instruction: “I’m not just teaching library skills. I teach a lot about what it means to use research in a powerful way in your profession, how you have to evaluate it, how this is for your entire life, it’s not just for this class.” The move away from “just teaching library skills” was made possible by the emphasis on EBP in the NCLB and Individuals with Disabilities Education Acts. No longer was it sufficient for students to learn how to find evidence solely for academic purposes, and so the partners discussed the application of evidence to professional practice. According to Belinda:

Then as it became more part of the way we talked about education’s practice as being evidence-based, that was more where we started looking at how we could change just the instruction we were doing that was talking about research in higher education for their master’s to then how that applied to their practice.

Kami described a newfound appreciation for the librarian’s knowledge, focusing mainly on her contributions toward helping students find information in the “access” step of EBP:

Well, what had started to happen was that I realized that actually what Belinda was doing was integral to my teaching . . . I couldn’t do my classes without that collaboration because Belinda and the other librarians provide such an integral, important service, in terms of helping my students be able to access information that they need to then complete their work for my class.

Six years later, the partnership remained successful.

**Sue and Annette**

Annette is a member of the physical education faculty who invited Sue, an academic librarian at a large, multicampus research-intensive university, to her graduate and undergrad-
uate classes for single (“one-shot”) library research instruction sessions. Sue supported education programs for years. Approximately two years before this interview, she expanded her instructional repertoire by experimenting with a new technique for helping students clarify their research questions: the PICO method. PICO is used to formulate questions, the first step in the EBP process. PICO describes a particular format for specifying the components of the question as follows (with parenthetical examples): population (elementary school students), intervention (alternative teaching method), comparison (current teaching method), and outcome (higher standardized test scores).38

Sue, a librarian, learned about PICO from a colleague who was a health sciences librarian, and its potential applicability to her own instruction struck her immediately: “That’s what we normally do with the applied programs: how do you set up a question so you get the kind of information that you’re looking for? . . . I was kind of struck by how adaptable [the PICO format] could be to other disciplines, especially the applied programs.” She decided to teach her classes how to use PICO after realizing it would ultimately save her time:

I knew that because I was the only librarian here, that if the instruction wasn’t meeting the needs of the student . . . I’d be having every single one of them call me for a separate appointment . . . So I thought, OK, I need a method that can translate to other disciplines or can be adapted and so I worked a long time to develop models for each of the disciplines that I taught.

Sue and Annette’s work together continued for several years. Annette mentioned collaborating on a post-instruction quiz, which she considered valuable for assessment. She also mentioned Sue’s creation of a library guide for students to use in their research projects. Outcomes observed by Sue included a greater willingness by physical education faculty to collaborate and a decrease in the number of one-on-one research consultations with students. Annette believed that student work had improved as a result of Sue’s instruction and found that she herself gained knowledge about library resources.

Mara and Emily

Mara, a health sciences librarian at a large research institution, shares her expertise in the systematic review process with faculty members from many different disciplines. One of those faculty members is Emily, an instructor in human resources development, an interdisciplinary field originating as a subdiscipline of education. Their collaboration primarily focused on the graduate students in the human resources development...
program. Emily initiated the collaboration when she sought the librarian’s expertise in creating systematic reviews. According to Emily, “Since then, every time I teach this course, Mara is always part of the instruction team.” Emily stated that her goal is to prepare human resources development practitioners who are ready to engage in EBP and are knowledgeable about the critical appraisal of research:

With students going out, our mission is to prepare them to be practitioners, evidence-based practitioners . . . to be excellent consumers of research, meaning they can read a research article and say, “Wow, the finding’s interesting, but you’ve got to look at the method. You know what? The method’s very problematic, so I question the finding, right?” I can’t really use this as evidence to go to my boss and say, “Hey, we need to do this program because look, here are the findings.”

As a librarian, Mara’s goal was to spread EBP to other disciplines: “I always want to support evidence-based practices . . . Part of it is just that I want to kind of see that in other disciplines besides medicine. I think that the practice, itself, makes sense for lots of other disciplines.”

Mara’s collaboration with Emily did not involve teaching students how to apply EBP in their professional practice; rather, she sought to teach Emily’s students how to perform a systematic review—one of the highest forms of evidence in the EBP hierarchy of evidence. A systematic review is a specialized type of literature review that begins with a well-formulated research question and proceeds to an exhaustive search of the literature. Inclusion and exclusion criteria are then applied to the articles. Articles meeting the inclusion criteria are assessed for the degree of bias that may be present in the author’s research methodology. Finally, data from included studies are analyzed and integrated, synthesizing new knowledge and insight. To teach students the methodology for producing a systematic review, Mara participates in Emily’s literature review graduate course:

I do a three-hour talk where we talk about evidence-based education, systematic reviews, and why we’re doing this and then go over the steps of doing the reviews. Part of that was asking the right question, framing that and then where do you look and then now what are you going to do with what you got back, how are you going to assess it, and then synthesize your information.

Mara taught students the PICO method of formulating a research question but revised it for education disciplines. Following the session, Mara met individually with Emily’s graduate students as they planned their own systematic reviews, which Emily considered an extremely important service: “Another major part of that is I’ve sent almost all my own doctoral students to go to Mara. She’s so fantastic, never says, ‘No.’ I think she’s done far more work after she comes and meets with students . . . I just don’t think students are motivated enough to do it without Mara.” Mara stated a desire to go beyond the traditional “finding evidence” role of librarians:

Librarians, a lot of the times, all we can do is focus on the technical aspects of searching databases. It’s more of a click here, click here. What I like to do is back up a little bit and talk about the thought process behind why are you searching for that, what are you going to do with it when you get it? I like for them to have an idea about why they’re searching for this and then getting into the technical aspects of this is how you actually do it.
Emily described what she and her students had learned from Mara: “I definitely see more awareness, more critical thinking, more critical thinking about how do I make a case? . . . They are becoming better at defending, making a case and defending their position.” Emily, too, learned from Mara about systematic reviews as a genre, which she applied to her editorial responsibilities for a professional journal in human resources development:

I found it as such a great compliment because I’ve been learning about systematic literature review and I thought, wow, without knowledge, how do you possibly know what’s missing in that literature gap. I found this methodology very thorough at really helping me understand the gaps to help me justify the significance of research.

Analysis and Reflection

Viewing the narratives through the theoretical lens of CHAT, we discovered two separate but interdependent activity systems diverging around the object of intent of the activity. For the librarians, the primary object was to establish and maintain collaboration with education faculty for the purpose of teaching evidence-based practice in the classroom. For the educators, the primary object was to prepare future teachers as professional agents in the application of EBP, as defined by the epistemologies of education. One object could not be realized without the other. Through a process of learning, the most collaborative pairs transformed their partnership to accommodate the competing epistemologies of EBP and education.

As Figure 2 describes, the cultural norms of the participants’ respective communities reflected similarities in the identification and utilization of tools and rules. Division of labor existed on a continuum. Roles were divided between librarians and education faculty, beginning with the traditional client and server role and extending to boundary crossing, resulting in a blurring of differences between librarians and education faculty. The end result of such boundary crossing, as exemplified by James and Kate, was the creation of truly collaborative collegiality in the negotiation and design of a cohesive, integrated curriculum.

Four themes emerged from analysis of the participant narratives: (1) EBP as research-based practice, (2) EBP as the librarian’s tool for initiating collaboration, (3) varying degrees of EBP-related collaboration, and (4) epistemological tensions involving the application of EBP in education. The themes are described in the following sections.

EBP as Research-Based Practice

Participants’ knowledge of EBP included both the “strong” and “weak” meanings of the concept, as described by T. Paul Hutchinson and H. J. Meier. All participants understood the “weak” meaning, which is the use of research-based data as the foundation for decision-making in professional practice:
### Figure 2. Activity systems of librarians and education faculty

<table>
<thead>
<tr>
<th>Librarians</th>
<th>Education faculty</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Subject:</strong> Academic librarians</td>
<td><strong>Subject:</strong> Education faculty</td>
</tr>
<tr>
<td>Rules: ACRL Information literacy Standards; cultural norms (&quot;embedded&quot; librarianship)</td>
<td>Rules: Professional and legal mandates to practice EBP (NCLB, IDEA, Council for the Accreditation of Educator Preparation [CAEP]); cultural norms about evidence (&quot;wisdom of practice&quot;); research protocols/publishing practices</td>
</tr>
<tr>
<td>Community: Collegiate community, including students, faculty, administration, professional associations (ACRL), accrediting bodies, and other professional colleagues</td>
<td>Community: Collegiate community, including students, faculty, administration; professional disciplinary associations (human resources development, physical education, etc.); accrediting bodies (CAEP); school district administrators, faculty, and students; and other professional colleagues</td>
</tr>
<tr>
<td>Division of labor: On a continuum of engagement; educators provide access to students</td>
<td>Division of labor: On a continuum of engagement; educators provide access to students; librarians teach “finding” evidence; educators teach evaluation and application of evidence; negotiate curriculum design</td>
</tr>
<tr>
<td>Object: Establish and maintain collaboration with education faculty for the purpose of teaching evidence-based practice in the classroom</td>
<td>Object: To prepare future teachers as professional agents in the application of EBP, as defined by the epistemologies of education</td>
</tr>
</tbody>
</table>
I’m no expert on the term, “information literacy”—but I would use that more as their ability to find the needed information, where evidence-based practice is specific research studies that show specific outcomes with teachers and students in the classroom that are used to base what they do.

Annette, an educator

You want to take a look at what the research says about what you know. That’s kind of how I see evidence-based practice for a practitioner.

Belinda, a librarian

I would define evidence-based practice as practices for which there is a significant body of research.

Kami, an educator

It’s basically the idea that whenever they’re going to do something new or they’re exploring an idea, there’s already this set of practices to help them make a decision.

Mara, a librarian

Instead of just speaking, making arguments, use your personal intuition or personal feelings, now you can actually use some statistics with qualitative stories and narratives, accounts, to help you to make arguments. That’s what we call evidence-based, meaning really research-based data.

Emily, an educator

Some participants extended their understanding to the “strong” definition of EBP, which recognizes that published research varies in quality, requiring evaluation to identify the best available, most scientifically rigorous evidence. Mara and Emily mentioned the need to evaluate the quality of studies that were included in a systematic review. James, a librarian, and Kate, an educator, showed their understanding of the link between EBP and methodological quality:

The idea that when you’re doing something in the classroom, it should be based on evidence, that just made it a very automatic connection to my brain with information literacy, which is the gathering of that evidence to the selection of the best evidence there is.

James

Evidence-based practice, as defined by federal law, explicitly has to be experimental or quasi-experimental. It has to make clear the population of students that it would actually apply to. It has to be published in peer review journals, submitted at peer review, and there needs to be more than just one instance of that practice or that program being researched. It’s a medical model of what research is.

Kate

Discrimination between the two understandings of EBP, weak and strong, is a subtle but important point. Critical appraisal of the quality of research studies is a fundamental aspect of EBP as conceptualized initially in the field of medicine. Federal legal mandates for professional educational practice indicate that instructional practices should be supported by the best available evidence—the mere existence of research evidence relating to an instructional practice is not sufficient to meet the mandate. Randomized controlled studies are privileged in this paradigm, but not all randomized controlled studies are of equal quality. Sample size, the degree to which experimental and control groups are demographically equivalent, and the presence or absence of confounding factors are examples of research study characteristics that differentiate the quality of one study from that of another. While it is clear that some of the research participants understand this aspect of EBP, little evidence in the narratives indicates that students were being taught this aspect.
EBP as the Librarian’s Tool for Collaboration

All four librarians used the EBP construct as a tool to help initiate or extend collaboration with their education faculty counterparts. The abstract concept of EBP served as a point of commonality within the collaborations between education faculty and librarians. In two pairs, the librarian’s expertise in a single aspect of EBP served as a mediating tool for the collaborative work. Sue, a librarian, successfully introduced the PICO method, one aspect of EBP, into her teaching practice. Her initial collaboration led to additional requests for classroom instruction, and as a result of using PICO in instruction, both Sue and her educator-partner Annette noticed improvements in students’ research papers. Emily, an educator, initiated the collaboration with librarian Mara because of Mara’s reputation as a systematic review expert. In the other two pairs, the librarians used EBP’s link to information literacy as a tool for establishing a new collaboration or extending an existing one. Interestingly, both James and Belinda used tool-related terminology when discussing EBP. James described the concept of EBP as a “hook” leading to wider integration of IL within the education curriculum:

You need something on the faculty side that’s valuable for their students. When you find that hook, that’s when you’re able to integrate, in my opinion. A personal relationship is great for getting integrated into individual classes, but if you want to get into the curriculum, you need to have something that resonates with people in that discipline.

Belinda used the image of a lever in response to a question about the role of EBP in the collaboration: “I do remember when I started using that [the concept of EBP] as a leverage point for instruction and what we were doing with No Child Left Behind.”

The importance of EBP as a librarian’s tool for initiating collaboration relates to the historical context of the librarian’s activity system in the educational ecosystem. To educate students, librarians depend on the receptiveness of education faculty to engage in collaboration. For librarians to participate in the education of students usually requires engaging in curricular collaboration with faculty. The commonality of IL and EBP offers a tool in initiating these collaborations. However, the librarian’s use of EBP as a tool to launch or enhance partnerships with education faculty represents a potential pitfall, as described in the next theme.

Epistemological Tension

CHAT focuses the researcher’s gaze not only on the components of the activity system but also on tensions or contradictions that arise within or between those components.44

Federal legal mandates for professional educational practice indicate that instructional practices should be supported by the best available evidence—the mere existence of research evidence relating to an instructional practice is not sufficient to meet the mandate. Randomized controlled studies are privileged in this paradigm.
The most serious tension we observed was within the “rules” component of the educator’s activity system, where notions of the science of education, mandating control groups and randomized trials for research, conflicts with the “action research” of teaching, reflecting the practical experience of educators in their classrooms. This tension relates to the epistemology of education—the value ascribed to various types of knowledge that is characteristic of the discipline’s philosophy and culture. Tension may arise between knowledge based on rigorous, quantitative research, represented by EBP, and the knowledge represented by the educator’s experience and professional wisdom. This tension can also manifest as tension between the librarians’ use of EBP as a tool to initiate or extend collaboration and the educators’ view of EBP as a contested construct or rule, which they sometimes experience as an oppressive force. For example, James and Kate both described the importance of the No Child Left Behind and Individuals with Disabilities Education Acts as federal mandates, but Kate struggled with the requirement for “rigorous” scientific research as the only acceptable evidence for decision-making in her field:

We can’t have a control group of 10 kids with autism and another 10 kids with autism. It would be unethical for us to be doing the kind of research that the federal government is accepting because we would actually have to be withholding treatment from students who need interventions, in order to have a control group . . . There’s just no way to do the kind of research they’re asking.

She pointed out the inconsistencies between these laws and educational practice, which highlight the conflict between the construct of EBP and the mandates of individualized education. In evidence-based practice, the highest level of evidence is based on results from randomized, controlled trials with large sample population sizes, but individualized instruction is based on a population of one:

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Annette, an educator, described why an extensive, rigorous evidence base does not yet exist in education: “Some of my very best studies have been extremely messy, and then they’re very hard to publish because one school drops out or three teachers only have pre-data . . . It’s always quasi-experimental, not experimental.” Although Emily was interested in producing systematic reviews in HRD, she recognized that the type of evidence favored in education and social sciences differs from the evidence valued in the EBP paradigm:

Even today, we’re still struggling with some of the criteria [to appraise the quality of studies] because it just doesn’t apply. Most of the criteria Mara gave are very quantitative. You can easily measure. In social science, we have a lot of qualitative data. You can’t just give a number. I think that’s probably the biggest struggle.

Kami also recognized the potential tensions between empirical research and educational practice:

I would define evidence-based practice as practices for which there is a significant body of research . . . The other component of it, I think, is how they actually work in practice. So, how are they implemented, who is implementing them, what do they look like in different contexts with different people, that kind of thing.

For their part, the librarians also recognized that EBP, with its genesis in medicine, did not entirely fit the epistemology of education. James addressed the epistemological tensions when he described the qualitative basis of much evidence in the field of education versus the quantitative evidence called for in federal law. He noted that the differences had political implications: “I think we also talked a lot about the nature of the evidence, the politics of the evidence, in terms of there’s a belief that the research, as written in the law, should be a quantitative kind of evidence, whereas, we talked about the value of qualitative evidence, as well.” Mara, a health sciences librarian and systematic review expert, struggled with the lack of well-defined standards (or “checklists”) for appraising quality in education research:

I was not familiar very much with qualitative research. I had to expand my knowledge on that and I found other checklists [to appraise the quality of studies] that make sense for education interventions and things like that. That’s why I wish the standards were better. I wish there were a lot more checklists out there for purely education types of articles that would match better for them.

Belinda, also a librarian, described the resistance shown by graduate students who were seasoned educators, who felt that their practice-based knowledge surpassed research-based knowledge, making the search for external evidence unnecessary:

I have a lot of teachers that come in that are experienced teachers, and they don’t like the idea that they have to do research because they have 20 years of experience. I’m like, “That is valid, that’s good experience, but you want to challenge that with the research. You want to take a look at what the research says about what you know.” That’s kind of how I see evidence-based practice for a practitioner.
After experimentation with its application across several disciplines, Sue, another librarian, came to realize that the PICO method was not entirely compatible with the questions asked in all disciplines:

The English classes are the hardest ones for me. Sometimes literature just doesn’t translate very well into that kind of a model. Sometimes it works and sometimes it doesn’t . . . We have some other disciplines, too, that aren’t quite as easy to plug into a model. History is another one that is kind of a challenge sometimes. Physical education, life sciences, business, and aviation, all of those, I have done pretty successfully.

Sue indicates her understanding, gained by trial and error, that PICO questions fit a more quantitative, interventional mode of inquiry—one based on experimentation and the manipulation of variables, such as might be found in studies within physical education. Each of the librarian participants, in some way, encountered this tension between epistemological stances—ways of knowing—and what constitutes evidence in different academic disciplines. The traditional research model of EBP could not be rigidly applied to disciplines outside of a positivist paradigm, which holds that reason and logic are the only admissible foundation of human knowledge. If adapted, the concept of EBP needed to become more nuanced to reflect the values of the disciplines.

Degrees of Collaboration

This theme relates to the previous theme of epistemological tension in the application of EBP in education disciplines. In pairs exhibiting high degrees of collaboration, we found evidence that the librarians possessed a more sophisticated knowledge of the epistemology of education-related fields and the utilization of EBP in that discipline. For example, in the first partnership, when James uses the phrase “politics of evidence,” he displays his awareness that information and evidence exist within a social and cultural context: “I think we also talked a lot about the nature of the evidence, the politics of the evidence, in terms of there’s a belief that the research, as written in the law, should be quantitative kind of evidence, whereas we talked about the value of qualitative evidence as well.” This truly collaborative partnership practiced both codesign and team teaching; both James and Kate were immersed in the evidence culture of the discipline.

Belinda and Kami also achieved significant collaboration leading to curricular integration of EBP and IL. The passage of NCLB provided an impetus for this integration. Belinda, a librarian, displayed an awareness of the power of EBP as an educator’s tool to effect change:

Then there is a component to that where we talk about what it means to work in an evidence-based practice, how they use this in the future in their own practice to make changes within their schools and how much more weight that has than just to go in and talk about the observations, what’s happening in their classroom. They actually come in with research to an administrator and start talking about change. That’s the way that is expected to be made and how they have more power that way.

As an educator, Kami held a disciplinary stance toward evidence, understanding the complementary outcomes of IL skills and EBP. The end result was an embedding of information literacy content and disciplinary-specific applications of EBP in an enhanced education curriculum.
Near the other end of the collaboration spectrum, Mara and Emily grappled with the tensions of implementing EBP across disciplinary boundaries. Mara, a librarian, believed that EBP, in the form of systematic reviews, was a universally useful tool; but Emily, an educator, struggled with conflicting epistemology in her discipline. Their collaboration focused only on the systematic review process, with the librarian’s involvement in the curriculum limited to one three-hour session. Additional contact with students occurred on an as-needed basis. No evidence indicated that Mara and Emily had engaged in dialogue to explore these epistemological tensions.

At the same end of the spectrum is our fourth and final pair, in which Sue, a librarian, and Annette, an educator, maintained a more traditional division of labor. In this collaboration, Annette in the “client” role asked Sue to do a “one-shot” library instruction session each year when it was time for students to begin work on their research papers. Sue expressed uncertainty about whether the PICO method, a component of EBP, could be universally applied across professional disciplines without adaptation. No evidence suggests that this pair discussed the cultural meaning of EBP in education.

In the customary division of labor between librarians and faculty, the librarian brings his or her traditional skill set to the “acquire” step of the EBP cycle—teaching students how to find evidence—but his or her approach is not grounded in an explicit epistemological disciplinary stance. However, the educator is bound by an epistemological foundation, viewing research and its application on that basis. If the librarian understands the educator’s disciplinary approach to evidence, then true collaboration and boundary crossing will more likely occur, increasing the likelihood of curricular integration of IL and EBP.

**Limitations**

We identified three potential limitations in our study: a small sample size, the geographical dispersion of our participants, and the absence of generalities or certainties. The issues creating the small sample size were addressed in the “Research Design” section of this article. Our inclusion criteria were specific; as a result, despite expanding our recruitment endeavors, we could not increase our sample size.

We believe the primary limitation of our study was the inability to observe our respondents or to participate in their professional activities. D. Jean Clandinin calls this “creating a relational space,” emphasizing that narrative inquiry should take place over time. We were constrained by geographic distance and by the demands of our professional lives. We appreciate the importance of the recommendation to live alongside the participants and would encourage other researchers to participate in multiple conversations and to find opportunities to spend time with their participants. The insights would be more nuanced and reveal complexities not apparent in single conversations across a distance.
Qualitative research methodologies such as narrative inquiry do not purport to offer findings that are generalizable. Our interpretations are specific to the narrators’ stories of their collaborations. We believe these stories will resonate with readers who collaborate to teach evidence-based practice in education because they will find something of their own experiences there—not necessarily solutions, but a pathway to understanding. In our study, narrative inquiry helped to create a public language around the concept of evidence-based practice and the collaborative experiences and perceptions of two distinct disciplines: education and library science.

Conclusion

Narratives are stories, and as we listened, we learned. We explored the experiences of librarians and education faculty as they recounted the initiation, development, and maintenance of collaborations related to EBP. Personal stories were embedded in the larger context of disciplines, departments, and institutions. The CHAT framework and its language enhanced our understanding of the interaction of the librarians’ and the educators’ professional activity systems. The educators’ object was to prepare future teachers as professional agents in the application of EBP, defined by the epistemologies of education. The librarians’ object was to establish and maintain collaboration with education faculty for the purpose of teaching EBP, and by extension, information literacy in the classroom. To achieve their objects, the librarians and educators needed to recognize their interdependence.

In the two activity systems, the use of EBP as the librarian’s tool to initiate and extend collaborations with education faculty could potentially conflict with the education discipline’s approach to evidence. The effectiveness of the collaborations between librarians and educators depended on the degree to which the participants understood and respected competing epistemologies and blurred traditional professional boundaries to achieve true collaboration: shared responsibility for the negotiation and design of a new curriculum.

The participants recognized the critical role of communication in their relationships. Dialogue was the collaborative tool mentioned most frequently by the participants. It meant actively listening and learning the language of the other. James acknowledged the need to “speak the language of educators”: “I have a theory, in general, that every discipline out there has something that’s the same as what we consider as information literacy but within their discipline, it’s very similar but they call it something else.” Our narrators recognized that language is a tool culturally embedded in each discipline in much the same way as values are ascribed to different types of knowledge or evidence.
The value of interdependence, mutual respect, and dialogue are illustrated in one of the six frames of information literacy in ACRL's Framework for Information Literacy in Higher Education: “Authority is constructed and contextual.”52 In particular, we highlight the truth of the statement “Authority is constructed in that various communities may recognize different types of authority.”53 EBP and its particular conceptions of authoritative knowledge are tools of discourse that mediate interactions between members of a community. These abstract concepts carry with them embedded values that vary in meaning, depending on one's community of practice. Librarians and education faculty participate in different communities with their own particular cultures that may have different conceptions of evidence, evidence-based practice, and what “counts” as knowledge. These different conceptions must be negotiated in a partnership.

We are grateful to the participants who shared their stories. We found ourselves joining them in the midst of their experiences, creating opportunities to extend our understanding of EBP collaboration. Their generosity in opening our conversations to the wider epistemological and contextual challenges they faced is deeply appreciated. We hope our study will encourage and enhance the collaborative efforts of our colleagues.

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Notes

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53. Ibid., 4.