Where We Come In: Faculty Research Pedagogy and Implications for Librarian Practice

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abstract: This article reports the findings and implications of a qualitative exploratory study of writing composition instructors' approaches to teaching research skills and designing research assignments. The authors present the common learning goals, instructional approaches, and research teaching challenges that surfaced through semi-structured, individual in-depth interviews with instructors. They then describe how the study findings point to embedded librarianship and faculty train-the-trainer approaches as potential avenues for improving academic librarians' information literacy instructional support for students and faculty.

Introduction

Librarians encounter myriad research assignments through their work supporting students.[1] These assignments run the gamut from well-trodden to creative, problematic to excellent. This project was inspired by a perplexing assignment. A student visited the library seeking help to understand a research assignment, but the prompt confused the librarian as much as it did the student. This led the librarian to ask: What was the professor trying to accomplish through this assignment? What were their intended learning goals, and how was the assignment intended to support student learning?

The authors wanted to better understand faculty members' approaches to designing research assignments and teaching research. How do they understand research as a concept, and how do they teach it? How do they decide assignment types, formats, requirements, and more? Why do they come to those decisions? The authors were interested in identifying patterns and insights that could inform their librarianship and allow

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them to better support students in their development as researchers and information literate citizens, as well as support faculty in their research pedagogy.

The authors identified several threads about faculty approaches to teaching research that they wanted to explore, namely faculty members' thinking behind the assignment of research and their design of those assignments; goals for research assignments; reasons for assignment parameters (format, types of sources, department requirements); expectations of where and how students learn research skills and what skills are important; perceptions of the quality of student work; and personal experiences learning how to do research.

This article reports on the findings of a small, IRB-approved exploratory study, conducted through semi-structured in-depth, individual interviews with general education writing composition faculty. This article highlights the three prominent areas of focus that emerged from the interviews, emphasizing faculty's research-related learning goals, the steps they take to accomplish those goals, and the teaching challenges they face. The authors will then discuss the implications of these findings for librarians, suggesting embedded librarianship and faculty train-the-trainer approaches to improve support for faculty pedagogy and thereby supporting student success.

Literature review

Faculty attitudes toward and involvement with information literacy in the classroom vary, and this range of engagement has long been documented in library and information science literature. Lorna Dawes' research on faculty experiences teaching information literacy to first-year students appears to be the primary published work on faculty members' approaches to teaching research and the influences of those approaches on their pedagogy. She found that faculty from multiple disciplines consider teaching information literacy as supporting students in gaining expertise navigating general information landscapes as well as engaging in specific disciplinary discourse.[2]

In recent related research, instructional faculty articulated that information literacy and research skills are critical for student success.[3] Skills and concepts that faculty teach or want students to learn include identifying research topics and finding, evaluating, synthesizing, and citing information.[4] In Catherine Baird and Tiffany Soares's study, faculty's definitions of information literacy centered on finding and evaluating information, echoing the earlier work of Sophie Bury and Laura Saunders.[5] Faculty members interviewed by Jonathan Cope and Jesús E. Sanabria understood information literacy as "learning how to learn."[8] Margaret Torrell, an English professor, specifically names critical information literacy as essential in a rapidly evolving information landscape calling for universities to adopt it as a curricular priority.[9] Faculty further understand information literacy as integrated with specific disciplinary discourses and content.[10] They also understand it as integrated with other academic abilities, including critical reading and academic writing.[11]

Research by Saunders revealed that instructional faculty recognized the importance of information literacy for their students and affirmed that students should be taught information literacy concepts. However, there has been less consensus among faculty about where and by whom it should be taught.[10] In 2005, William Miller and Steven Bell

argued that information literacy ought to be taught by faculty rather than librarians.[11] In Cristy Moran's survey, faculty assumed primary responsibility, with 70 percent of faculty stating that teaching information literacy belonged with subject or discipline faculty; similarly, Eleonora Dubicki found that while faculty recognized students developed information literacy skills in many venues, they believed the primary setting was with faculty.[12] Faculty in a study at Texas Christian University found that faculty believed only faculty or faculty and librarian pairings should hold principal responsibility for teaching research skills.[13] The majority of respondents did not perceive librarians alone as primarily responsible for addressing research skills; the skills most often identified as within librarians' purview were search strategies and finding sources. Bury's survey at York University found nearly four in five faculty members thought teaching information literacy should be a joint effort between librarians and faculty, though 54 percent reported they taught it themselves and just 35 percent said they taught in collaboration with a librarian.[14] By contrast, other research indicates that some faculty believe information literacy need not be explicitly taught at all. Claire McGuinness found that many faculty believed information literacy naturally developed through practice and self-motivation as students progressed through university curricula and didn't necessitate structured intervention.[15] William Badke's column reflecting on the status of information literacy teaching within higher education summarizes McGuiness' findings and other research from the 1990s and 2000s as a widespread misconception of "information literacy by osmosis."[16]

Ample literature describes information literacy-related collaborations between librarians and faculty instructors that extend beyond one-shot instruction. Michael Mounce reviewed 133 articles from the first decade of the 21st century describing collaborations integrating information literacy into faculty's courses.[17] Jill Becker et al.; Alessia Zanin-Yost and Cathleen Dillen; and Rachel Wishkoski, Kacy Lundstrom, and Erin Davis offer recent case studies of assignment or curriculum collaborations.[18] The literature also illustrates that faculty value librarian input on teaching information literacy.[19] However, other studies point to instances where there is little or no collaboration.[20] Indeed, numerous barriers stand between librarians and meaningful, mutual involvement in information literacy instruction. Among these are academic power imbalances and associated faculty perceptions of librarians as service providers rather than peers or teachers, faculty's lack of recognition of librarians' contributions to student learning, or faculty's reluctance to incorporate librarians in classes beyond a one-shot session.[21] Faculty may also exclude librarians because they perceive they are, themselves, already teaching information literacy through teaching disciplinary discourse and content.[22] The perpetuation of these barriers relegates librarians to the fringes of information literacy instruction and reinforces the primacy of one-shot instruction model.

Institutional context

The University of the District of Columbia (UDC) is a small (approximately 3,000 FTE), urban, public, land-grant Historically Black College and University (HBCU) with a student population diverse in terms of race and ethnicity, age, and socioeconomic status. The university comprises workforce development programs, a community college, un-

dergraduate and graduate programs, and a law school. It is almost entirely a commuter school, and 65 percent of students attend part-time.[23] Many students also have work and caregiving responsibilities. This institutional context informs the authors' work and the approaches of university faculty.

Methodology

The authors began the study with a mixed-methods approach, conducting a survey of UDC faculty and intending to follow up with in-depth interviews. The survey asked faculty about the learning outcomes, format, parameters, and thinking behind a research assignment, as well as what research skills were taught in class. However, the limited depth of survey answers and disciplinary variations, combined with a seven percent response rate resulted in data that were insufficiently responsive to the authors' threads of exploration. As a result, the authors narrowed their focus to UDC's general education writing courses, using a qualitative, exploratory approach.

The authors focused on the three-course general education writing composition sequence for two reasons. First, librarians already worked frequently with students in these courses through consultations and sometimes in one-shot instruction.[24] Second, while the courses did not have standardized delivery or syllabi, they did share an identical student learning outcome (SLO) related to research. This presented an opportunity to examine the experience of multiple faculty members teaching toward the same research-related SLO. The authors chose to use semi-structured, in-depth interviews as they felt this format would yield the nuance and depth of information they sought.

Data collection

The authors sent an invitation to participate in a one-hour, individual interview to 21 instructors (tenured, tenure-track, and adjunct faculty) who taught any of the writing courses in the spring or fall 2021 semesters. The authors offered a letter for their faculty portfolio as an incentive. Following two pilot interviews with non-UDC faculty, the authors conducted interviews with seven UDC writing composition faculty in February and March 2022. Following informed consent, interviews were recorded over Zoom. All of the authors participated in the interviews, with one rotating team member serving as the primary interviewer. Using Zoom's automatic transcription as the basis for transcripts, the authors edited the transcripts, then finalized them through group consensus. The interview recordings were deleted once transcription was complete.

Analysis

The author analyzed the interview transcripts from an exploratory, inductive, content-driven approach using applied thematic analysis, as described by Greg Guest, Kathleen M. MacQueen, and Emily E. Namey.[25] Codebook development and coding were done in iterative stages using Dedoose. Each member of the research team individually reviewed every transcript in order to draft initial codes. Then, the team met to develop the first draft of a joint codebook. Members of the team then tested the draft codebook

and, afterwards, met to create the second draft of a joint codebook. Finally, the researchers worked as a team to code interviews. Excerpts were reviewed to ensure accuracy.

Codes identified the content of assignments, assignment requirements, approaches to developing assignments, research skills or concepts explicitly taught, intended research-related learning outcomes, and successes and challenges in teaching research. The authors analyzed code presence, frequency, and co-occurrences.

The authors asked interviewees to share the syllabus and assignments for the course discussed. These materials were reviewed to confirm and clarify some material discussed in the interviews, especially specific assignment content, material covered in class, and the structure of the course.

Results

Three areas of focus emerged from the coding analysis: faculty's instructional approaches, challenges in teaching research, and research-related learning goals. The authors found that faculty learning goals aligned with the Association of College and Research Libraries (ACRL) *Framework for Information Literacy in Higher Education*.[26] Here, the authors discuss these areas of focus in more detail, and in a subsequent section will describe how these results suggest two models for improved librarian engagement with information literacy learning and pedagogy.

Instructional approaches

The writing composition courses share a common SLO related to research: "Demonstrate research skills, integrate their ideas with those of others, and apply the conventions of attribution and citation correctly." Understandably, then, all faculty articulated one of the core purposes of the writing sequence is to introduce students to academic research.

Faculty defined research in the context of its relationship to rhetoric and writing. They recognized that building arguments with rhetoric requires students to work with existing information they incorporate into their own work and critical thinking. Consequently, instructors also commented on the ways research intertwines with writing and rhetoric, some conflating the two and others simply commenting on how they go hand in hand.

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The authors' analysis made clear that faculty assumed the primary responsibility of teaching information literacy and research skills, a finding that echoes previous research as described in the literature review. While the faculty the authors interviewed explicitly acknowledged librarians' expertise in research and looked to librarians for support, they largely relied on librarians to provide one-shot orientations to library resources or database searching.

With no standardized course syllabus, faculty structured their courses differently, but they all extensively scaffolded their course content. While this approach reflected the wide adoption of scaffolding as a basic pedagogical approach, scaffolding also appeared to have specific utility in these courses. Scaffolding served primarily as a means to make the complex research process more understandable and teachable. One instructor discussed how they view their role in the research process, and the role that scaffolding plays in that: "If I'm going to ask you to produce X, by the end of the semester, and that requires A, B, C, D, E, then I better teach you A, B, C, D, and E, and I better give you multiple opportunities to practice those so that you have a chance to produce it."

Final research assignments most commonly took the form of traditional academic research papers. Several faculty also included a final presentation as they identified sharing findings or analysis as part of the research process. All faculty included in the study scaffolded the final project with intermediate assignments. They all required students to either submit a research proposal, have their selected topics approved, or work directly with the instructor to develop their topic; in addition, they all used annotated bibliographies as an intermediary step. Additional assignments included reflective writing, low-stakes writing assignments, or memos.

Six of seven faculty described a highly iterative and reflective approach to teaching research. Without having received training in research pedagogy, they described learning to teach research through the process of teaching research. Instructors adjusted their research pedagogy over time, allowing students to choose research topics, adjusting the type of sources students must use, or spending more time on developing strong research questions. Changes occur during the semester in response to emerging student needs. Said one faculty member: "I try to give them guidance all the way around and then, when they turn in that work for their first draft, I realize [there are] gaps in their learning experience and try to fill it in." Faculty also make changes between semesters. One instructor commented, "I've learned where to scaffold [the course] more and…rewritten most parts of it," making changes "based on what I think students need. You know, the more you teach your class, the more you get used to how ideas flow and where the sticking points are."

Instructional challenges

Faculty discussed large variations in the amount of research knowledge students enter their classes with. One faculty member said, "Experience has taught me not to expect" any particular level of experience, and another explained, "It's really hard to figure out consistently what a class is going to need." In addition, due to siloing among instructors and departments, faculty often lack awareness of what research concepts their colleagues are (or are not) teaching. An interviewee expressed concern that "if they're not doing [research] in this class, they're not going to get it" as well as concern that they "don't know what happens in other programs…for all I know, this is it." As a result, faculty prepared to teach the entire research process during their courses.

The amount and nature of course content –teaching both writing and introductory research – placed high demands on faculty. They expressed that having to teach the intertwined, complex writing and research processes simultaneously is necessary but

also a formidable challenge. Further, they found the entanglement difficult to illustrate to students who are both novice academic writers and researchers. "It's like composition is the worst…because you have to deal with grammar, sentence structure, research, critical thinking. If you teach other subjects, you can focus on social studies, right?" Therefore, faculty provided a lot of scaffolded support to make both processes easier to grasp.

Learning goals

In order to achieve the broad research-related course SLO, faculty articulated interconnected learning goals they worked towards. The authors identified these learning goals while coding, noticing where faculty clearly suggested what they wanted students to learn. This section will discuss the goals that all or nearly all interviewees identified.

Become aware of, interact with, and use a variety of information sources and types

Faculty required students to use a variety of information types so they would gain exposure to the broad information landscape. This requirement reflected another course SLO requiring students to engage with a diversity of texts, and faculty's own goals for their students. Often, this took the form of requiring at least one of a specific type of source such as one scholarly source or one interview. These source requirements also ensured that students used more than one type of source. One instructor commented, "when I didn't put a qualification in there, I got nothing but blogs," while another found that students assumed they had to use only scholarly sources.

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In support of this goal, faculty explicitly taught students where and how to look for different information. All faculty provided some basic orientation to library resources, either themselves, using materials created by the library, or by scheduling library instruction. Furthermore, they provided some direct instruction on searching for information, whether through video tutorials, in-class exercises, or library instruction. Two faculty members provided extensive guidance by sharing specific resources relevant to students' research topics to encourage the depth and breadth of research required to craft high-quality academic papers.

Understand the role and use of different information types and sources

Faculty wanted students to understand how information may be used in different contexts, for various audiences and purposes, and to use information that is suitable for their needs. The authors also saw a conscious desire among faculty to ensure students used library resources not only because they are available, but also because different information needs require different types of information.

Evidence of students' understanding of the role and use of information types was expected in the final research assignments. To support this, faculty gave intermediate assignments for students to find and analyze different kinds of information sources. The primary method was an annotated bibliography, which all faculty assigned. They asked

students to both find different information sources and explicitly state how a source would help or fit within their final work product. "It's not just getting the sources," one instructor said, "but thinking about how the source is going to be beneficial in helping with the research."

Know how to evaluate sources for quality and suitability in a given context

Faculty uniformly affirmed the importance of students learning to evaluate information. Their assignments used terms like "credible" or "valid" to describe the sources students should use, and they tasked students with assessing for credibility, validity, tone, and bias. Faculty addressed source evaluation through class discussions on authority, providing students with specific guidelines for evaluating internet sources (publication date, tone, visual presentation), or sharing tools such as the CRAAP test. Furthermore, the annotated bibliography was, once again, a scaffolded step and assessment tool.

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Many faculty expressed that evaluating information is increasingly crucial given students' gravitation toward online material and the complexity of the modern information landscape. Some reflected on the differences between research pre- and post-internet; one faculty member said, "We didn't talk about evaluating sources [before the internet] because if something was in print, you knew it was something that was worth looking at." Yet faculty also acknowledged the positive aspects of online information, specifically the increased accessibility of diverse voices and materials.

Several faculty noted how evaluating sources is also critical outside of academia. One pointed to the impact of students' loss of access to university library resources after they leave school: "I do worry sometimes - once students are out of the university and presumably don't have access or aren't choosing to access these curated databases and collections - do they actually understand why…[a] random website, that doesn't have any references, or whose references [can't] be verified, is not a good source for your medical decisions."

Integrate and synthesize sources

All faculty emphasized the importance of integrating and synthesizing sources as necessary research and rhetorical skills. They explicitly discussed summarizing and paraphrasing; a faculty member said they wanted students to, "[think] about how the source is going to be beneficial in helping with the research" and "develop more advanced ways of integrating their research into their prose."

To teach source integration and synthesis, faculty used both scaffolded assignments and explicit instruction. In-class exercises and low-stakes assignments included practice

paraphrasing and summarizing to encourage less direct quotation. While faculty wanted their students' voices to shine through, they also expressed the importance of showing how individuals add to the scholarly conversation through "talking about the research and seeing the intersections occurring." They want students to, as one faculty member put it, "know how various voices are telling you different things about the same thing."

Again, the annotated bibliography served as an intermediate step toward building critical reading skills. Students were asked not just to find the material, but to specify how and why it would support their work. As one interviewee stated, the purpose was "not just finding the sources, but writ[ing] about them as well - you know, a brief summary of it and just one or two sentences: how do you believe this will help you in your research?" One faculty member used the annotated bibliography as an opportunity for students to practice summarizing, paraphrasing, and quoting sources, requiring one example of each technique in their annotations, in addition to reflecting on the source's contribution to their research.

Properly attribute and cite sources

All faculty discussed the value of appropriate attribution and citation, in keeping with the course SLO calling for students to learn to "apply the conventions of attribution and citation correctly." Instructors required either MLA or APA citation style. Several faculty strongly emphasized style-specific mechanics and the need for accuracy and precision: "I'm really mean, I will go in and say, why are you using a semicolon here when you should have had a period? This doesn't look right. Why isn't this italicized? So they have to go back and do it again, and I don't deduct points for that, but I do make them go back and do it over again." Others wanted students to not only properly attribute sources but to understand the reason why, seeking to "demystif[y] some questions about citations and embedding research that students have that have lingered with them from courses where they've just been told, 'This is in APA.'" Faculty also wanted students to understand that the appropriate use of citations was a way to avoid plagiarism.

Most faculty taught citations through modeling, with some explicitly providing samples and asking students to imitate the sample. As part of scaffolding toward final assignments requiring citations, some faculty provided students time to practice citations, such as citing the sources they used in discussion boards. The annotated bibliography, again, served as a means to meet this goal.

Develop personal voice

The faculty emphasized that they wanted students to develop their own voice as authors and critical thinkers. They noted that students – particularly those who have marginalized identities, as is the case for most UDC students – typically don't perceive themselves as contributors to scholarly conversation, and thus encouraged them to develop a strong voice in their writing and to view themselves as scholars.

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To foster the development of voice, faculty permitted students to select their own research topics, encouraging topics that were meaningful or interesting in students' lives or communities. One faculty member asks them "to answer the question, what personal issue deeply, deeply matters to you?" A connection to the topic "led to research projects where students could find some plug-ins where they could communicate and communicate better." Faculty found this connection improved not only student engagement, but also the end research products, commenting that students "write better when they write about themselves, or their communities" and "they bec[a]me more proactive in their learning."

Several faculty also indicated they had moved away from a prior practice of prescribing specific research topics. Some outright banned, clichéd topics. The most salient reason for this was to encourage students' interest in research; other rationales included not having to read similar papers every semester and making it more difficult to plagiarize.

Understand how research skills apply to students' lives outside of the classroom

Faculty often considered research in both academic and real-life contexts and discussed the implications of research instruction for students' lifelong learning or career needs. Some used an asset-based approach, calling upon students' previous research experiences as an entry point into academic research so that students could recognize their existing knowledge and skills. One faculty member commented, "[M]ost of them come with the understanding that they have to do some research. Without knowing what research is or without knowing that they have already done some kind of research…that it is entangled, embedded in their life experiences." Faculty also wanted their students to be career-ready. As one faculty member put it, "Research skills are important. You go into a job, and the first thing that…your boss might ask you is, where's the answer to this problem? I gave you this problem three weeks ago and I need a report right away."

The faculty facilitated connections between research inside and outside the classroom by allowing students to select their own topics and encouraging them to work with a personally meaningful subject. Some also established these links through the nature of their assignments. For example, one faculty member assigned a research memo, as many students were business majors and would need to apply this format, and another had previously given a white paper assignment focusing on student majors.

Alignment of faculty learning goals with ACRL Framework

The faculty interviewed clearly understand research and information literacy as necessary core components of the writing sequence courses. They actively sought to incorporate these components through assignment design, course structure, and class activities. While faculty did not name the ACRL Framework, their core learning goals aligned with aspects of each of the Framework's six frames (see Table 1).

The connections between faculty's top learning goals and academic librarians' core theoretical document indicate librarian and teaching faculty's interests align, and that librarians are equipped to provide necessary, relevant support to both faculty and students. This echoes previous findings that Framework concepts appear in faculty's instruction, even if they are not familiar with the Framework itself.[27]

Table 1.

Alignment of Faculty Learning Goals with ACRL Framework

Learning goal	Aligned frames	Aligned knowledge practices & dispositions
Become aware of, interact with, and use a variety of information sources and types	Authority is Constructed and Contextual	*Knowledge practice* • Recognize that authoritative content may be packaged formally or informally and may include sources of all media types *Disposition* • Motivate themselves to find authoritative sources, recognizing that authority may be conferred or manifested in unexpected ways
	Information Creation as a Process	*Knowledge practice* • Articulate the capabilities and constraints of information developed through various creation processes *Disposition* • Understand that different methods of information dissemination with different purposes are available for their use.
	Searching as Strategic Exploration	*Knowledge practice* • Identify interested parties, such as scholars, organizations, governments, and industries, who might produce information about a topic and then determine how to access that information *Disposition* • Realize that information sources vary greatly in content and format and have varying relevance and value, depending on the needs and nature of the search

Understand the role and use of different information types and sources	Information Creation as a Process	*Knowledge practice* • Assess the fit between an information product's creation process and a particular information need. *Dispositions* • Are inclined to seek out characteristics of information products that indicate the underlying creation process. • Value the process of matching an information need with an appropriate product.
	Scholarship as Conversation	*Knowledge practice* • Identify the contribution that particular articles, books, and other scholarly pieces make to disciplinary knowledge. *Disposition* • Value user-generated content and evaluate contributions made by others.
Properly attribute and cite sources	Information Has Value	*Knowledge practice* • Give credit to the original ideas of others through proper attribution and citation. *Disposition* • Respect the original ideas of others.
	Scholarship as Conversation	*Knowledge practice* • Cite the contributing work of others in their own information production.
Integrating and synthesizing sources	Research as Inquiry	*Knowledge practices* • Organize information in meaningful ways. • Synthesize ideas gathered from multiple sources. • Draw reasonable conclusions based on the analysis and interpretation of information.

Developing personal opinion/ voice	Authority is Constructed and Contextual	*Knowledge practice* • Acknowledge they are developing their own authoritative voices in a particular area and recognize the responsibilities this entails, including seeking accuracy and reliability, respecting intellectual property, and participating in communities of practice.
	Information Has Value	*Disposition* • See themselves as contributors to the information marketplace rather than only consumers of it.
	Scholarship as Conversation	*Disposition* • See themselves as contributors to scholarship rather than only consumers of it
Understand how research skills apply both inside and outside the classroom	Research as Inquiry	*Knowledge practices* • Formulate questions for research based on information gaps or on reexamination of existing, possibly conflicting, information. • Use various research methods, based on need, circumstance, and type of inquiry. *Dispositions* • Consider research as open-ended exploration and engagement with information. • Value intellectual curiosity in developing questions and learning new investigative methods. • Maintain an open mind and a critical stance.
Know how to evaluate sources for quality and suitability in a given context	Authority is Constructed and Contextual	*Knowledge practice* • Use research tools and indicators of authority to determine the credibility of sources, understanding the elements that might temper this credibility
	Information Creation as a Process	*Disposition* • Value the process of matching an information need with an appropriate product

Implications for librarianship

Results of the interview analyses identified faculty's common approaches to teaching research, their challenges in doing so, and their student learning goals. These insights, along with the alignment between faculty and librarian interests as evidenced by the parallels between their learning goals and the ACRL Framework, suggest embedded librarianship and train-the-trainer models as approaches to better meet the information literacy instructional needs of faculty and students. These methods are flexible and may be adapted to suit specific institutional contexts.

Embedded librarianship

While the interviewees sought librarians' support in teaching research, they largely identified librarians' instructional role as providing an orientation to library resources or database searching using a one-shot model. At the same time, the interviewees articulated the difficulty of teaching the entirety of the complex and intertwined processes of research and academic writing. One interviewee shared that they view much of their teaching as "shoring up unstable land" as they attempt to meet the various needs students bring to the course. In short, writing composition faculty are put in the position of trying to do it all and be everything to every student. Yet the standard mechanism of librarian support, the one-shot, does little to mitigate this and remains common in academic libraries, though its limitations are thoroughly addressed in library science literature.[28] The results of this research indicate an embedded librarian model as a means to more meaningfully meet student and faculty needs.

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Embedded librarianship (EL), defined as presence, participation, and collaboration in a class, "situated within and among those whom one is serving," takes many forms, and may range on a spectrum from daily participation in a class to occasional outreach.[29] EL's core goal, however, is establishing support that increases the impact of librarians' expertise on student learning by amplifying the visibility and accessibility of what librarians already do to foster information literacy. Embedded librarianship directly responds to the teaching approaches and challenges expressed by the faculty interviewed in this study and offers a model to improve librarian support for students and faculty alike.

Faculty described learning goals aligned with the ACRL Framework and articulated how writing and research are interconnected processes but also described the difficulty of having to simultaneously teach writing and the entire research process while addressing variations in students' previous research and writing experience. ELs can support

faculty's Framework-aligned learning goals and mitigate their teaching challenges by providing instructional support for information literacy that complements faculty's writing pedagogy, thus establishing a stronger foundation for teaching interwoven research and writing concepts. ELs can engage students at their current level of proficiency or understanding, providing customized information literacy support, such as one-on-one consultations, group workshops, or instruction modules, based on existing individual needs, issues that arise during the semester, or upcoming course assignments. This structural participation in the form of embedding can increase the effectiveness of librarian support. With deeper knowledge of course content, assignments, student research interests, and faculty members' goals, ELs can provide more responsive support specific to a research assignment and demonstrated student needs. EL integration may also mitigate faculty's common concern that there is not enough time for teaching information literacy.[30]

Interviewees in this study extensively scaffolded their courses to make the complicated research process more accessible to students. One-shots, by definition, are generally incompatible with scaffolding; ELs better enhance scaffolding by providing sustained support throughout the semester, tailored to specific coursework and assignments, as well as by maintaining a consistent presence among students. Embedding in courses requires an investment of time and energy, but a more sustainable practice may evolve over time as resources are developed and reused.

While ELs can be relevant for any course, the authors believe they are especially important in introductory composition courses where students have their earliest encounters with college research. ELs can foster students' acquisition of information literacy threshold concepts and foundational research skills, reinforcing core ideas like identifying information needs, navigating vast information landscapes, understanding the role and ethical use of information, synthesizing sources, and developing research resilience. Further, ELs may be able to contextualize the research skills students are learning. Badke notes that students embarking on academic research may be given "the rules without the explanations"– that is, the *how* of research rather than the *why*.[31] Given more opportunity to engage with students than a one-shot session allows, ELs can emphasize the *why*.

Such systematic support early in students' college careers can enable students, faculty, and librarians to engage more deeply with subject-specific research in upper-level classes and foster lifelong information literacy.[32] For students, ELs can also serve as "safe advisors," helping students navigate assignments or addressing questions students may not be willing to ask their professors.[33]

An embedded librarian program may be easier to implement at smaller or more well-resourced institutions and is certainly not feasible at every institution. That said, there is no one definition of embedding, and it can exist on a spectrum depending on institutional context.

Faculty support: Train-the-trainer

In addition to directly supporting students, the authors also propose that librarians offer professional development, consultation, and ongoing research pedagogy support to

faculty. This presents an additional approach that is more scalable and impactful, as well as responsive to faculty who do not wish to include embedded librarians in their courses.

Faculty in this study all expressed that they received little or no formal training in how to teach research, often developing their understanding and skills through reflective, iterative pedagogical practice. This aligns with Moran's finding that many faculty surveyed lacked confidence in teaching information literacy, despite assessing it in their classes.[34] Additionally, several of the faculty interviewed described learning to do academic research on their own when they were students. One faculty member described their challenges in undergraduate studies learning to do research: "Like many [UDC] students, I was a first gen college student. So when things didn't make sense to me, I assumed that I was an idiot. And so I just kept struggling until eventually someone either helped me or…I eventually was able to kind of figure out what the challenges were, put it together on my own." They were motivated to expressly teach and scaffold research skills so students would not have the same experience. These factors present a ready opportunity and strong argument for librarians to lead faculty development and engage in more scholarship to assess the impact on student learning in the process.

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This train-the-trainer approach utilizes librarian skills beyond providing basic library orientation and addresses many critiques of the one-shot. Training the trainer is more time efficient and can reach more students by teaching the faculty who teach them. With training, as faculty develop their research teaching skills, they begin to incorporate new methods into their instruction. This approach, therefore, has the benefit of integration throughout a course, which draws on the existing instructor-student relationship.[35] As Sandra Cowan and Nicole Eva state, "having faculty teach these concepts to students will help integrate information literacy across the curriculum—something that librarians, no matter how hard we try, are often unable to accomplish."[36] In Jane Hammons's review of the library literature on train-the-trainer efforts, she found there were positive responses and impacts across a range of approaches and programs. However, there was a lack of direct assessment of student learning and more research is needed in this area.[37]

Librarians can approach training faculty in information literacy pedagogy by providing formal instruction through workshops, tutorials, departmental collaborations, or other university-sponsored events. There is an increasing number of examples of this model, such as providing workshops on the ACRL Framework to introduce faculty to essential information literacy concepts and dispositions, holding assignment design workshops, and holding institutes to encourage collaboration between librarians and writing faculty in the development of course materials informed by threshold information literacy concepts.[38]

Librarians are uniquely positioned to offer this training, not only because of their subject expertise, but because of their role as "participant observers" of the student

research experience.[39] Through working with students outside of the formal classroom, librarians gain unique perspectives on students' research abilities and experiences, as well as their common points of confusion. Training faculty allows librarians to share these perspectives to better inform faculty's research-teaching practices. For instance, Lacy and Hamlett note that faculty members they trained "became more aware of the assumptions they were making about students' research capabilities and…realize[d] that they needed to design assignments that more explicitly engaged students in the research process."[40] A faculty development approach can target a specific program or group or can be open to any faculty interested in broadening their expertise in information literacy. Beyond these benefits, when limited or dwindling library resources lead to too few librarians for too many students, supporting faculty in their growth in teaching research can be an effective and sustainable way to meaningfully reach more students.[41]

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Librarians can also support faculty through individual consultations, similar to the work of instructional designers. Examples of a consultation model are more limited but include a "course design spa" where faculty have individual consultations with librarians, instructional technologists, and teaching center staff, and assignment design consultations with sessions focusing on developing or refining lessons and activities.[42] This model may be appropriate for faculty who are reluctant or unable to participate in formal professional development discussions.

Lastly, several faculty interviewed for this study expressed gratitude for the chance to conduct self-reflection on their teaching of research. One commented that discussions focused on the research aspect of writing composition courses are rare at best. To encourage more of this reflection, libraries can facilitate conversations that provide opportunities to reflect on the pedagogy of teaching research. With librarians' expertise in information literacy, the ability to offer physical or online spaces for discussion, and brand recognition as a site of research, libraries are natural conveners of these reflective spaces.

Limitations

The small number of interviewees—seven, or one-third of the instructors invited to participate—is the central limitation of this study. However, through the coding process, clear common themes and practices arose quickly, suggesting the research achieved saturation around core issues. The self-selection of the interviewees is another limitation. Prior to the interviews, librarians had provided some level of library instruction support to all interviewees, though the extent and recency of that work varied substantially. The results are almost certainly affected by the faculty's demonstrated interest in supporting their students through engagement with the library.

Two further limitations reflect UDC's general education program structure and the nature of the institution itself. First, within the general education program, the

three writing composition courses are sequenced, include some overlapping learning outcomes, and have an identical research-related SLO. However, there is no common syllabus and there is variation in instructional approaches. Differences in interpretation and teaching of the course SLOs may have influenced the findings. Further complicating this context, the general education writing sequence exists in both the flagship campus and community college curricula. Two out of the seven interviewees taught entirely or predominantly at the community college campus. While the authors hope these findings can be informative to others, this research was conducted at a single institution, specifically one that is unique as an urban, public, land grant HBCU with a "non-traditional" student population.

Next steps

This project was intended to inform the authors' librarianship practice and to better understand how the library may evolve to meet community needs. As a result of the study, the UDC Library began implementing structural shifts in supporting the teaching and learning of research. UDC librarians piloted embedded librarians in several sections of the writing composition courses in the 2022-2023 academic year. In fall 2023, the library advocated for an expansion of the program and embedded librarians into every general education writing course at the community college and to the second and third courses in the writing sequence at UDC's flagship campus. In spring 2024, the program expanded to all writing sequence courses. The program is in its nascent stages and the authors expect it to evolve. As of this writing, embedded librarians are making introductory visits to classes at the beginning of the semester and sharing tailored, asynchronous resources to support course assignments and student needs. Embedded librarians have also provided synchronous classroom instruction and workshops; the embedded librarians perceived their ongoing connection to the classes had a productive effect on the sessions. Early assessment of the program has involved end-of-semester surveys for students and faculty. The feedback has been overwhelmingly positive.

As an initial step toward a train-the-trainer model, the library offered a webinar series for faculty on research pedagogy in fall 2023.[43] The series focused on connecting faculty to how their students understand and approach the research process, best pedagogical practices for teaching research, developing research assignments, and partnering with the library. The series was cross-promoted through the university's teaching and learning center.

While literature demonstrates there is some dialogue on information literacy occurring between librarians and faculty, research in this area is primarily written for a librarian audience and published in librarian-focused outlets.[44] This limits the audience for information literacy research, though it would be informative to higher education audiences generally. The authors plan to emerge from this silo and share these findings in publications and conferences focused on general education and/or writing composition. Future research opportunities include expanding this study across UDC to learn about faculty approaches to teaching research in the disciplines, colleges, and upper-level courses. Additionally, expanding the research to other institutions would allow the authors to examine variations in institutional context. In particular, the authors are

interested in exploring how findings might differ at a predominantly white institution, Hispanic-Serving Institution, or other HBCUs.

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