College & Research Libraries

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Book Reviews (continued)

My Last Editorial—A Cautionary Tale?

As I stare down 2022 (which some people are referring to as "2020, too"), it is undoubtedly a time of change (although, in spite of political rhetoric, the pandemic has NOT ended). As there will be a guest editorial in May and a new editor in July, this is my last editorial—and for many reasons, it feels very final. Not only will I be transitioning away from the journal when my term is up, but my day-to-day work is also in question due to a major reorganization at the institution where I have worked for 25 years. With these two (what feels like) momentous changes, I am both looking back to reflect on what I take from this experience and looking forward to figure out how to engage with the "new normal" (although, honestly, my response to this phrase is either to reach for a glass of wine as part of a drinking game or throw a shoe at the person who says it).

Lessons Learned

I have had the chance to reflect on my time as editor through a bit of a different lens. Working on the transition with the editor designate, Kristen Totleben and having recent conversations with a colleague who is about to take the reins of another academic journal that is arguably more progressive in its content, it has provided a chance for me to reflect on my experience and articulate some definite Dos and some recommended don'ts as well as some cautions.

1. While the responsibility of the journal lies with the editor, the credit goes to the authors. As a steward of the journal, the editor should try to help the author make the best instance of the article and develop their understanding of the process and mentor them (if needed) in their research and writing.
2. That said, it is the authors and the reviewers (including the Editorial Board) who help shape the evolving scope of a journal—and to remain relevant to the discipline and to practice and be an active leader in scholarly dialogue, evolve it must.
3. Someone commented to me that being editor is like being on a pedestal—in cases where there are times that an editor must advocate or engage, I believe that is true. For the most part, my belief (or perhaps my style) is that the editor is behind the scenes—the journal should be at the forefront in spite of the emphasis on the cult of personality that social media breeds.
4. For all of this, the editor is not alone—it took me awhile to realize that I didn't have to manage it all by myself (and I will note that ACRL staff were there with me at every step of the way when I asked for assistance—I could not have done it without David, Dawn and Tim as well as Stephanie Davis-Kahl and Eric Johnson). The Editorial Board is also there—a huge brain trust of expertise, experience and perspective that, just like the reviewers and the authors, have a stake in the profession and in the journal and can help shape it. As the *C&RL* editorial board will agree, I have become a big fan of short-term taskforces (and they have all embraced this with graciousness and commitment).

5. Referring back to #3, it should be noted that being on a pedestal makes one a bigger target. I absolutely encourage constructive and professional dialogue—and in the future, hope that the journal will be in a position to host such an interactive platform. That said, I did counsel the 2 new editors that they need to decide how they will engage with social media—if at all. While much of the commentary is positive, the 10% (or less) that is more targeted with personal remarks and vitriolic statements can really take over your headspace. I have been fortunate to have an experienced social media editor who has been instrumental in navigating these issues and manage the social media presence of the journal. Ellen—you have been a great advocate for the journal, quite aside from saving my sanity.

6. There is a perception that editors know everything (or think they known everything?)—neither of which is true. One of the reasons that I identify myself as the shepherd of the journal is to underscore that I have a trust to take care of it, to usher papers and authors through the process in a way that is both positive and transparent and that the ultimate product is a reflection of those authors, reviewers, and board members who have invested in this effort. I have tried to balance humility and the ability to learn from any experience with the courage to guide the journal and tackle issues.

7. It is also my position that an editor should try to remove barriers if at all possible. These may take many forms—from involvement of underrepresented perspectives to streamlining processes or guidelines to include new authors (e.g., Kristen has been working with some community college librarians to bring their experiences to the journal, and there has been some discussion about style). The fundamental goal is that the journal is a platform with many voices.

8. It is probably apparent that, particularly during the pandemic, my editorials have become more and more casual—this is somewhat stylistic and somewhat deliberate. In an effort to try to be candid about my own experiences and struggles, I hope that it connects with readers who are having similar experiences but may feel like they are alone. I have tried to use this platform to increase the approachability of the journal.

9. Each time, I thought my being selected was a long shot but took a "What the heck" attitude (as "they" say—although originally, it was apparently Wayne Gretzky—"you miss 100% of the shots you never take"). In working with professional students, I find the ones who get what they want are those who strive, who try and fail and try again. I encourage librarians, authors, practitioners to take those shots—you have nothing to lose (except a little skin of your ego) and may potentially gain a lot.

Finally, Julie Gelfand made a comment in a meeting I was in a couple of years ago—it stayed with me because it is so true: "Editing is a way of life." After more than 12 years as an editor/co-editor for 3 different academic journals—Julia's comment was a mic drop moment. And it is one for me now.

Taking the "Path Forward"

As I turn the page (yes, yes—an editorial cliché) on what has been significant developmental experience, there are some current events where I work that will, no doubt, carry their own lessons. As one of my colleagues says, "I have all sorts of feels about this"—but I will keep this constructive and briefly speak to this case as an editor, independent researcher and practitioner in the hopes that it may offer others some insights.

Librarians are creatures of change—in spite of any reputation to the contrary, it is clear that academic librarians are flexible and patient as they have dealt with nothing but change which has accelerated over the past few decades. The method of change, though, is a major factor—having edicts handed down with little to no involvement in the decision is frustrating to say the least; having our contributions questioned and our roles diminished is demoralizing. As with all change, the possibility that something will be taken away is alarming—in this case, it is not just the title or status (which was earned) but the ability to determine how to engage in the work, to participate with the professional community, and to contribute to the knowledge and scholarly dialogue. In short, it is the threat to any academic freedom that librarians may have.

But, let's be honest, the academic freedom that librarians have—at specific institutions and in state where there is no labor presence—is at the discretion of the administration (university, system, legislative and executive). It is not just academic librarians facing this threat. Just read the *Chronicle of Higher Education* or *Inside Higher Ed* to witness instances where academic freedom falls to political interests. As in many states, particularly in the South[1-3] the culture of accountability that began in the 2000s has devolved to a culture of suspicion of higher education: faculty are under attack from all directions[4] and governor's orders or chancellor's priorities are keenly felt.

The changes that are being enacted, sadly, are not surprising. There have been any number of warning signs over the years that presage these changes—both at national and at local levels. In fact, a university in the same system experienced similar events a few years ago, as documented by Thomas Kreneck.[5] There is some irony in his warning that his institution was just the beginning.

Abigail Goben, tweeted, "Note the part where they are "turning the library into a service/admin unit"—Faculty Tweeps- are you paying attention to this? Or was your first response "oh it's Just the Library.[6]" She makes an excellent, if sharp, point—while other units or institutions are circling the wagons to defend their own interests, the winnowing of faculty status is occurring. In the meantime, it is a cautionary tale that I hope some libraries and librarians—and perhaps others in higher education—can learn from.

Notes

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2. Jeffrey C. Isaac, "Florida Is a Five-Alarm Fire for Academic Freedom," *The Chronicle of Higher Education*, October 31, 2021, https://www.chronicle.com/article/florida-is-a-five-alarm-fire-for-academic-freedom

3. Keith E. Whittington, "The Intellectual Freedom that Made Public Colleges Great Is Under Threat" *The Washington Post*, December 15, 2021, https://www.washingtonpost.com/outlook/2021/12/15/academic-freedom-crt-public-universities/

4. Alexander C. Kafka, "Academic Freedom Is on the Ropes," *The Chronicle of Higher Education*, May 27, 2021, https://www.chronicle.com/article/academic-freedom-is-on-the-ropes

5. Thomas H. Kreneck, "Degrading Professional Librarian Status at Texas A&M University Corpus Christi, 2007–2015—A Policy History," *Progressive Librarian* 46, Winter 2017/2018, http://www.progressivelibrariansguild.org/PL/PL46/012kreneck.pdf

6. Abigail Goben, Twitter tweet, December 15, 2021, https://twitter.com/hedgielib/status/1471147208296873986

Ideology, Policy, and Practice: Structural Barriers to Collections Diversity in Research and College Libraries

Lori M. Jahnke, Kyle Tanaka, and Christopher A. Palazzolo[*]

Beginning with a discussion of how collections diversity has been conceptualized and assessed within the literature, we then analyze four areas in which professional practices and modes of thinking create barriers to collecting materials from historically marginalized voices. Specifically, we discuss how metadata practices can obscure these materials from acquisitions workflows and user discovery, how relying on use statistics can reinforce existing inequalities. Finally, we discuss how understaffing in key areas and budgetary constraints impede libraries from recognizing and addressing the full scope of the problem.

Introduction

Much of the recent LIS literature implies that collections diversity is a state that can be achieved, acquired, or accomplished through the delineation of tasks that can be checked off a list. While such recommendations may provide a starting point, they imply that diversity relates to a static state of affairs rather than the ever-changing social and political climate within which library collections exist. It may tempt librarians into thinking of a diverse collection as an achievable goal that can be pursued through a special project or two. On the contrary, we argue that diversity as it relates to library collections is an ongoing pursuit that requires critical engagement with developing areas of scholarship, emerging social justice issues, and critique and re-evaluation of methods. To curate diversity in a collection also requires actively seeking underrepresented peoples and voices. We further argue that several aspects of library management, staffing, the publishing market, and higher education more broadly create structural barriers to developing representative collections.

It is the constraining systemic social and institutional features that inevitably tip the scales toward the mainstream that are the subject of the article. In their discussion of Indigenous archives, Kimberly Christen and Jane Anderson remind us to:

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expose where current cultural authority is placed, valued, and organized within archival workflows. The long arc of collecting is not just rooted in colonial paradigms; it relies on and continually remakes those structures of injustice not only through the seemingly benign practices and processes of the profession, but also through how terms like access and circulation are understood and expressed.[1]

These sentiments are equally relevant to all library collections. However, the organizational complexity of contemporary academic libraries and their relationships with content and service vendors can distract us from the broader structural forces that preemptively restrict the ability of any one individual to address representational equity in library collections.

Although the current term of choice is collections diversity, concerns with how to represent diverse voices have deep roots in the practice of collection management, and, in some cases, there are codified methods intended to promote the collection of opposing views on controversial ideas.[2] The themes in the LIS literature show a general evolution from the idea of collection diversity supporting intellectual freedom and anticensorship to more contemporary discussions that tend to focus on the characteristics of authors included in collections.[3] Changing social and political climates during the last four decades have likely contributed to this shift, as well as the recognition that factors beyond materials acquisition (such as who is considered a legitimate knowledge producer and trends in higher education and the publishing market[4]) both contribute to and constrain collection development.

We outline four broad structural barriers that librarians face in pursuing equitable representation in their collections: 1) inadequacies of resource description and classification; 2) an over-reliance on use statistics; 3) insufficient staffing and available expertise; and 4) budget allocations for materials and operations. We also discuss how an overemphasis on efficiency and scale is inherently opposed to valuing collection diversity. By its very nature, diversity in a system is inefficient and is therefore more costly. To value diversity within any system represents a tradeoff with the cost savings facilitated by uniformity, efficiency, and scale. To put this idea in other terms, developing library collections that exemplify the value of diversity requires an additional investment of resources to overcome structural barriers resulting from broader social inequities, market forces, and professional practices that remake or amplify injustices.

Understanding and Measuring Collections Diversity

The literature specifically addressing collection management and how diversity is defined is relatively sparse. In 2010, Matthew Ciszek and Courtney Young noted that very little had been written about large-scale diversity collection assessment,[5] and seven years later Jenny Semenza and colleagues came to a similar conclusion. In their review, only a handful of publications covered the practical issues of collections diversity, such as descriptive metadata and collection assessment, while the majority of publications focused on workforce diversity.[6] As of July 2020, there were few additions to this body of literature, with the majority of publications focusing on particular topics of diversity, such as race and ethnicity,[7] LGBTQ representation,[8] Indigenous knowledge and tribal libraries,[9] or the role of special collections in addressing diversity.[10]

Although a systematic approach to conceptualizing and measuring diversity is necessary for managing library collections, there are few examples beyond a handful of studies in the

1980s and 1990s that applied statistical measures of diversity to materials selection and collection assessment.[11] More common and recent methods of assessing diversity have focused on strategies such as peer comparison lists, award lists, and reviews,[12] subject bibliographies,[13] checklists from special interest groups,[14] public opinion surveys,[15] and diversity rubrics.[16] Ciszek and Young offer an overview of these methods along with a discussion of some of the underlying issues for implementing them,[17] some of which we also discuss below.

A major hindrance in assessing the diversity of collections has been the lack of a shared understanding of what it means for a collection to be diverse, and therefore how this dimension should be assessed. In the 2019 Ithaka Library Survey, only about one-third of respondents indicated that their library had "well-developed" criteria for evaluating the diversity of its collection.[18] This is despite the fact that, 25 years ago, Serebnick and Quinn had already outlined several of the key questions relating to diversity within public library collections, all of which still pertain to academic collections:

> Does the public generally have access in libraries to a wide variety of viewpoints on current and historical issues? How easy is it to find opposing materials on controversial topics? How do we measure whether library collections are "sufficiently" diverse? If some libraries have a higher or lower level of diversity than other libraries, what variables influence the differences? Is it easier for libraries to build diverse collections in some subject areas than in other areas? Do publishing patterns, selection methods, or acquisitions procedures affect diversity levels in libraries? What role may special interest groups have in promoting or inhibiting diversity in library collections? Given the complexities inherent in building collections, is it possible to measure diversity objectively?[19]

Their questions highlight the complexity of understanding, measuring, and maintaining diversity in library collections, particularly when we acknowledge that collections are not just an accumulation of materials, but they must also be evaluated in terms of discoverability and access.

To address this lack of shared understanding, libraries should draw on the conceptual and mathematical models from other fields that can meaningfully characterize the distribution of elements within a system. The fields of conservation biology and ecology probably come to mind immediately; however, science and technology, economics, policy, communications, and many others have a stake in measuring diversity and its sensitivity to changing conditions. The primary goal in all these fields is to characterize the factors that either contribute to or hinder diversity so that desired outcomes can be supported. In science and technology policy, "diversity offers a means to promote innovation, hedge ignorance, mitigate lock-in and accommodate pluralism. It offers one important strategy for achieving qualities of precaution, resilience and robustness that are central to sustainability."[20]

Beyond the field of collection assessment, much of the literature on measuring diversity describes a dual-concept framework, which characterizes diversity as the interaction between two dimensions: the number of categories and the allocation of elements to these categories.[21] The dimension of categories is often called *variety*. The distribution of elements within the categories may be represented as proportions or probabilities and is sometimes called *balance*. In this model, a flat distribution indicates maximum diversity within the system since all types

of elements are equally represented. In his cross-disciplinary framework for diversity, Stirling outlined a third property called *disparity* that signifies the degree to which the elements are distinguishable.[22] Taken together, these three properties answer the questions: How many types of things are there? How much of each type do we have? How different are the types from each other?

The two properties of *variety* and *balance* are fairly intuitive in how they might be used to characterize collections, although developing categories is far from unproblematic, as we discuss in the following section. The practices of standardization and classification have been essential tools for acquiring, accessing, and organizing the large volumes of information managed by libraries. However, there are always winners and losers when imposing structures that value economy and uniformity over flexibility and variety. Individuals, ideas, or works that align with the mainstream are rewarded, while those that do not may be excluded.[23] Olson and Schlegl are alluding to the fundamental tension between system diversity and performance. Even when the benefits of diversity are agreed upon, as in science and technology policy or library collections, pursuing diversification may require prioritizing options that are more costly or difficult to measure, increase transaction costs, limit the benefits of standardization, and attenuate economies of scale.[24]

The concept of *disparity* may present an even greater challenge than *variety* due to the complexity of the materials that libraries manage. For example, if the LC classification system provides the property of *variety*, then it becomes straightforward to assess *balance*. However, within the LC system a single item could reasonably be classified in more than one way but is ultimately only assigned to one category. This problem is what Stirling refers to as the challenge of *accommodating* different possible understandings of *disparity*.[25] Since *disparity* is defined by what is seen as the salient dimensions of difference, when categorization and variance are complex, as with library materials, there will be multiple perspectives on what constitutes the salient dimensions. In other words, the salient dimensions depend on the question of interest, which are always informed by the social context. We discuss this problem in more detail in the section on resource description and classification. Despite the challenges of applying Stirling's framework, its application may be particularly helpful for understanding diversity in library collections for several reasons: 1) in fields where no specialized diversity measures exist, such as library collections, it offers a path to a more systematic understanding of diversity; 2) it provides a means to explore the tradeoffs inherent in the diversity premium; 3) rather than pursuing a single definitive index that has the appearance of objectivity, a flexible general heuristic provides a basis for making assumptions transparent by modeling and exploring tradeoffs; 4) implementing a crossdisciplinary framework would allow diversity assessment in collections to articulate more directly with fields such as research and science policy and subject area initiatives.

Applying a heuristic, like Stirling's framework, would represent a dramatic shift in collections analysis from the familiar territory of indices, rankings, and lists. Beyond providing a systematic yet flexible approach, it offers a means to articulate collections diversity with other properties that contribute to system value. For example, Stirling discusses how the measurement of ecological diversity can be articulated with other aspects that might constrain diversity, such as the potential need to conserve species of medical value at the cost of pursuing maximum ecological diversity.[26] Within library collections, attributes such as publisher, procurement strategy and vendor, language, place of origin, characteristics

of the author, and institutional affiliation may represent constraints on diversity or other-wise be of interest for diversity assessment. Since there are always tradeoffs that constrain system diversity, articulating diversity with these other aspects allows us to model the effects of decisions and assumptions on the components that contribute to system value. In library collections, it may be useful to articulate diversity measures with, for example, strategic collecting areas and curricular needs, budgeting scenarios, acquisition policies, or any number of factors that may represent a constraint on collecting comprehensively and pursuing knowledge at the margins. It is in the context of tradeoffs and constraints that collections diversity must be measured, or libraries will continue to hide biases under a cloak of standardization, scale, and efficiency.

An aspect of academic library collections that we have not elaborated on is the distinction between assessing the material that a library owns versus the material it makes accessible to its users through interlibrary loan and other cooperative borrowing agreements. Even the most well-resourced libraries must set priorities in terms of collection emphasis since it is not possible to acquire everything. Libraries with fewer resources must engage in even greater tradeoffs. Acknowledging the limitations of budgets, space, and in-house expertise, many libraries have actively pursued collaborative collecting arrangements in recent decades.[27] Given the near ubiquity of these agreements, it will be a rare case that an academic or college library can be assessed in isolation from the rest of this system. Rather, these services should be considered as one more component in the analysis of collections diversity, weighing both their costs and benefits.

If the broader context of a collection and its role within the lending system is not con-sidered, a rush to establish collections diversity standards, criteria, or benchmarks may carry with it a host of unintended consequences, such as the following: 1) discouraging collaborative collection development; 2) penalizing libraries that address specialized local community needs, such as tribal colleges; 3) further rewarding libraries that have greater resources to acquire materials; and 4) reducing the overall diversity of materials held by academic institutions. On this last point, libraries striving to optimize their score or alignment with the criteria would end up collecting in similar ways, especially if the criteria include specific content recommen-dations such as bibliographies or lists. While each local collection might be more diverse, the overall effect on the system would be to reduce diversity and promote duplication. This is not to say that duplication is unwarranted, but to illustrate that coordinated assessment criteria can have system level effects that undermine the original goal.

When considering the entire system of academic library collections, it is important to address the relationship between diversity and rarity. Each library striving to collect rare or unique materials will push the entire system toward diversity. However, this does not nec-essarily mean that individual collections will be diverse. Individual libraries might choose to focus on a few areas to maximize budgetary and staffing resources, which may lead to a more specialized and less diverse local collection. As long as libraries are choosing different areas of focus, which is to be expected if there is a premium on rarity as has traditionally been the case, then the system will be diverse. While long-term collaborative collection develop-ment may have the effect of creating less diverse local collections, this circumstance may be tolerable if users are well supported by robust discovery, interlibrary loan, and cooperative borrowing services.

Resource Description and Classification

In this section we discuss two points. First, that biases in indexing result in less intelligible and less cohesive fields associated with diversity efforts, such as gender and sexuality studies and African American studies, to name just two. Second, since indexing relies on terms being commonly used before they are institutionalized via metadata, indexes are unavoidably retrospective. As Sumner Spalding, former Assistant Director for Cataloging at the Library of Congress put it, "LC does not establish usage, but follows it."[28] Accordingly, fields, disciplines, schools of thought, and other scholarly discussions that fall outside traditional categories will inevitably be assigned to existing categories, thereby fracturing such discussions and reducing their findability for interested scholars.

Biases in Indexing

Whether selection is informed by systems like Library of Congress Classification (LCC), Library of Congress Subject Headings (LCSH), or vendor-provided metadata, the majority of collection development work relies on bibliographic metadata. However, numerous assessments of indexing adequacy for materials associated with diversity have found such metadata lacking. In practice, this means that metadata cannot be relied upon to identify works that could diversify a collection.

In a seminal study in 1973, Doris Hargrett Clack found that existing subject headings related to African American studies failed to identify materials of interest for that discipline.[29] In 1995, reflecting on changes in indexing during the past 20 years, Clack found that the switch to online catalogs and the ability to perform Boolean searches somewhat improved the findability of these titles but noted that this required careful combinations of terms since subject headings still failed to identify relevance.[30] While Clack's work focuses on African American studies, research in other areas has identified similar metadata issues. Looking at women's studies, Kristin Gerhard et al. examined 86 women's studies journals vis-à-vis three indexing services: *Women's Studies Index*, *Women Studies Abstracts*, and *Studies on Women Abstracts*.[31] They found that 53 out of the 86 journals they examined (~62%) were not indexed adequately: articles from the journals either lacked metadata or were inconsistently available (for instance, only half of the articles in the journal were indexed).[32]

The absence of relevant metadata impedes selection of materials in disciplines like African American studies or queer studies in two ways. First, inconsistency in focus means such headings do not necessarily accurately identify relevant characteristics of the item. Clack reports, for example, that with a biography of African American comedian Richard Pryor, "John Alfred Williams' *If I stop I'll die: the comedy and tragedy of Richard Pryor* the subject headings assigned were: 1. PRYOR, RICHARD. 2. COMEDIANS-UNITED STATES-BIOGRAPHY, 3. MOTION PICTURE ACTORS AND ACTRESSES-UNITED STATES-BIOGRAPHY."[33] Note that nothing in the headings indicates that the title would be of interest to, say, a librarian attempting to diversify a collection of comedians.[34] Second, inconsistency in metadata availability is an issue. For Gerhard et al., erratic indexing made it difficult to determine whether search results were truly representative of all relevant materials. Conducting a slightly broader survey, Vega García found a similar trend held true not only for women's studies but for racial and ethnic studies broadly and concluded that "subject-based periodicals and mainstream periodical indexes overall gave poor and erratic coverage to the literature."[35] She also found that, in the event a researcher sought items on

the intersection of two of those terms (such as Latina women), one needed to consult and cross-check multiple indexes.[36]

The unreliability of metadata in areas associated with diversity has significant implications for collection development. As Vega García found, there was a "strong tendency" for Association of Research Library (ARL) members to own African American and Latino periodicals if they were indexed in *Ulrich's International Periodicals Directory* or Katz's *Magazines for Libraries* compared to titles that are not indexed.[37] If materials cannot be found because their metadata do not describe the content effectively or they are inadequately indexed, then neither selectors nor users will necessarily be able to identify relevant materials. This has further implications for basing selection and management decisions on use statistics.

There are two objections to the above examples worth considering here. First, the studies cited here are older (1973/1995, 1993, and 2000). One might assume, therefore, that efforts at updating resource description, such as those through the Cataloging Lab and other initiatives,[38] coupled with more robust discovery tools render such issues obsolete. However, more recent studies continue to identify issues. Writing on LGBTQ studies, Proctor notes: "Academic library collections are not organized in ways that document the intersectionality of the content collected—a lived experience based on multiple identities cannot be easily captured or documented with Library of Congress (LoC) subject headings or call numbers."[39] Second, and more importantly, one might conclude from the above scenarios that, if the metadata were corrected, this would render such information more reliable for selection decisions. However, the solution is not so straightforward. To address this second point requires a closer examination of the social and historical factors that inform the process of classification and metadata creation.

Emerging Fields, Disciplinary Transformations, and Interdisciplinary Scholarship

Discussing Eve Sedgwick's *Epistemology of the Closet*, Melissa Adler notes that the work was classified as PS374 .H63, American literature.[40] This is perhaps unsurprising, as a cataloger in 1990 "could have no idea that Sedgwick would come to be regarded as one of the founders of queer theory."[41] This scenario and others like it gesture toward a fundamental issue in the process of classification and cataloging. For a title to have metadata that indicates its status as part of a particular subject or discipline, that category must already be established (as an authority record, as a genre, or other category); but, as new disciplines begin to form and split off from existing ones, they may have little more than a loose association of similar interests and concerns, much less an identifiable name. Eventually, queer theory would coalesce into an identifiable discipline accompanied by associated subject headings, but until then metadata cannot render the discipline or subject apparent because it is not yet apparent to the practitioners themselves.

Even once a subject becomes more concrete, this is no guarantee it is well represented via its metadata. Echoing a point made by Deborah Rosenfelt,[42] Proctor notes that the discipline of LGBTQ studies is highly intersectional; rather than simply focusing on one specific topic or even a list of relatively discrete topics, LGBTQ studies frequently examine the uniqueness of specific interactions (intersections) of identities. Reiterating the point made above by Vega García, Proctor notes that, because of the structure of this metadata, finding relevant titles "requires targeted searches to capture intersectionality."[43] Rosenfelt notes, for example,

"women's studies does not lend itself to the traditional taxonomic categories established in language literature […] its scholars have found their analyses the richer for crossing the boundaries between, say, history and literary criticism."[44]

Rosenfelt brings up another significant consideration for collection development in the form of disciplinary evolutions and revisions. First, new perspectives may be integrated in a way that is not fundamentally inclusive, a phenomenon she refers to as "a literary tokenism that would allow the most assimilable to rise but would not question the established literary order."[45] With women writers, for example, it is those authors who write in genres most akin to the canonical works who are included; "great writers" are those who write poetry or novels, not autobiographies, essays, diaries, and the like. Comparing *Books for College Libraries*, 3rd Edition (BCL3, now Resources for College Libraries) against a bibliography of women's works, Delaney-Lehman found that the majority (59.2%) were not included, noting that "literary forms that women have often chosen for expression—letters, diaries, autobiography—have not been as highly regarded or attractive as, say, poetry or fiction."[46] Inclusion predicated upon adherence to already-established principles only admits those that most closely follow established norms; those that "pass," one might say.

Second, existing disciplines and canons are in no way immutable. What is considered central to a discipline or a canon changes over time. As Rosenfelt puts it, "The canon […] is not a given, unchangeable corpus of received works, nor are the standard canonical works the only meritorious ones."[47] This is to say that if one is attempting to diversify a collection by adding, for instance, "poetry," one should be cognizant of the fact that what counts as "poetry" may change over time or, for that matter, what counts as "good" poetry may change. Accordingly, award winners, "best of" lists, and similar resources can shift in their coverage, focus, and scope. New voices and traditions change the contours of disciplines, introducing new terms and challenging the meaning of old ones. What once may have sufficed to represent new and different voices may have become mainstream in a decade's time.

Beyond the more egregious examples of misogyny, racism, and other forms of discrimination in LC headings, there are fundamental issues with the creation of metadata that causes classification to inevitably fail in representing the widest spectrum of views and voices. This is not meant as an indictment of the practice or to say indexing and metadata are useless. It is, rather, to emphasize that curating a diverse collection is a difficult task with constantly evolving goals. A significant reason for this difficulty is that diversity is not a state that can be "achieved"; there is no ultimate checklist that, when complete, allows a library to claim their collection *is* diverse. Rather, the project is and needs to be ongoing. The boundaries of what is included within a discipline are fluid; therefore, reliance upon reified classification schemes and indexing practices will inevitably fail to capture the range of discourses within that discipline. In other words, even as indexing continues to improve in select areas, managing collection diversity does not necessarily become easier. The dynamism of scholarly pursuits coupled with the legacies of disparity upon which library collections are built requires sustained proactive effort to include scholarship made invisible by academic and social inequalities.

Emphasizing the Mainstream and Reinforcing Marginalization through Use Statistics

In recent years, there has been a great deal of emphasis on collection development methods that emphasize user data as a basis for selection, weeding, and space allocation decisions.

The presupposition of this approach equates use with relevance, importance, and quality. However, like Myrna Morales et al.,[48] we argue that basing these decisions on the number of uses is fundamentally problematic for creating a diverse and well-balanced collection, and it risks amplifying existing representational inequalities. Our reasoning is simple: The size of the audience for the content is a critical determining factor for when and how often an item is used. In addition to the problems associated with visibility discussed in the previous section, if a topic of interest has a larger potential audience (for instance, it relates to the mainstream, an established field, is general information, or is associated with a large academic program), then the likelihood that a title will be used is higher. Conversely, if the potential audience is small, the content is likely to have lower use.

Without the context of the potential user group, use statistics as simple frequencies, or even dichotomies (in other words, used or not used), tell us little about the value of the material and are easily confounded by a host of factors, such as research activity levels, access policies, disciplinary conventions, the quality of item metadata, and discovery layer algorithms. Although we are writing more broadly about both print and electronic materials, these ideas echo Rory Litwin's caveats from 2011 on the overreliance of use statistics for selecting electronic materials: 1) downloads do not equate to importance; 2) different types of users, such as faculty, graduate students, and undergraduates may use content very differently or relatively more intensively; and 3) aggregate e-book use does not always equate with print circulation.[49] Amy Fry,[50] Steven Knowlton,[51] Karen Kohn,[52] and others discuss this last point in detail.

Furthermore, a logic that equates use with value benefits established fields and scholars while marginalizing emerging fields, creating additional barriers for scholars from historically underrepresented groups. This same logic also undervalues specialized knowledge. Low-use materials in more specialized areas, or for certain disciplines, may be deemed less important and subsequently be weeded, moved off-site,[53] or, in the case of use-based acquisition methods, not purchased in the first place.

The Case of Use-based Selection and E-books
More recently, use statistics have been translated directly into selection methodology. These methods are known by a variety of names such as Demand-Driven Acquisition (DDA), Patron-Driven Acquisition (PDA), and Evidence-Based Acquisition (EBA) and have largely been adopted in response to budgetary constraints coupled with administrative pressure to repurpose library spaces away from print collections. Through these methods, a library provides access to content prior to purchasing it and then selections are made based on the use data. This makes a greater amount and wider variety of content available to users, in theory making it possible to diversify a collection by enabling users to select titles that might be missed by traditional collection development strategies. However, it is not clear that use-based selection is effective to this end. Morales et al. write, "while it is tempting to assume that patron-driven collection development practices would result in collections that reflect the diversity of the communities served, such an approach ignores the systemic biases that affect access to the resources necessary for a scholar to publish her work and to have the work marketed and recognized as authoritative."[54]

Pursuing this line of thought, Rachel Blume examined DDA purchases at the University of Utah's Marriot Library. Analyzing data from the past two years, Blume found that acquisition was driven primarily by a mere three users, one having made 176 purchase requests and

another having made 88, totaling $32,000 in purchases.[55] These titles were primarily associated with users in the areas of computer science and international studies, respectively. Blume notes that, when employing DDA, "discussions often assume all members use the service equally," an assumption that is not supported by the data.[56] Blume adds that this places much of the burden on users interested in non-mainstream issues themselves, as they would have to use the DDA program at "an alarmingly higher rate than the majority in order to have an equal say in the books collected by the library," to say nothing of compensating for "the deficiency created by years of collecting from the majority perspective."[57] A possible avenue for future research would be to investigate how often and to what degree these dynamics play out in other DDA programs. Even minor effects relative to those reported by Blume are cause for serious concern.

As a method of increasing the diversity of a collection, DDA programs are especially problematic when we consider the potential for them to amplify biases already present in the higher education and publishing industries. If a scholar is unable to have their work recognized as "scholarly" (that is to say, in line with existing disciplinary expectations), they may have no choice but to turn to a small publisher that may have limited distribution networks. As Morales et al. have pointed out, use-based selection cannot circumvent the issues introduced by a pool of titles that is not itself diverse.[58] A further challenge to the use of DDA programs as a tool for increasing collection diversity are Blume's findings that not all users take advantage of them to the same degree. In mediated programs, Blume hypothesizes that this may be because relatively privileged students feel more comfortable making a purchase request, while minority students seek resources elsewhere.[59] This hypothesis is consistent with other findings demonstrating that "students from more affluent families reported being more comfortable connected to administrators and professors,"[60] whereas students from less affluent backgrounds felt uncomfortable asking for various kinds of support.[61]

Some authors have also suggested that patron-driven acquisitions could be leveraged in such a way to "redeploy selectors' efforts and attention towards the 'hand curation' required to build diverse, inclusive and equitable collections."[62] For example, a newer variation on patron-driven acquisitions, EBA, provides access to a wide swath of e-book content from large publishers for a set period of years. At the end of that term, content is either purchased automatically based on use or it may be hand-selected. The idea is that more automated purchasing and the additional use data would allow selectors to reallocate their time to seeking and vetting materials not covered by the commercial structure, such as ephemera and grey literature, or the products of groups excluded from traditional publishing avenues.

This "leveraging" of EBA and other programs assumes that subject librarians have time dedicated to curating these plans beyond assessing simple usage statistics, allowing them to account for the "maturity" of usage in a field, curricular match and long-term need, and quality of the metadata in the title candidate pool. This idea further assumes that librarians will also have the professional development funding needed to support developing expertise in emerging fields, in addition to the collection funds needed to acquire nonmainstream materials. However, collections funding often becomes more restricted due to e-book pricing models, and "automated" purchasing models provide a rationale for assigning additional responsibilities to subject experts, whether it be more subjects or other administrative and service work. The result is more of the collections budget invested in less content that is selected by the publishers and vendors rather than the librarians connected to the local academic community.

Insufficient Staffing and Relevant Expertise

Using time- and labor-saving methods such as approval plans, collection development can be at least partially automated. However, such methods come with drawbacks. Considering the hurdles outlined in the previous sections, for example, one cannot rely upon existing classifications (subject headings, LCC, publisher genres, and the like) to effectively identify relevant materials. This is not to say that such methods are entirely ineffective or that they should be discarded wholesale by libraries. It is, rather, to draw attention to the difficulties involved when works from new and emerging disciplines are classified, or when works from existing disciplines thwart familiar classifications. In such cases, metadata cannot be uncritically relied upon, and additional attention is required to identify and remediate gaps in the collection.

Given that metadata for diversity-related materials is disproportionately erratic, lax, and inconsistent, ongoing engagement with contemporary scholarly discourses is necessary for any librarian attempting to include the diversity of voices from that field. Succinctly put, there is no easy way to collect these materials. This point leads to two further implications to be developed in this section. First, that dedicated specialists are necessary to develop these collections. Second, libraries that lack such staffing must rely on labor-saving collection management methods that may reiterate the systemic exclusions discussed above.

If librarians cannot necessarily rely upon existing metadata to identify relevant materials, they must identify materials by other means. This is where specialized knowledge becomes crucial. To be able to recognize the nuances of an emerging discourse, a specialist must be familiar with its language, figures, and texts. Take, for example, disability studies. Although it emerged in the 1980s, no subject heading existed for the field until 2001.[63] Any librarian attempting to collect such materials would only be able to do so if they knew about the emerging field, which would require more extensive knowledge of the sources of this information. They would need to consult with departmental faculty, read papers, attend conferences, and follow the efforts of involved researchers to collect the emerging discourse. All of this requires time, effort, and institutional support; a subject librarian who has neither the time to do such research nor the financial support to attend such conferences will necessarily remain in the dark.

Further, beyond librarians themselves, if an emerging field like disability studies—drawing from psychology, sociology, political science, philosophy, and more—is not yet formally recognized as belonging to a discipline, then collecting materials for the field may be haphazard. Since budget allocation and collection development typically follow disciplinary boundaries, any field, and especially an emerging one, will not fall neatly within any of those boundaries. Supposing there is one librarian for each field—a generous assumption—each will only see part of the larger picture that is "disability studies." Thus, each librarian may collect relevant materials if they happen to meet the needs of their department, but the field as a whole will be neglected.

It is a significant expense for a library to maintain a team of specialists to do this kind of work. For smaller libraries and libraries with limited financial resources, such work either weighs heavily on the shoulders of too few staff, or labor-saving methods must be found. In the hopes of finding a more expedient method of assessing diversity in the Oregon State University (OSU) collections, Laurel Kristick compiled a list of titles featured by diversity book awards.[64] She found that 32 percent of the 2,408 titles identified came from independent presses; she noted, further, that the prevalence of independent presses meant these titles were missed by the library's approval plan.[65] Two points are especially relevant

from this project. First, as Kristick points out, it was necessary to consult such lists because the understaffing of acquisitions specialists and subject librarians did not allow for more in-depth analyses of disciplinary discourses and trends.[66] Second, Kristick notes that, even using this timesaving means, the process of compiling title lists and analyzing the data took several months.[67]

In addition to selection labor, there are logistical costs that must be supported when prioritizing diversity in the collection. More specifically, the acquisition of rare materials or items that are distributed outside of mainstream commercial methods often requires significant changes to existing acquisition workflows and procedures, which may themselves be constrained by broader institutional processes (such as university purchasing policies or state legislatures) and dedicated budget lines. Rachel Blume and Allyson Roylance note that their efforts to decolonize the collection through building relationships with local communities and altering established acquisition processes and metadata practices will challenge dominant and traditional values of efficiency, streamlining, and cost savings.[68]

Results from the 2019 Ithaka report bode ill for developing more robust acquisition and description workflows. One survey indicated that metadata and cataloging along with collections management are two areas in which most respondents expected budget reductions.[69] Lacking adequate funding and staffing, such departments will inevitably have to make tradeoffs, such as devoting less time to assessing the quality of vendor-supplied metadata, troubleshooting problematic terminology, and developing expertise needed for original cataloging. Although the library world will have to wait to see the effects of these changes, it seems probable that this will result in heavier reliance upon existing terms and, concomitantly, less sensitivity for the necessity of new terms.

Budget Allocation for Materials and Operations

John Buschman notes that budgets are reflections of administrative priorities, assumptions, and values.[70] As such, they tend to reveal ideologies or blind spots at the highest levels of organizations where budgets are allocated. Changes in the information market combined with years of budget constraints, and the accumulation of new demands have pushed libraries into a series of tradeoffs that limit their agency regarding the content that is included in the collection, as well as the ability of librarians to effect change both within their organizations and in broader market contexts.

For example, despite early warnings about electronic journal bundling,[71] widespread adoption of this practice has contributed to the overconsumption of collections budgets,[72] the underestimation of labor costs in technical areas and maintenance, and deferral of content selection to large, commercial vendors. Even at relatively well-resourced institutions, the proportion of the budget upon which librarians can actively select is quite small. Vincent Larivière et al. argue that the current big deal reflects an oligopolistic marketplace for journal content, in which publishers have taken advantage of inelastic demand and a captive audience.[73] Additionally, e-book selection, funding, acquisition, and management can be complex and expensive. These activities become cost-effective only when libraries can take advantage of economies of scale. However, restrictive policies for e-book use present both a budgetary and long-term collection challenge for libraries. DDA and EBA models can prove to be unstable over time and difficult to manage effectively, with content transferring in and out of the candidate pool and therefore undermining the integrity of the collection.[74]

Fry notes that although e-books may have some benefits, significant barriers remain that primarily serve publishers, such as digital rights management.[75] William Walters also explores these issues in his series of essays on e-books.[76] These disadvantages for libraries, in addition to cost, may actually counteract efforts at inclusion and diversity, as e-books may not be as widely shareable as their print counterparts and therefore unsuitable for collaborative collection development initiatives. Thus, as Walters laid out, administrators who argue for greater e-book content need to consider the following: 1) use restrictions; 2) challenges of ownership and leasing; and 3) dominant business models that may reduce accessibility and diversity.[77] This last point is of particular importance due to the well-noted inflation of e-book prices.[78]

Furthermore, the shift from ownership to leasing and outsourcing as a means to control costs continues to have major implications for libraries and their patrons. For example, in many cases, e-book packages are curated outside of the subscribing library and are often not sustainable in terms of price. As Bailey, Scott, and Best warn in their study of differential costs of print and e-books, "the movement to a predominately e-only format for information is increasing the pressures upon academic libraries to provide access to digital resources, while those resources are in a pricing model reminiscent of the serials pricing models that have bedeviled libraries."[79] Although Scherlen and McAllister speak more to the general zeitgeist in academic libraries to repurpose space once dedicated to physical collections, their general warning of relying too heavily on a "single vision" for the transformation and defining of library services is also relevant to current collection development methods.[80] More specifically, dependence on singular methods (DDA, EBA, approval plans) to cultivate rich, diverse collections is bound to lead to its own set of inequalities, particularly in terms of content. Again, the continued emphasis on singular data-driven approaches to streamline processes and reduce transaction costs may be difficult to reconcile with the more time-intensive nature of building diverse collections.

A greater and potentially disproportionate devotion to e-book plans and e-journal packages can crowd out other budget lines such as investment in open access infrastructure and attention to the selection, acquisition, and processing of less traditional and more diverse materials. Furthermore, these materials may only be available in print formats with limited electronic alternatives. This current disproportionate emphasis or preference for e-materials is of particular concern to area studies scholars, as well as those disciplines in which monographs serve as distinct primary sources and part of the historical record.[81] For example, many materials in the non-Western world are only available in print, with limited electronic alternatives.[82] The trend of decreased spending on print materials, which is currently accelerating,[83] may have the unintended effect of limiting linguistic and cultural diversity in scholarly collections and therefore have a major impact on the representation of marginalized groups.[84]

As noted earlier, there has been a long history and tradition of collaborative collection development initiatives (both in print and e-books) among academic institutions.[85] Current budget austerity due to the pandemic may lead to a re-emphasis of such approaches, particularly in the building of more diverse collections across the broader library system. In other words, these cooperative arrangements (which could include metadata cooperation) may continue to be a means to achieve broader heterogeneity. Such investment could help in resolving the tension between responding to more immediate curricular needs, while curating and stewarding a broader, forward-looking collection that responds to the requirements of new fields of study and historically excluded voices. Collaborative collection development

may further allow for respective institutions to concentrate on better representing their local populations in their collections, rather than depending on established diversity lists.

Collection budgets, first and foremost, must support current and evolving curricular and research needs of the community; however, collection decisions should also reflect community values and priorities of openness, diversity, and inclusion.[86] In addition to the collection budget, investments in collections processing and infrastructure (including staff) should also reflect these values. As collections and related budgets are finite, conscious budget decisions affecting operations and materials must be made to support teaching, research, and diversity principles across the institution. The importance of these new, less traditional emphases may be difficult to convey to administrators, particularly during times of budget austerity, but they are necessary to develop an intentional structure for diversifying the collection.[87]

Conclusion

We began writing this article prior to the COVID-19 pandemic with no awareness that libraries would soon be confronted with a demonstration of how quickly circumstances can converge to amplify the issues we are highlighting. The recent warning from ACRL in their statement on Equity, Diversity, Inclusion, and the Print Collecting Imperative is well received.

> [There are] troubling consequences of a sweeping shift in research libraries toward a collecting paradigm of digital primacy as a monolithic and permanent response to the formidable, but temporary, unforeseen challenges of the COVID-19 crisis. Many of the efficiencies being advocated by library administrations rely on consolidation of acquisitions processes and expansion of arrangements with large-scale commercial partners. The business models of these vendors are predicated on economies of scale that privilege materials for which there are well established markets within the academy.[88]

Although the pandemic has brought these issues into sharp relief, the ACRL statement describes a long-emerging trend based on an established mode of thinking. For decades prior to the COVID-19 crisis, libraries had been adopting "creative fiscal approaches" to the "commodification" of the information market, which has often meant prioritizing cost savings at the expense of attentive collection development. Returning to the discussion of use statistics, as Michael Hughes notes, "a major stumbling block to interpreting the use of our collections is the importation of business models, which can […] confuse budgetary with service standards" and place a disproportionate emphasis on certain types of use and return on investment.[89] These cost-saving strategies (for example, practices such as outsourcing materials description, package deals for electronic content, leasing content rather than purchasing, and DDA-type programs) have largely favored vendor relationships over investing in collective effort among libraries and are part and parcel of a larger dynamic of business logic within higher education that privileges demand and immediate need over long-term support for scholarship and equity.

While there will always be tradeoffs in terms of budgets, prioritizing collections diversity goes beyond the issues mentioned in the ACRL statement and requires a rethinking of library investment to include the additional resources that are needed to develop and maintain diverse collections. We refer not only to under-resourcing in the collections budget, but also in the other areas discussed above, such as labor (like increased time for selection and vetting

of content, need for original or local description, novel acquisitions workflows), and the development of expertise (such as professional development funding and the time to engage in it meaningfully).

Whether assessing a particular subject area or the collection writ large, understanding the full cost of curating diverse collections is critical to fulfilling the commitments to diversity, equity, and inclusion emphasized in the mission statements of nearly every college and university. We have highlighted some of the ways that certain professional practices and modes of thinking contribute to or reinforce existing inequalities, as well as the significant issues arising from uncritically relying upon incomplete data to set policy and make decisions related to collection development. While inadequate classification and indexing affects the visibility of scholars and their works within collection management workflows and user-facing services, understaffing in critical areas almost ensures that libraries have no means to identify the full scope of the problem, let alone promote change. The dynamic, fluctuating nature of the political, social, and historical context in which disciplines, subjects, and their associated terms arise further complicates the issue. Curating materials that would diversify collections is a more time- and labor-intensive process than selection of mainstream materials; from this perspective, we have argued that overcoming the many points of erasure requires a more proactive style of collection development in which librarians continually seek out materials on and from voices that are excluded by automated approaches.

Acknowledgments

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Information Literacy Instruction in Asynchronous Online Courses: Which Approaches Work Best?

Elizabeth Pickard and Sarah Sterling

Which modes of information literacy instruction (ILI) work best in asynchronous online courses? Recent national trends and COVID-19 have made it critical to answer this question, but there is little research comparing different modes of ILI specifically in asynchronous contexts. This multiyear study employed five different modes of ILI in different sections of an asynchronous online anthropology course and compared the modes' effects on students' coursework. Ethnographic analysis of students' bibliographies revealed nuanced changes to students' approaches to searching and source selection. These findings can inform librarians' development of ILI curricula and pedagogy for the unique circumstances asynchronous instruction presents.

Introduction

During the last decade, colleges and universities have offered an increasing number of courses online, presenting librarians with the challenge of providing course-integrated information literacy instruction (ILI) in both asynchronous and synchronous online-only courses. As reported by the Babson Survey Research Group (2018), enrollment in online courses by undergraduate students increased for the 14th consecutive year in the United States,[1] and a 2019 National Center for Education Statistics report showed that college and university online enrollments continued to grow even as overall enrollment numbers declined.[2] For example, Portland State University, a large R2 public university in Portland, Oregon, has offered an increasing number of online courses every year for the past several years and offered 65 percent of its courses as online-only in the 2016–2017 academic year.[3] The COVID-19 pandemic made the need to move online even more urgent, and that intensified an already pressing question for librarians: which approaches to teaching information literacy work best in an online-only context? Moreover, which modes work best in asynchronous as opposed to synchronous courses?

Librarians need best practices now, and there are many things to consider. Colleen Flaherty, who covers faculty issues for *Inside Higher Ed,* explained in a recent, post-quarantine article that "synchronous is hot" but equity is a concern.[4] Phil Hill, an ed-tech consultant at MindWires, told Flaherty, "The limitations of synchronous video are equity and access."[5] While not entirely different, synchronous and asynchronous courses do involve some fundamental infrastructural differences that affect what modes of instruction might be possible. Synchronous courses allow

for real-time interaction between instructor and students, and this real-time interaction readily facilitates active learning. Asynchronous learning, in contrast, is particularly student-centered with respect to flexibility, but the lack of real-time interaction begs the question of how one might go about facilitating active learning. There are many asynchronous online tools available, such as LibGuides and software to create video-recorded lectures, but how might librarians best use these tools to engage students in active learning rather than passive listening?

This article reports on a series of case studies from Portland State University (PSU) that compared different modes of delivering ILI in an asynchronous course and their effects on students' coursework. The researchers, a librarian and an anthropology instructor, tried five different modes of delivering ILI in different sections of the instructor's asynchronous online course and reviewed students' final project bibliographies to see in what ways the students' work had changed. Comparison of students' work under different modes of ILI revealed changes to the ways in which students had approached searching and supporting their topics as well as changes to the quality of their sources.

Literature Review

This research study examined the effects of different modes of ILI on students' coursework, focusing on modes that facilitate active learning. It specifically builds on existing research pertaining to ILI in asynchronous, as opposed to synchronous, online instruction.

Most existing literature talks about ILI in online courses without differentiating between synchronous and asynchronous instruction. This distinction is important since synchronous courses allow for different modes of ILI relative to asynchronous courses; synchronous courses allow for real-time interaction, while asynchronous courses are more accessible to a wider range of students but with limited real-time interaction (if any).[6] Yet much of the literature discusses "online" as a blanket term. For example, in a 2010 article, Hoffman and Ramin proposed a set of best practices for interacting with online students, but they discussed "online" without specifying potential differences between asynchronous and synchronous contexts in either the project's systematic review or case study.[7] It was only through Hoffman's mention of "web-conferencing"[8] that the researchers inferred that the case study most likely examined a synchronous course. This omission points to the fact that the use of asynchronous instruction, and especially literature on it, is still emerging. Even more recent articles, such as "Online Students' Perceptions of Embedded Librarians"[9] and "Authentic Assessment of Student Learning in an Online Class,"[10] use the term "online" broadly. In "Online Students' Perceptions…," Spangler et al. disseminated a survey to students that did not appear to have asked, specifically, whether the online course the participating student had attended had been synchronous or asynchronous.[11] Thus, the results documenting students' online course experiences with embedded librarians do not reflect that important granularity. In "Authentic Assessment of Student Learning," Alverson et al., who made use of a methodology similar to the one on which this article reports, also evaluates the effect of an embedded librarian in an online course[12] without specifying whether the course itself was synchronous or asynchronous. Alverson made use of both synchronous and asynchronous modes of ILI, but it was unclear how the format of the course might have affected the outcomes. Neither recent study discussed the findings or recommended applications in terms of how they might apply differently to synchronous versus asynchronous course contexts.

The literature that does specifically discuss asynchronous ILI falls into two categories. Either these studies examined only one mode of delivering ILI in an asynchronous course,

or their methods involved indirect rather than direct collection of data or measured affective rather than cognitive outcomes.

A few studies looked at the effects of a single mode of delivering ILI, and most of these focused on some mode of providing ILI using digital learning objects, such as videos, tutorials, and/or asynchronous online exercises. In "If We Built It, Would They Come," Camacho looked at the use of video tutorials with an accompanying quiz.[13] In "Scalable Equals Asynchronous, and Asynchronous Equals Boring," Thompson and Carrier looked at a combination of Guide on the Side instruction and exercises and short videos,[14] and in "Developing Online Instruction According to Best Practices," Lierman and Santiago piloted a series of recorded "lessons" and accompanying exercises for librarians to use.[15] As these studies show, the term "digital learning objects" can refer to different things. Common characteristics among the objects these studies employed included that they all allowed for predelivery construction, repeated use without much additional work, and delivery to students in the absence of the librarian. While there were a variety of ways digital learning objects delivered ILI among these studies, none of the studies compared different modes of ILI for asynchronous course contexts. Each study only explored the one mode the researchers for that study had delivered.

It is significant that all of these studies examined ILI that facilitated active learning. In 1999, Nancy Dewald wrote two articles "Transporting Good Library Instruction Practices into the Web Environment," and "Information Literacy at a Distance," in which she asserts that Web tutorials must be interactive to facilitate active learning and, thus, reinforcement of the information presented.[16] That time seems long ago, but higher education had actually embraced active learning well before 1999, beginning with the work of educational reformer John Dewey, whose ideas shifted pedagogical methods away from emphasizing the idea of students as passive vessels toward emphasizing problem- and project-based learning.[17] Likewise, the current model of Bloom's *Taxonomy of Education Objectives*[18] focuses largely on activities that support learning; thus, it plays an important role in the development of outcomes for active course curricula. Bloom's *Taxonomy* places class activities that ask students to simply listen in order to remember or recite back information among the lowest levels of learning. The ACRL Framework for Information Literacy, which was intended to guide ILI development by "librarians, faculty, and other institutional partners in their design of instruction sessions, assignments, courses, and even curricula"[19] targets higher-order concepts in keeping with Bloom's.

While literature in online ILI uses the phrase "active learning" in a variety of ways, it consistently holds forth the ideal of facilitating student engagement rather than passive listening. Lierman notes that Dewald "seems to use the term [active learning] interchangeably with 'interactivity',"[20] while, in "Online Active Learning," Parramore goes on to say that simply including quizzes, tutorials, practice questions, and assessments in online ILI is not enough. "[M]erely including them into an online-environment does not qualify it as completely active learning."[21] She suggests that online ILI needs to be delivered to students in keeping with the thinking of Anastasia Misseyanni[22] and Lorayne Robertson[23] in *Active Learning Strategies in Higher Education,* such that the ILI "engages the student with meaningful learning activities and allows a metacognitive process to take place where students become active contributors to the class."[24] Robertson emphasizes metacognition as "a critical skill that enables students to assess their own learning and also critically assess sources of information,"[25] which harkens back to Dewey's project-based learning.

The methods employed by many of the online ILI studies did not measure outcomes relating to metacognition. In a recent article outlining differences among and implications for IL assessment practices, William Walters discusses assessing cognitive versus affirmative outcomes and how using direct versus indirect methods to collect data affects that measurement.[26] Walters asserts that "the distinction between evidence-based and perception-based measures is nearly identical to the distinction between cognitive and affective measures."[27] Cognitive, or evidence-based, measures look at data in which students *demonstrate* their skills as opposed to affective measures that examine students' *confidence* (for example) using those skills. Of indirect versus direct methods of data collection—which Walters says "are closely linked to cognitive or affective constructs"[28]—Walters explains that indirect methods, such as surveys or self-evaluations, in which students report what they do, build in a level of abstraction that introduces bias.[29] Direct methods involve researchers looking "directly" at the data about which they are making claims (for example, looking at students' actual coursework rather than looking at what students say about having produced it). Camacho looked at how many students had watched an ILI video but did not measure how much students understood of what they had seen.[30] Thompson measured students' understanding indirectly, by looking at answers to "formative questions" that were part of the ILI tutorial.[31] Lierman used direct methods to measure cognitive outcomes by working with instructors to look at students' coursework after completing online-only ILI lessons, but the pilot involved a small sample size.[32] Alverson et al., however, looked at a larger sample of bibliographies that students produced as part of their college Research Seminar final projects.[33] While Alverson did not necessarily look at an asynchronous course and only examined results of one mode of ILI (embedded librarian), her study is the closest in methodology to the one on which this article reports because students' coursework serves as the data. Walters states, "[T]he evaluation of students' written [course]work—the direct, authentic assessment of cognitive outcomes—is the single most useful IL assessment exercise."[34]

Citation analysis has long been used as a direct method of assessing cognitive outcomes of ILI. Bonnie Gratch (1985) claimed that research paper bibliographies reflect the effects of "research skills instruction."[35] Since Gratch's early work, numerous researchers have analyzed citations with this idea in mind, usually analyzing the quality of the sources but defining "quality" in many different ways. Past citation analysis studies have looked at criteria such as scholarliness,[36] authority of sources,[37] number of sources,[38] variety among sources,[39] format (journals, books, newspapers, websites, and so on),[40] citation style formatting,[41] appropriateness with respect to the topic,[42] and dates and currency.[43] In "A Faceted Taxonomy for Rating Student Bibliographies," Leeder, Markey, and Yakel noted of such past citation analysis studies that the "…definitions of terms are not standard and vary from study to study."[44] More recently, Dahlen and Hansen tried to address this variation by using the term "quality," as a more flexible option than "authority."[45]

However, even the studies using the term "quality" approached analysis using a preset rubric to measure outcomes, including Alverson's work on ILI in online courses.[46] These studies' methodologies did not allow for the discovery of unanticipated effects of ILI on students' bibliographies or discovery of unexpected subtle and meaningful changes. The study on which this article reports employs citation analysis but approached evaluation of a source's quality differently from existing studies. Instead of measuring outcomes by presupposed standards, the current study asked, as the basis of evaluation, "Which aspects of bibliographies changed under different modes of ILI and in what ways did they change?"

The current study used citation analysis to directly measure and compare the cognitive outcomes of five different modes of ILI delivered in seven sections of an asynchronous online course. The study examined only modes of ILI that facilitated active learning. Unlike prior studies, this study focused on asynchronous courses and was able to compare the effects of multiple different modes of providing ILI, including two that had not yet been studied in asynchronous contexts; ILI via curriculum scaffolding only in which research skills exercises and instruction were built into existing course assignments, and ILI via a live one-shot session. The study also adds to the existing literature findings from exploratory modes of analysis that allowed for discovery of unanticipated and nuanced effects of ILI on students' selection of sources.

Methodology

In this comparative series of case studies, a librarian and an anthropology instructor designed and employed five different modes of ILI in the instructor's asynchronous online courses—Anthropology 366: Archaeology of Mesoamerica and Anthropology 368: Archaeology of Oceania. The researchers then coded students' final project bibliographies from these courses to explore the ways in which the bibliographies had changed in response to the different modes of ILI. From this coding, themes emerged about changes to students' approaches to searching for sources and supporting their topics and changes to the quality of the sources they selected.

With IRB approval, the researchers recruited students via email. Interested students uploaded a consent form and their final research projects to the course Desire to Learn (D2L) shell. Participating students received a $10 Amazon gift card.

Modes of ILI

The researchers looked at the bibliographies of students from two courses: ANTH 366 (Archaeology of Mesoamerica) and ANTH 368 (Archaeology of Oceania). The researchers considered these courses equivalent because both courses have the same fundamental structure:

- They are taught by the same instructor.
- They are at the same level.
- They have the same prerequisites.
- They are both asynchronous.
- They involve the same assignments: two reading reviews and a final research project, and the assignments from each course have the same essential structures (see appendix A).

The researchers employed and examined different modes of delivering ILI each term via D2L (PSU's online learning management system). The researchers started by seeking a baseline sense of students' research skills as the instructor had traditionally taught them, which involved no supplemental ILI. The researchers went on to look at modes of ILI that involved the following: 1) curriculum scaffolding only, consisting solely of changes to the assignments and no supplemental library involvement; 2) an embedded librarian, which consisted of intensive involvement by the librarian; 3) more sustainable ILI in a term consisting of a synchronous ILI session that aimed to provide the active learning facilitated by traditional "one-shot" sessions in face-to-face courses; and 4) a term involving digital learning objects that consisted of a series of videos and graded exercises (see figure 1).

FIGURE 1
Modes of ILI by Term: Sample Sizes

Mode of ILI	Sample Size
TAUGHT AS USUAL ANTH 366 & 368 *Spring 2016*	ANTH 366: 26 of 32 (81%) bibliographies ANTH 368: 23 of 30 (77%) bibliographies 49 students cited a total of 123 sources
CURRICULUM SCAFFOLDING ONLY ANTH 366 & 368 *Fall 2016*	ANTH 366: 30 of 33 (91%) bibliographies ANTH 368: 25 of 29 (86%) bibliographies 55 students cited a total of 266 sources
EMBEDDED LIBRARIAN ANTH 366 *Winter 2017*	25 of 30 (83.3%) bibliographies 25 students cited a total of 124 sources (ANTH 368 was cancelled)
SYNCHRONOUS ILI SESSION ANTH 366 *Fall 2017*	21 of 25 (84.0%) bibliographies citing 99 total sources
DIGITAL LEARNING OBJECTS ONLY ANTH 368 *Fall 2017*	24 of 28 (85.7%) bibliographies citing 129 total sources

Analysis

Analysis of students' final project bibliographies involved looking at the effects of specific modes of ILI on the quality of individual sources selected and on the quality of the bibliographies in their entirety. The researchers approached evaluating the "quality" of the bibliographies and individual sources inductively to unearth unexpected and nuanced changes. Drawing on Barney Glaser's seminal work on qualitative analysis, researchers first coded the sources to get at "the interrelationship between meaning in the perception of the subjects and their action."[47] The researchers noted which areas of the bibliographies changed between terms, what about those areas had changed, and what these changes suggested about students' engagement with the research process, evaluation of sources, and supporting their topics. In this way, the researchers' approach to analysis was what Glaser refers to as "*controlled* by the emerging theory."[48] Such ethnographic methods help identify discrepancies between what people intend to do and what they actually do, and these methods help unearth unexpected behaviors and correlations. In the article, "Ethnography as Theory," Laura Nader calls ethnographic writing necessarily "a theory of description."[49] Similarly, Anthony Kwame Harrison explains in the "Writing up Research Findings" chapter of his book, *Ethnography*, "in the most essential sense, ethnography is produced via writing."[50] This is necessary to describe "not only what takes place but also how it occurs."[51] Thus, in this article, the researchers describe the ligaments they see connecting findings as a way of facilitating transparency.

The researchers approached developing the rubric for the instructor's evaluation of students' sources in a similar way. The instructor used her subject-expertise to analyze students' sources and label them "too basic," "standard," or "advanced," based on how specific and significant a source was to the student's topic and how appropriate the source was for the course level. The rubric for her final analysis grew out of the data. The instructor first coded students' sources to see which ones she would expect to see for the course topic and level, which ones seemed less able to support the student's topic, and which sources surprised her

as doing more to support the student's topic than she would have expected for the course level. From the instructor's coding, more specific themes emerged that the researchers then developed into a rubric, the Instructor's Source-Evaluation Index. The final Index defined the categories, "too basic," "standard," and "advanced," in more nuanced ways. To make sure the researchers had evaluated the citations according to consistent standards, the instructor coded the sources again (normed) using the final parameters of the Index.

Allowing the themes and rubrics to emerge out of the data facilitated a particularly nuanced analysis of students' bibliographies, especially with respect to the instructor's expectations, that allowed researchers to build upon Alverson's work on embedded librarians in online courses.[52] This approach also allowed researchers to unearth granular differences in students' work in response to the different modes of ILI students had received.

Broader Goals

The broader goal of this study was to contribute to the development of best practices for delivering ILI in online-only courses. Toward this end, the specific goals were to explore the effects of different modes of ILI on students' coursework with respect to the following: 1) students' ability to find reliable sources; 2) students' understanding of the research landscape (such as range of databases and types of sources); and 3) students' understanding of research as a process.

Key Findings

The study looked at specific aspects of citations and bibliographies to assess quality in addition to considering citations and bibliographies with the idea that they might change in unanticipated ways in the context of different modes of ILI. This approach allowed the researchers to unearth unexpected and nuanced results of the different modes of ILI, such as changes to how well students' sources supported their research topics, changes to the breadth of students' use of databases, and—without the final assignment changing its requirements—changes to the length of students' bibliographies. Two broader findings that framed other results were that intentional, substantial curriculum scaffolding can provide some effective ILI but that more dedicated, formal ILI can do additional important work. The findings also concluded that the most effective mode of dedicated ILI, "embedded librarian," was not sustainable for the librarian. The researchers went on to explore two more sustainable modes of ILI with the intent to achieve the same effectiveness as the embedded librarian mode.

From No Intervention to Intensive Intervention

The researchers approached the first three terms of the study by establishing a baseline term and then comparing it to a term involving minimal involvement by the librarian and a term involving intensive involvement by the librarian. The researchers approached Spring 2016 by establishing baseline examples of students' work from the course as the instructor had traditionally taught it with minimal supplemental library instruction (see figure 2). The ILI this term existed incidentally, as exposure to the library via links to required readings and mentions of the library in final project guidelines (see appendix A). The two reading reviews (each worth 25 points) included direct access to the required reading for the assignment through links in D2L and did not require students to find the sources themselves. Likewise, the final project assignment (worth 65 points) did not specify the number of sources that students should use, nor did it direct students to particular databases.

FIGURE 2 Modes of ILI: No Intervention to Intensive Intervention (activities in bold are new for that term)		
TAUGHT AS USUAL ANTH 366 & 368 *Spring 2016*	CURRICULUM SCAFFOLDING ONLY ANTH 366 & 368 *Fall 2016*	EMBEDDED LIBRARIAN ANTH 366 *Winter 2017*
Reading review 1: link to reading	Reading review 1: • **Citation only** for reading • **Find more recent article** • **Librarian Q&A area** on D2L wiki (not required)	Reading review 1: • Citation only for reading • Find more recent article • *Required* to ask librarian a question (email/D2L)
Reading review 2: link to reading	Reading review 2: • **Citation only** for reading • **Find** more recent article • **Librarian Q&A area** on D2L wiki (not required)	Reading review 2: • Citation only for reading • Find more recent article • *Required* to ask librarian a question (email/D2L)
Final research project	**Preliminary bibliography** due before final project	Preliminary bibliography due before final project

Four changes were implemented in Fall 2016 to see how curricular scaffolding, without any formal instruction by a librarian, might affect the quality of students' research. The researchers kept the reading review assignments the same except to provide a citation for, rather than a link to, the assigned readings and require students to find on their own an additional, more current article on the reading review topic. Third, the researchers also added an entirely new preliminary bibliography assignment (see appendix B) to prepare students for the final project (which, otherwise, stayed the same). The preliminary bibliography was due three weeks before the final research project, was worth 15 points, and required students to find three sources. Fourth, the librarian was available via a dedicated research discussion wiki in D2L for any questions that students had about finding sources.

The researchers speculated that giving students practice using these research tools and skills earlier in the term might lead to their developing better bibliographies. In other words, the researchers hoped to open up time for students to evaluate sources and employ iterative, rather than desperate, searching by obviating students having to figure out what research tools were available to them, how to use those tools, how to get the full text of sources into their possession, and how to evaluate those sources *at the same juncture* they were trying to learn about a new topic, write the body/narrative of the research project, and generally complete a larger research project.

For Winter 2017, researchers included the assignments and curriculum scaffolding deployed in Fall 2016 and added more dedicated, formal ILI in the form of two required reference encounters for each student. Both reading review assignments required students to ask the librarian a question about finding sources for the assignment.

The reading review instructions included a 5-of-25–point requirement that students contact "…our embedded librarian, Elizabeth, to identify one reference that updates, or builds on the information in this reading. The reference can relate to any part of the reading and should be from the library's holdings." Students could either post their question to a dedicated D2L discussion thread or email the librarian directly. Students' questions were

vetted by instructor and librarian so it was clear to students they would not get 5 points for asking perfunctory questions such as, "Can you help me?" When such questions occurred, the librarian prompted students by email (copying the instructor) with the follow-up question, "Are you having trouble using databases, developing search terms, or getting to the full text?" Copying the instructor made it clear that students would not get the 5 points without responding with a more detailed question. Depending on the student's more detailed question, the librarian then asked, "Where have you tried searching?" "Which search terms have you tried so far?" or "Through what database did you try to get the full text?" The researchers intended these prompts to lay out expectations for students about what the research process entails and to encourage students to do some searching before asking. The librarian made a point in communication with every student to point to the archaeology subject guide, recommend at least two specific databases based on the student's topic, and to recommend a range of search terms to try.

The embedded librarian mode resulted in students developing particularly substantial bibliographies, reduced the workload for the instructor, and allowed the instructor to focus on discussing archaeology rather than finding sources. However, the workload was not sustainable for the librarian. The instructor reported that her conversations with students focused almost entirely on the discipline of archaeology during the "embedded librarian" term and that less discussion about finding sources actually meant less work for her overall. (She also reported a reduction in students' end-of-term panic as well as her own.) However, the "embedded librarian" ILI involved 10 to 40 hours of work per week for the librarian for one class, and, like many other librarians, she teaches many classes for multiple departments. Thus, the question for the researchers became how to achieve comparable results via a mode of ILI that would be sustainable for librarians. The next term of the study explored two options.

Experiments in Sustainable ILI

During the final term of the study, researchers tried two different modes of ILI that aimed for the results of the "embedded librarian" mode but involved a sustainable workload for the librarian: a mode in a section of ANTH 366 that involved synchronous librarian interaction with students (in an otherwise asynchronous course), and a mode in a section of ANTH 368 that involved only asynchronous digital learning objects. The modes of ILI researchers employed this term were intended to obviate two of the more time-consuming aspects of the "embedded librarian" term (Winter 2017), namely, repeating the same information to every student in the course and contacting each student individually.

Building on prior effective terms of the study, both modes of ILI involved scaffolding research skills in assignments across the course term using the same assignment structure and schedule as the prior "curriculum scaffolding" and "embedded librarian" terms (see figure 3); specifically, the reading review assignments continued to provide a citation for the required readings and to require students to find an additional source on the topic, and students still had to complete a preliminary bibliography a few weeks before the final project deadline that required students to find three sources. As with the "curriculum scaffolding" and "embedded librarian" terms, the aim was to give students practice using databases throughout the term and to make students accountable for this work.

The only thing that changed in the assignments this term was the form of contact students were required to have with the librarian. In alignment with the promising results from

FIGURE 3
Modes of ILI: Experiments in Sustainable ILI (activities in bold are new for that term)

SYNCHRONOUS ILI SESSION ANTH 366 *Fall 2017*	DIGITAL LEARNING OBJECTS ONLY ANTH 368 *Fall 2017*
Reading review 1 • Citation only for reading • Find more recent article • ***Required live* group video conference** (via D2L) **with librarian**	Reading review 1 • Citation only for reading • Find more recent article • **DLOs *& graded* quiz** • **No librarian**
Reading review 2 • Citation only for reading • Find more recent article	Reading review 2 • citation only for reading • find more recent article • **No librarian**
Preliminary bibliography due before final project	Preliminary bibliography due before final project

the "embedded librarian" term, the ILI in both of these sections made a point of introducing students to the subject guide for archaeology and to specific databases to support their topics, explicitly discussing expectations of the research process, such as the fact that it would be iterative and involve exploring different databases and search terms, and making the ILI a graded assignment.

The modes of ILI in ANTH 366 this term required students to attend a real-time instruction session with the librarian via D2L. The librarian taught three different 45-minute sessions, and students had to pick one to attend. The sessions took place in week 2 of the term so as to occur at the point-of-need for students working on the reading review assignment due week 3. The instructor disseminated both assignments at the same time to suggest a connection between the two, and the final project guidelines also noted a connection, stating, "[Y]ou will receive instruction on using the library's online databases during week 2." Since the ILI session was graded separately from a larger assignment this term, the researchers made it worth 10 points rather than 5 to compel students to complete it. Of the 25 students in the class, 15 (60.0%) attended the ILI session.

The mode of ILI in ANTH 368 this term required students to complete an online exercise that involved video tutorials and practice questions (see appendix C). As with the synchronous ILI session, the exercise was assigned in week 2 of the term so it would occur at the point-of-need for students working on the reading review assignment due week 3. This mode involved a substantial amount of preplanning: designing and creating the videos using Camtasia and MediaSpace and the exercise itself using Qualtrics. Unlike teaching a live session each term, all work occurred before the course began, and a time-saving benefit of this mode was that the librarian could use the object, with minimal additional work, to provide ILI in future sections of the course. The resulting exercise could also serve as a template for the librarian to use in other asynchronous classes as well. The upfront work was also somewhat offset by making use of the PSU Library's collection of "reusable" videos the PSU librarians regularly develop and share. Since the ILI exercise was graded separately from a larger assignment this term, the researchers made it worth 10 points rather than 5 to compel students to complete it. Of the 28 students in the course, 21 (75.0%) completed the Qualtrics exercise.

Changes in Student Work

Students' bibliographies changed significantly and in a variety of ways under these different modes of ILI, correlating with the intensity of the ILI students received. The primary aspects that changed were the length of the bibliographies and how well they met the instructor's expectations for the topic and course level. These changes also pointed to changes in students' understanding of the research process and in their search behavior as reflected by the databases they used.

Length

More intentional ILI led to students exceeding required minimum number of sources in their bibliographies (that is to say, students made decisions about how many sources to include based on something more than just meeting the required minimum number). In the "taught as usual" term, the final project instructions did not specify a required number of sources, and the mode number that term was one source (see figure 4). The "curriculum scaffolding" term introduced a new preliminary bibliography assignment that required students to find three sources, and the mode number that term increased to three sources, in keeping with the new required minimum.

What surprised researchers was that the "embedded librarian" term employed exactly the same assignments and source requirements as the "curriculum scaffolding" term, but the bibliographies in the "embedded librarian" term were longer. The mode number of sources per bibliography in the "embedded librarian" term was four sources, meaning most students in the "embedded librarian" term exceeded the required minimum of three sources. In fact, 16 of 25 students (64%) that term cited four or more sources. Students in the embedded librarian class seemed to be making decisions about how many sources to cite based on something more than just the minimum required number.

This change in decision-making was prevalent under the more sustainable modes of ILI as well but was more prevalent in the "digital learning objects" section. The length of the bibliographies in both sections ranged from 1 to 11 sources, but the mode in the "digital learning objects" section was five sources while it was only three in the "synchronous ILI" section (see figure 4). Students in the "synchronous ILI" section still cited more sources than the required minimum three: the mode was three sources, but 57 percent of students exceeded the minimum, citing four

		FIGURE 4			
	Number of Sources per Student/Bibliography				
	TAUGHT AS USUAL	CURRICULUM SCAFFOLDING	EMBEDDED LIBRARIAN	DIGITAL LEARNING OBJECTS	SYNCHRONOUS ILI SESSION
Range	1–8	1–17	2–15	1–11	1–11
Mean	2.6 (2.2 ANTH 366; 2.9 ANTH 368)	4.8 (4.8 ANTH 366; 4.9 ANTH 368)	5.0	5.4	4.7
Median	1 (2 ANTH 366; 2 ANTH 368)	4 (ANTH 366 & 368)	4	5	4
Mode	1 (ANTH 366 & 368)	3 (ANTH 366 & 368)	4	5	3

or more sources. In comparison in the "digital learning objects" section, the mode increased to five sources and 75 percent of students exceeded the minimum number of required sources, citing four or more. In fact, even more students in the "digital learning objects" section exceeded source number requirements than in the "embedded librarian" section (Winter 2017): 75 percent versus 64 percent. Thus, the "digital learning objects" mode of ILI this study employed seemed relatively effective in drawing students' attention to the significance of the bibliography.

The embedded librarian and digital learning objects modes of ILI employed in this study resulted in students paying particular attention to the bibliography portion of their research projects as demonstrated by their making decisions about how many sources to cite based on something more than just the minimum required number. This change in behavior from prior terms suggests that students in the "embedded librarian" and "digital learning objects" classes better understood the function of the bibliography and made decisions about how many sources to cite based on a desire to support their topic rather than to meet a minimum requirement. This idea is further supported by the instructor's assessment of students' sources.

Instructor's Assessment of Students' Sources

The instructor used her subject expertise to analyze students' sources according to the Instructor's Source-Evaluation Index, a rubric that grew out of the data. The instructor first coded students' sources with respect to what she would expect to see for the course topic and level. From this coding, specific themes emerged that the researchers then developed into a more nuanced rubric (see figure 5).

As happened with the number of sources students cited, findings suggest a correlation between more dedicated ILI and students' selection of sources that better supported their topics. These broad findings did not surprise the researchers, but what added nuance to their understanding of the effects of the different modes of ILI were the differences between the terms in the number of sources that fell into the "standard" and "advanced" categories.

FIGURE 5 Instructor's Source-Evaluation Index Rubric			
CATEGORY	**Too Basic**	**Standard**	**Advanced**
Criteria	The source: • discussed the topic broadly without discussing specifics (e.g., non-specialized encyclopedia) and/or • did not verify claims via data or confirmable information and/or • was not written by a qualified expert*	The source: • was written by an expert* AND • verified claims with data or other confirmable information and/or • was a peer-reviewed article or website, depending on the website (e.g., included websites presenting grey literature, ongoing research by experts*, oral histories.)	The source: • met all criteria for "standard" AND • was significant vs. just relevant and/or • was written in technical or specialized vernacular and/or • contained complex archaeological concepts and/or • contained concepts from another discipline students abstracted to use in archaeology
*Depending on the topic, the definition of "expert" included on-the ground-witnesses, indigenous people, or scholars with relevant academic expertise.			

The sources students chose during a term with dedicated ILI, namely, the "embedded librarian," "digital learning objects," and "synchronous ILI session" classes, better met the instructor's expectations (in other words, the sources fell into either the standard or advanced categories). However, the curriculum scaffolding the researchers employed also did some successful ILI work. The instructor's analysis showed an 11 percent increase (from 62% to 73%) between the "taught as usual" and "curriculum scaffolding" terms and a corresponding 11 percent decrease in sources that were "too basic" (see figure 6). This 11 percent shift means that the curriculum scaffolding the researchers employed helped students better select sources that met the instructor's expectations.

However, while curriculum scaffolding did some work, dedicated ILI led to even larger increases in students' selection of sources that met the instructor's expectations. Of the sources that students in the "embedded librarian," "digital learning objects," and "synchronous ILI session" classes selected, the instructor ranked 85, 84, and 82 percent, respectively, as either standard or advanced compared to 73 percent in the "curriculum scaffolding" term.

Moreover, the instructor's analysis of students' sources showed particularly significant increases in students' selection of "advanced" sources in classes involving dedicated ILI. The instructor actually placed 29 percent more students' sources from the "embedded librarian" term in the advanced category than in the "curriculum scaffolding" term (37% vs. 8%), mean-

FIGURE 6
Instructor's Evaluation of Students' Sources

Taught as Usual
n=123 sources

Curriculum Scaffolding
n=266 sources

Embedded Librarian
n=124 sources

Synchronous ILI Session
n=99 sources

Digital Learning Objects Only
n=129 sources

Too Basic | Standard | Advanced
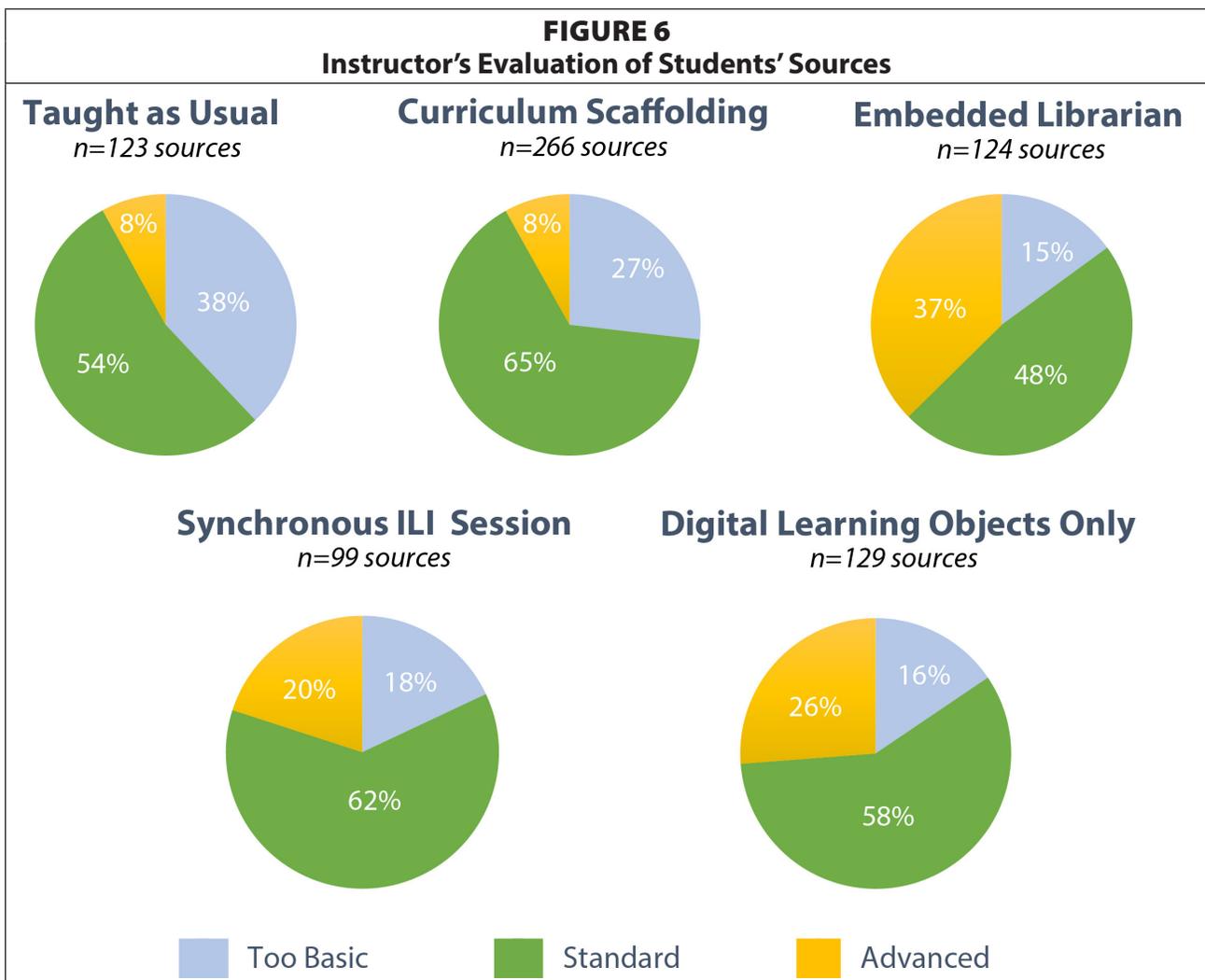
ing that among the sources that would satisfy the instructor's expectations, there was actually a substantial increase in the percentage of sources that would exceed her expectations.

The "digital learning objects" and "synchronous session" modes of ILI also led to students selecting more sources the instructor viewed as advanced than in terms without dedicated ILI. However, in both these terms, students selected fewer "advanced" sources than in the "embedded librarian" term. Of the sources students in the "digital learning objects" class selected, 26 percent fell into the "advanced" category, and in the "synchronous ILI session," 20 percent fell into the "advanced" category (see figure 6). Compared to 8 percent in the "curriculum scaffolding" term, 20 and 26 percent seem like a lot, but these numbers are markedly lower than the 37 percent of students' sources the instructor ranked as "advanced" in the "embedded librarian" term.

Students selecting "advanced" sources took on more intensive and specialized evaluation, or evaluation that involved an unexpected level of abstraction. This change in behavior suggests that students in terms with dedicated ILI had developed one or more of these attributes: 1) they were able to do this type of evaluation because they knew how and/or because they had more time to do it; and/or 2) they were aware of databases that provided such specialized sources; and/or 3) they were willing to include such sources because they better understood the important role sources play in supporting points made in their research projects.

Breadth of Databases Students Used

Students in the terms with dedicated ILI were the only ones to cite sources from the Web of Science and other specialized anthropology databases. If the librarian had provided dedicated ILI, as would happen in a face-to face course or one-on-one reference encounter, she would have pointed students in both ANTH 366 and ANTH 368 to specific databases: Web of Science (which was included in the federated search function of the library's discovery tool) and the specialized anthropology databases: Anthropology Plus, Anthropological Index, and AnthroSource (which were not included in the federated search function). She would also have pointed students to the archaeology subject guide (LibGuide) as another important place students should look for additional databases and resources.

The only terms in which students received such dedicated ILI were in the "embedded librarian," "digital learning objects," and "synchronous ILI session" terms, and these were the only terms in which students cited sources from Web of Science or from any of these specialized anthropology databases. Students citing Web of Science included 24 percent in the "embedded librarian" term, 8 percent in the "digital learning objects" term, and 5 percent in the "synchronous ILI" term, compared to 0 percent in the "taught as usual" and "curriculum scaffolding" terms (see figure 7). Likewise, in the more dedicated ILI terms, students cited spe-

FIGURE 7
Number of Students Citing Specialized Anthropology Databases

	Web of Science	Anthropology Plus*	AnthroSource*
Taught as Usual	0	0	0
Curriculum Scaffolding Only	0	0	0
Embedded Librarian	6 (24%)	5 (20%)	2 (8%)
Digital Learning Objects	2 (8%)	3 (12%)	1 (4%)
Synchronous ILI	1 (5%)	1 (5%)	1 (5%)
*Not included in Library discovery tool federated search.			

cialized anthropology databases not included in the library discovery tool's federated search: 28 percent in the "embedded librarian" term, 16 percent in the "digital learning objects" term, and 10 percent in the "synchronous ILI session" term. Use of these important databases was conspicuously absent in the terms with no dedicated ILI.

This finding suggests that the students using Web of Science and specialized anthropology databases as a result of dedicated ILI were more aware of the broader research landscape, more aware of what the research process entails, and willing to make additional effort to find sources. Precisely because Web of Science was included in the federated search tool, researchers expected at least some students in the nondedicated-ILI terms to have cited Web of Science sources, but none did. This finding suggests students in the "embedded librarian" term may have gone directly to Web of Science rather than encountering Web of Science sources via the federated search. More definitive, though, is that students' use of a specialized database not included in the federated search tool meant they sought out that resource intentionally. They accessed the database either through the subject guide or through the alphabetical list of databases. Implicit in this behavior is the awareness that the database or subject guide existed and that the student had a desire to use it.

Furthermore, every student who cited a specialized anthropology database also cited sources from the federated search, which means they searched for sources using at least two different resources. To put it in terms of metacognition, or, in ACRL Framework terms, "critical self-reflection,"[53] students seemed aware of the choices available to them and were actively making choices. This research behavior means not only that the students knew about the resources but that they were willing to make the effort to search more than one. Implicit in this effort is an understanding of the expectation that the research process includes searching multiple databases and/or a sense that searching multiple databases was important enough to warrant the extra effort. Students may have felt that better supporting their topics was important enough to warrant consulting multiple databases.

The idea that better supporting topics drove students' search behavior in the "embedded librarian," "digital learning objects," and "synchronous ILI session" terms is in keeping with findings that most students' bibliographies from these terms exceeded the required minimum number of sources and that the sources students chose often exceeded the instructor's expectations for topic and course level. These students appear to have been aware of the importance of the bibliography in supporting their topics, and they were aware enough of the tools available to them—and aware at the right point in the term—that by the time they started their final research project, they were able to create more robust bibliographies.

Discussion

Both curricular and format differences between the modes of ILI correlated with differences in students' participation, engagement with active learning, and ultimately their selection of sources. Compared to the "taught as usual" term, the "curriculum scaffolding" (Fall 2016) mode of ILI focused increased attention on sources by requiring students to find an additional source on their own for the Reading Review assignments, and it increased attention on the bibliography with the introduction of the preliminary bibliography assignment; correspondingly, students' bibliographies got longer that term and better met the instructor's expectations.

However, students in the "curriculum scaffolding" term cited far fewer advanced sources than students in later terms with more dedicated ILI. The "curriculum scaffolding" mode gave

students early and regular practice finding sources on their own, but, unlike the "embedded librarian," "digital learning objects," and "synchronous ILI" terms, it did not include an introduction to the broader landscape of available databases or to expectations surrounding the research process. Thus, students may not have known where to look beyond the library homepage, and they may not have known to experiment with search terms and databases. In other words, students in the "curriculum scaffolding" term may simply not have encountered sources that would fall in the advanced category and/or they may not have been as inclined to tackle difficult vernacular or more challenging concepts because they were not as motivated by an understanding of the significance of sources to supporting their topics.

In contrast, if students in the "embedded librarian" term (Winter 2017) acquired the skills the mode of ILI was intended to impart, they would have had fewer skills to assimilate at the point they began their final research projects and thus would have had more time for evaluating sources. Going into their final research projects, they would have better understood the significance of the bibliography and may have been more inclined to evaluate challenging sources and include them.

To these ends, the "embedded librarian" mode built on the "curriculum scaffolding" assignments and added two required interactions with the librarian, in which she provided dedicated ILI. The librarian specifically introduced each student to particular databases that would help them with that particular course and with their particular topics, pointed them to the archaeology subject guide, and laid out expectations about what the research process involves, such as experimenting with search terms and trying a range of databases. Adding nuance to Alverson's findings that, under a "high-touch" embedded librarian mode of ILI, students' work in an online college course produced bibliographies that better aligned with the instructor's expectations by having "enough sources," "enough scholarly material," and including sources that came from the library,[54] students in the "embedded librarian" term of the current study regularly exceeded the minimum number of sources, exceeded the instructor's expectations with respect to quality, and made use of multiple databases including the databases most suited to their topics.

Aiming for the results of the "embedded librarian" term, the "digital learning objects" and "synchronous ILI" modes used exactly the same scaffolded curriculum and assignment structure but took a lower-touch (to play on Alverson's term, "high-touch"[55]) approach to introducing students to the broader landscape of available databases and to expectations surrounding the research process. The lower-touch approach meant losing the one-on-one work the "embedded librarian" mode facilitated. Thus, also lost were instruction customized for each student's particular understanding of research, instruction customized for each student's specific topic, and the kinds of personal accountability that come with one-one-one communication. These missing aspects could explain why, compared to students in the "embedded librarian" term, students in the less interactive "digital learning objects" and "synchronous ILI" sections cited far fewer advanced sources and far fewer sources from the Web of Science or anthropology databases not included in the federated search function of the library's discovery tool.

Students' participation in ILI differed under the different instruction modes and could also help explain variations in students' search behavior and selection of sources from term to term. The differences in participation seem related to whether students were held accountable for their ILI work and related to the format of the ILI itself. Only one person made use of the

optional librarian's D2L discussion thread in the "curriculum scaffolding" term (Fall 2016). In contrast, ILI in the "embedded librarian" term was part of a graded assignment and was itself worth 25 percent of the total assignment grade. The instructor reported that making students accountable for working with a librarian (grading it) "changed everything." Every student ended up participating in the "embedded librarian" ILI (in other words, every student asked the librarian at least one question), and those participating in the study (83.3%) completed the assignments. This finding underscores Parramore's point that simply including ILI in an online environment does not ensure that it facilitates active learning.[56] Making students accountable for their work is an aspect of engaging them in ILI, and grading is one way to make students accountable for their work.

With respect to the more sustainable modes of ILI, over 15 percent more students participated in the "digital learning objects" mode of ILI than participated in the synchronous ILI sessions (75% vs. 60%). This difference may be related to the fact that students in the "digital learning objects" class received entirely asynchronous ILI in keeping with the format of the course, but students required to attend a synchronous ILI session in D2L may not have been prepared to attend a "live" session when they were expecting an asynchronous course. The "synchronous ILI" term involved three sessions held at three different times of day, and the instructor offered to help anyone who could not make one of those times; nevertheless, students may not have been in a position to have *any* live online interaction due to a number of circumstances, including, as Flaherty noted, lack of access to "a quiet space and computers with strong internet connections to thrive during live class meetings" or special learning needs that synchronous learning cannot always accommodate.[57] Participation is an obvious key to learning (that is, students have to attend class and engage in order to learn). Thus, student participation is also key to effective instruction.

Effective instruction also facilitates active learning, and the "digital learning objects" mode of ILI facilitated more active learning than did the synchronous ILI session. Students in the "digital learning objects" class received 10 points only if they completed the exercise, and the librarian designed the exercise to require students to answer a question before it allowed them to move on to the next one. Furthermore, students knew that the instructor would be reviewing the exercise and assigning a grade. Thus, this assignment structure encouraged students to engage with the ILI videos and practice questions, and students were graded on having engaged; therefore, this mode of ILI encouraged active learning in a way that the live, online ILI session may not have. Students who were required to attend a live ILI session received 10 points just for attending, and they did not have to participate beyond logging in to get the points. Students may or may not have paid attention during the librarian's session, and social conventions, such as eye contact, which might obligate students to pay attention, were absent in these audio-only online contexts. This finding also supports Parramore's assertion that simply providing ILI online is not enough.[58] The ILI needs to facilitate—potentially by mandating it—students' engagement.

The differences in curriculum, participation, and active learning could explain differences in students' search behavior and source selection under the different modes of ILI the researchers employed. Curriculum scaffolding, alone, did some important ILI work, but more dedicated ILI resulted in students searching iteratively, leveraging a broader range of databases, using more appropriate, subject-specific databases, and selecting sources that better met the instructor's expectations. While the unsustainable "embedded librarian" mode

yielded the most promising results, results from the lower-touch "digital learning objects" and "synchronous ILI" modes were more comparable to the "embedded librarian" term than to terms without dedicated ILI. Ultimately, this study unearthed nuanced changes in student work in response to different modes of ILI. These nuanced results could inform the modes of ILI librarians and instructors choose to incorporate in asynchronous online courses and could serve as the focus of future research.

Conclusion and Future Research

This study offers nuanced insight into how students' coursework changed in response to different modes of ILI in asynchronous online courses. One limitation of this case study is that it addresses only the specific ways in which the researchers deployed these modes of ILI; curriculum scaffolding, embedded librarianship, digital learning objects, and even synchronous instruction can take many forms in addition to the ones the researchers employed here. Furthermore, the study was a case study using ethnographic analysis that leveraged these approaches to facilitate exploration, but these approaches do not facilitate making broadly definitive claims. Nevertheless, the findings point to modes of ILI that librarians and instructors can target as ideal, such as combining curriculum scaffolding with a dedicated mode of ILI, and modes they can employ when more limited ILI is the only possibility. (It is useful to note that anything developed for an asynchronous course context can also be used in a synchronous or face-to-face course but not the other way around.)

Future research could explore other renditions of curriculum scaffolding by building ILI into existing assignments such that, in addition to giving students practice finding sources early in the term, they are also guided to the broad landscape of databases as well as to expectations that the research process involves iterative searching using multiple resources and search terms. Future research could also build on this more exploratory study to look at the effects on students' coursework of more granular variables such as students' ages, the course discipline, or students' prior experience with ILI. In general, the aim of this exploratory study was to provide cues for future research about ways the modes of ILI described here facilitated active learning and correlations between the different modes of ILI and students' awareness of the broader research landscape, students' source-selection behavior, and alignment of students' source-selection with instructors' expectations. Future research can use these cues as a basis for developing new modes of ILI to explore or to home in on specifics to make more generalizable claims.

Such research can strategically inform the development of ILI pedagogy and curricula for asynchronous online courses. Findings from this and future studies can also inform the collaboration between librarians and teaching faculty. Understanding which modes of ILI work best in asynchronous course contexts allows librarians to know which ILI options to offer and what kinds of course access they might need to achieve different effects on students' work. Thus, the findings from this and future studies can benefit librarians, instructors, and students in their important work together.

Acknowledgments

APPENDIX A. Anthropology 366 & 368 Assignments
Anthro 366

Assignment 1
Flannery et al. 1967 reading review
25 points
Due Monday, April 18 before 11:55p

This reading is a discussion of the role played by the environment in the emergence of early agricultural economies in Mesoamerica.

Flannery, K., A. Kirkby, M. Kirkby and A. Williams
1967   "Farming systems and political growth in Ancient Oaxaca," *Science*, vol. 158, pp. 445–454.

Your essay for this week is a summary of the issues presented in this reading. Use these general questions to guide you in reading the article.

Part 1: Introduction to the research
Summarize the three hypotheses proposed by the authors to explain why complex societies arose in Mesoamerica (hint: for a general discussion of social complexity, see Toby Evans, pp. 19-28). How do the authors use the concept of "nuclear areas" in examining social complexity in Mesoamerica? What are the five nuclear areas identified by the authors as maintaining their political position from Archaic times (beginning 8000 BC) to Spanish conquest?

Part 2: The Valley of Oaxaca
Figure 4 (p. 448) illustrates a cross-section of the Valley of Oaxaca. Which environments do the authors consider advantageous for agriculture? Why do these areas offer advantages? How did the earliest occupants of the valley make a living (e.g. were they farmers, or did they forage?).

How does the Early Village Farming Period differ from the earlier Archaic period? What activities are initiated during this period that lead to the formation of "nuclear areas?"

Part 3: Conclusions
What do the authors conclude? What evidence do they describe that supports their conclusions? Your essay should be between 2-4 pages double-spaced. Essays should be submitted in *word* (.doc) or *rich text format* (.rtf). **Do not** submit PDFs. One easy way to create a word document is to use Google Docs on the Google Drive. To watch a brief video about how to use Google Docs, follow this link: https://youtu.be/LtngjgwNL2k

Citation guidelines
Follow these citation guidelines when citing information from the readings. Remember to include page numbers when quoting directly, or when closely summarizing the information in the article. Please include the complete text reference at the end of the paper.

Flannery, K., A. Kirkby, M. Kirkby and A. Williams
1967 "Farming systems and political growth in Ancient Oaxaca," *Science*, vol. 158, pp. 445–454.

When citing specific material or quoting from a reading, include the page number (Author date:pp), or (Flannery et al. 1967:445).

Grading rubric

25–22 points

Content: Student is able to clearly and comprehensively summarize what the authors are attempting to demonstrate within the context of the provided background material.

Organization: Student organizes the essay in a clear and logical manner using paragraphs that follow a logical progression. Essay starts with an introductory overview paragraph followed by logically sequenced paragraphs that flesh out the ideas in the introductory paragraph. Essay ends with a concluding paragraph summarizing the information presented and how it bears on larger issues.

Spelling and grammar: Spelling and grammatical errors are minimal to non-existent. Sentences are clear and neither overly long or incomplete. Student follows proper citation guidelines.

21–18 points

Content: Student understands what the authors are attempting to demonstrate, but leaves some terms undefined and some background information is omitted.

Organization: Essay construction may not follow a logical progression. Paragraphs may not be comprised of a single idea that fleshes out the information in the introductory paragraph. Essay may not end with a summary concluding paragraph.

Spelling and grammar: Some spelling and grammatical errors are present. Some sentences are difficult to follow, are incomplete or overly long. Student attempts to follow proper citation guidelines.

17–14 points

Content: Student may not understand what the authors are attempting to demonstrate, leaves terms undefined and omits important background information.

Organization: Paragraph structure is not used, essay construction does not follow a logical progression. Essay does not end with a summary concluding paragraph.

Spelling and grammar: Abundant spelling and grammatical errors are present. Sentences are difficult to follow. Student does not follow proper citation guidelines.

Less than 14 points …
As with the 17–14 point range, only more so…

Anthro 366

Assignment 2

25 points

Due Monday, May 9 before 11:55p

Reading

Heyden, Doris

1975   "An Interpretation of the Cave underneath the Pyramid of the Sun in Teotihuacan, Mexico," *American Antiquity*, vol. 40, pp. 131–147.

Note: This reading is linked to the "Week 6" content module. Citation guidelines and a grading rubric are provided on pp. 2–3 of this assignment sheet.

This assignment relates to…

Learning outcome #1: Heyden presents several hypotheses about the cave under the Pyramid of the Sun. You have an opportunity to evaluate her hypotheses against the evidence presented in the article.

Learning outcome #2: In evaluating Heyden's hypotheses, you will see how archaeological conclusions are successfully or unsuccessfully linked to supporting evidence.

Your **essay** for this week is a summary of the issues presented in this paper. As before, to guide you in your summary, I have provided you a basic structure for summarizing the information from the reading. Use these general questions to guide you in reading the article. Your answers to these questions should be linked together to form an essay. Further information about organization and grading can be found in the "Grading Rubric" on the second page.

Your essay should be 3-4 pages long, double-spaced in Word or Rich Text Format (no PDFs or Pages files). When you refer to material in the reading, cite the page number where the material was taken (for example Heyden 1975:143) in the text. Include the complete bibliographic reference at the end of your paper.

Part 1: Introduction to the research

> Summarize what Heyden is attempting to demonstrate by studying the cave under the Pyramid of the sun. What evidence does she present to suggest that the cave was a cult center before the construction of the Pyramid of the Sun?

Part 2: Significance of caves in Mesoamerica

> Summarize the author's overview of the significance of caves in Mesoamerica (pp. 134–138). What is the nature of the evidence she presents? Is it empirical (material)? Or is it anecdotal (based on retelling of stories)? Or both?

> What aspects of the cave at Teotihuacan can be related to the general significance of caves in Mesoamerica (pp. 139–143).

Part 3: Conclusions and evaluation

> What does Heyden conclude with regard to the cave under the Pyramid of the Sun being a cult center? Of the nine possibilities she presents, can any be empirically verified?

> Your opinion: Has the information Heyden presented persuaded you that the cave under the Pyramid of the Sun was an ancient cult center? Why or why not?

Citation guidelines

Follow these guidelines when citing information from the readings. When you refer material in the reading in the body of your essay, cite the (**Author date:page number)** from where the material was taken (for example Heyden 1975:133) in the text. Include the complete bibliographic reference at the end of your paper.

Heyden, Doris

1975 "An Interpretation of the Cave underneath the Pyramid of the Sun in Teotihuacan, Mexico," *American Antiquity*, vol. 40, pp. 131-147.

Grading rubric

25–22 points

Content: Student is able to clearly and comprehensively summarize what the authors are attempting to demonstrate within the context of the provided background material.

Organization: Student organizes the essay in a clear and logical manner using paragraphs that follow a logical progression. Essay starts with an introductory overview paragraph followed by logically sequenced paragraphs that flesh out the ideas in the introductory paragraph. Essay ends with a concluding paragraph summarizing the information presented and how it bears on larger issues.

Spelling and grammar: Spelling and grammatical errors are minimal to nonexistent. Sentences are clear and neither overly long or incomplete. Student follows proper citation guidelines.

21–18 points

Content: Student understands what the authors are attempting to demonstrate, but leaves some terms undefined and some background information is omitted.

Organization: Essay construction may not follow a logical progression. Paragraphs may not be comprised of a single idea that fleshes out the information in the introductory paragraph. Essay may not end with a summary concluding paragraph.

Spelling and grammar: Some spelling and grammatical errors are present. Some sentences are difficult to follow, are incomplete or overly long. Student attempts to follow proper citation guidelines.

17–14 points

Content: Student may not understand what the authors are attempting to demonstrate, leaves terms undefined and omits important background information.

Organization: Paragraph structure is not used, essay construction does not follow a logical progression. Essay does not end with a summary concluding paragraph.

Spelling and grammar: Abundant spelling and grammatical errors are present. Sentences are difficult to follow. Student does not follow proper citation guidelines.

Less than 14 points …

As with the 17–14 point range, only more so…

Anthro 368

Assignment 1

Matisoo-Smith 2015 reading essay
25 points
Due Monday, April 11 before 11:55p

For this week, we are considering the initial peopling of Near Oceania and Australia. Austronesians are genetically distinct from other Asian populations, and the readings assigned here explain why that may be so.

Readings
Matisoo-Smith, E.
2015   "Ancient DNA and the Human Settlement of the Pacific: A Review," *Journal of Human Evolution,* vol. 79, pp. 93–104.

Wenz, J.
2014   "The Other Neanderthal," *The Atlantic,* http://www.theatlantic.com/technology/archive/2014/08/the-other-neanderthal/375916/. Retrieved April 3, 2016.

You have been provided links to these readings in the "Assignment 1" readings module in Week 2 in D2L. Citation guidelines and grading rubric are provided on pp. 2–3 of this assignment sheet.

Note: The Matisoo-Smith 2015 reading covers the entire span of the Pacific and the population of the expanse of the Pacific islands; for this assignment, you only need to focus on the parts of the reading relating to Austronesians: pp. 93–96, and pp. 100-101 (we will revisit this reading over the course of the quarter).

This assignment relates to…

Learning outcome #2: Ancient DNA in combination with archaeological evidence illustrate interactions between early modern human populations as our earliest ancestors migrated out of Africa.

Essay
I have provided a list of questions for you to answer from the readings. A good essay will combine your answers to these questions into logically linked paragraphs.
1.   Who were the Denisovans (see Wenz 2014)? What evidence exists of them?
2.   What is the "Sahul"? What did the ancient Austronesians have to overcome to colonize this landmass and when did they do so (see Matisoo-Smith 2015)?
3.   How do Austronesians compare with mainland Asians in terms of Denisovan DNA contribution (see Wenz 2014)?
4.   Generally, what conclusions can be drawn about the timing of the earliest migrations into the Sahul from the genetics of Austronesians (see Matisoo-Smith 2015)?

Your essay should be between 2–4 double-spaced pages. Please submit your answers to the assignment dropbox in either ***Word*** or ***Rich Text Format*** Do not submit PDFs or "pages" files. I cannot comment on PDFs and I cannot open "pages" files. Please contact me if Word or Rich Text are problematic for you.

Citation guidelines

Follow the Anthropology dept. guidelines (linked to the syllabus) when citing information from the readings. Remember to include page numbers when quoting directly, or when closely summarizing the information in the article. Please include the complete text reference at the end of the paper.

Matisoo-Smith, E.
2015 "Ancient DNA and the Human Settlement of the Pacific: A Review," *Journal of Human Evolution,* vol. 79, pp. 93–104.

Wenz, J.
2014 "The Other Neanderthal," *The Atlantic,* http://www.theatlantic.com/technology/archive/2014/08/the-other-neanderthal/375916/. Retrieved April 3, 2016.

When citing specific material or quoting from a reading, include the page number (Author date:pp), or (Matisoo-Smith 2015:93). In the case of the website, the author and date is adequate (Wenze 2014).

Grading rubric

25–22 points
Content: Student is able to clearly and comprehensively summarize what the authors are attempting to demonstrate within the context of the provided background material.

Organization: Student organizes the essay in a clear and logical manner using paragraphs that follow a logical progression. Essay starts with an introductory overview paragraph followed by logically sequenced paragraphs that flesh out the ideas in the introductory paragraph. Essay ends with a concluding paragraph summarizing the information presented and how it bears on larger issues.

Spelling and grammar: Spelling and grammatical errors are minimal to non-existent. Sentences are clear and neither overly long nor incomplete. Student follows proper citation guidelines.

21–18 points
Content: Student understands what the authors are attempting to demonstrate, but leaves some terms undefined and some background information is omitted.

Organization: Essay construction may not follow a logical progression. Paragraphs may not be comprised of a single idea that fleshes out the information in the introductory paragraph. Essay may not end with a summary concluding paragraph.

Spelling and grammar: Some spelling and grammatical errors are present. Some sentences are difficult to follow, are incomplete or overly long. Student attempts to follow proper citation guidelines.

17–14 points
Content: Student may not understand what the authors are attempting to demonstrate, leaves terms undefined and omits important background information.

Organization: Paragraph structure is not used, essay construction does not follow a logical progression. Essay does not end with a summary concluding paragraph.

Spelling and grammar: Abundant spelling and grammatical errors are present. Sentences are difficult to follow. Student does not follow proper citation guidelines.

Less than 14 points
As with the 17–14 point range, only more so…

Anthro 368

Assignment 2
Green and Weisler 2004
Lipo et al. 2013
Due Monday, May 23 before 11:55p

Environmental degradation has been tied to human activity and over-consumption in the islands of the far eastern Pacific (such as Jared Diamond's *Collapse,* 2005).

Jared Diamond on Easter Island: "(Easter Island is) the clearest example of a society that destroyed itself by over-exploiting its own resources," (through) "…a focus on statue construction and competition between clans and chiefs driving the erection of bigger statues requiring more wood, rope and food," (Diamond 2005:118–119).

Jared Diamond on Mangareva (and other Polynesian islands): "All over Polynesia, human settlement on islands that had developed for millions of years in the absence of humans led to habitat damage and mass extinctions of plants and animals" (Diamond 2005:132).

Diamond, J.
2005   *Collapse: How societies choose to fail or succeed,* New York: Viking Press.

Learning outcome #1 and 2: Diamond's statements can be viewed as an hypothesis (a standard tool in scientific inquiry), that human overconsumption led to the degradation of ancient societies in the eastern Pacific. The readings for this assignment review archaeological evidence that bears on this hypothesis.

Readings
Green, R. and M. Weisler
2004   "Prehistoric introduction and extinction of animals in Mangareva, Southeast Polynesia," *Archaeology of Oceania,* vol. 39, pp. 34–41.

Lipo, C., T. Hunt and S. Haoa
2013   "The 'walking' megalithic statues of Easter Island," *Journal of Archaeological Science,* vol. 40, pp. 2859–2866.

Note: These readings are in the "Week 8" content module. For further information about statues on Rapa Nui, watch **"The Lost Secret of Easter Island,"** a full-length documentary about statue building (also linked to "Week 8").

Your essay should be between 2–4 double-spaced pages. Please submit your answers to the assignment dropbox in either ***Word*** or ***Rich Text Format*** Do not submit PDFs or "pages" files. I cannot comment on PDFs and I cannot open "pages" files. Please contact me if Word or Rich Text are problematic for you, files in these formats can be created using "Google Docs." Essay and citation guidelines, and a grading rubric are provided on pp. 2–3 of this assignment sheet.

This week's essay has three parts.

Part I: Introduction
What do Lipo et al. 2012 set out to demonstrate? Why does this have implications for deforestation of Easter Island? What do Green and Weisler set out to demonstrate? Why does this have implications for human predation as the cause of environmental collapse?

Part II: Data
Summarize the data used in both papers to test their hypotheses.

Part III: Conclusions
What do the authors of both papers conclude with regard to explaining depopulation in these remote islands?

Citation guidelines
Follow these guidelines when citing information from the readings. Remember to include page numbers when quoting directly, **or** when closely summarizing the information in the article. Please include the complete text reference at the end of the paper.

Green, R. and M. Weisler
2004   "Prehistoric introduction and extinction of animals in Mangareva, Southeast Polynesia," *Archaeology of Oceania,* vol. 39, pp. 34–41.

When citing specific material or quoting from a reading, include the page number (Author date:pp), or (Green and Weisler 2004:38).

Grading rubric
25–22 points
Content: Student is able to clearly and comprehensively summarize what the authors are attempting to demonstrate within the context of the provided background material.

Organization: Student organizes the essay in a clear and logical manner using paragraphs that follow a logical progression. Essay starts with an introductory overview paragraph followed by logically sequenced paragraphs that flesh out the ideas in the introductory paragraph. Essay ends with a concluding paragraph summarizing the information presented and how it bears on larger issues.

Spelling and grammar: Spelling and grammatical errors are minimal to nonexistent. Sentences are clear and neither overly long nor incomplete. Student follows proper citation guidelines.

21–18 points
Content: Student understands what the authors are attempting to demonstrate, but leaves some terms undefined and some background information is omitted.

Organization: Essay construction may not follow a logical progression. Paragraphs may not be composed of a single idea that fleshes out the information in the introductory paragraph. Essay may not end with a summary concluding paragraph.

Spelling and grammar: Some spelling and grammatical errors are present. Some sentences are difficult to follow, are incomplete or overly long. Student attempts to follow proper citation guidelines.

17-14 points
Content: Student may not understand what the authors are attempting to demonstrate, leaves terms undefined and omits important background information.

Organization: Paragraph structure is not used, essay construction does not follow a logical progression. Essay does not end with a summary concluding paragraph.

Spelling and grammar: Abundant spelling and grammatical errors are present. Sentences are difficult to follow. Student does not follow proper citation guidelines.

Less than 14 points
As with the 17–14 point range, only more so…

Anthro 366

Final Project Guidelines
65 points

Research project goals
For this project, you will need to find an archaeological journal article that describes / discusses a particular site, finding, or concept relevant to Mesoamerican archaeology.

Your job is to describe how the authors have come to their conclusions and whether the techniques they applied have provided empirical (real-world support) for their discovery.

You should use the library's online search features to find an article from an online journal that meets the following criteria:

1. The article should be about a specific archaeological study in Mesoamerica from any time period. The articles assigned for the class reading reviews are good examples (but these should not be used for your final project).

2. The article should be from an online journal from library holdings. Use the library DIY guides to help you locate an appropriate article from the library's online journal collection.

Content: Your project is a kind of extended reading review, similar to the two reading assignments. Your project should have the following components…

1. Background: Summarize the author(s)'s goals (review the article abstract). Provide a map showing the area of interest, if relevant.
2. Evidence: What kinds of archaeological materials, contexts, or other phenomena are of interest?
3. Methods of analysis: Provide some general information about the methods used, such as radiocarbon dating, stratigraphy, artifact analysis, or linguistic translation.

Do some **background research** on the methods—for example, a brief overview of radiocarbon dating (if relevant), or a brief discussion of excavation techniques—beyond what is discussed in the article.

4. Conclusions: Comment on the relationship between the conclusions and the methods and data used to reach them.

Format: You have a **choice** of format. You can **either** a) construct as a 20–25-slide PowerPoint presentation (or some equivalent) that is due **Tuesday, May 31** or b) submit as a 6–8 page research paper that is due **Monday, June 6.**

If you choose to use PowerPoint to construct your presentation, your presentation will be posted online for student questions and comments. You may use a combination of slides with illustrations and text, or narration, if you choose. PowerPoint presentations will be eligible for **extra credit** because of the earlier due date.

You should use the citation format specified in the tips for writing in Anthropology for any material you reference in your presentation.

Grading: Your grade will be based on…

Content: **40 points.** This grade will be based on the quality of the information you present, background discussion, methods summary, and how well you relate your conclusions to the information you present.

Style: **15 points.** This grade will be based on the quality of visual presentation (presentation option) or quality of written work (paper option). For example, were your pictures clear? Were there a lot of misspellings and ungrammatical sentences? How was the presentation/ paper organized; did one slide/ paragraph follow logically from the next? Is there an introduction and conclusion?

References: **10 points.** This grade is based on the quality of your bibliography. Did you use library resources (including electronic journals you accessed online)? Did you find additional background information about the methods used in the article you selected?

Anthro 368

Final Project Guidelines
65 points

Research project goals
For this project, you will need to find an archaeological journal article that describes / discusses a particular site, finding, or concept relevant to archaeology in Oceania.

Your job is to describe how the authors have come to their conclusions and whether the techniques they applied have provided empirical (real-world support) for their discovery.

You should use the library's online search features to find an article from an online journal that meets the following criteria:

1.   The article should be about a specific archaeological study in Oceania from any time period. The articles assigned for the class reading reviews are good examples (but these should not be used for your final project).

2.   The article should be from an online journal from library holdings. Use the library DIY guides to help you locate an appropriate article from the library's online journal collection.

Content: Your project is a kind of extended reading review, similar to the two reading assignments. Your project should have the following components…

1.   Background: Summarize the author(s)'s goals (review the article abstract). Provide a map showing the area of interest, if relevant.

2.   Evidence: What kinds of archaeological materials, contexts, or other phenomena are of interest?

3.   Methods of analysis: Provide some general information about the methods used, such as radiocarbon dating, stratigraphy, artifact analysis, or linguistic translation.

Do some **background research** on the methods—for example, a brief overview of radiocarbon dating (if relevant), or a brief discussion of excavation techniques—beyond what is discussed in the article.

4.   Conclusions: Comment on the relationship between the conclusions and the methods and data used to reach them.

Format: You have a **choice** of format. You can **either** a) construct as a 20–25-slide PowerPoint presentation (or some equivalent) that is due **Tuesday, May 31** or b) submit as a 6–8 page research paper that is due **Monday, June 6.**

If you choose to use PowerPoint to construct your presentation, your presentation will be posted online for student questions and comments. You may use a combination of slides with illustrations and text, or narration, if you choose. PowerPoint presentations will be eligible for **extra credit** because of the earlier due date.

You should use the citation format specified in the tips for writing in Anthropology for any material you reference in your presentation.

Grading: Your grade will be based on…

Content: **40 points.** This grade will be based on the quality of the information you present, background discussion, methods summary, and how well you relate your conclusions to the information you present.

Style: **15 points.** This grade will be based on the quality of visual presentation (presentation option) or quality of written work (paper option). For example, were your pictures clear? Were there a lot of misspellings and ungrammatical sentences? How was the presentation/ paper organized; did one slide/ paragraph follow logically from the next? Is there an introduction and conclusion?

References: **10 points.** This grade is based on the quality of your bibliography. Did you use library resources (including electronic journals you accessed online)? Did you find additional background information about the methods used in the article you selected?

APPENDIX B.
Anthropology 366 & 368 Preliminary Bibliography Assignment

Project Bibliographies
Due November 14, 2016, 11:55 PM

Please review the Final project guidelines. For this week, you are required to submit a preliminary project bibliography, due **Monday, November 14** before 11:55p.

Your preliminary project bibliography should consist of a list of **three** references. One of these should be the article you plan to use for your final project. The other two should be supplemental references to which you will refer to support and elaborate on the information in your main article.

Please upload your reference list, formatted in using the style specified in the "Guide to Writing Anthropology."

A sample presentation is posted in the "Syllabus and Schedule" module.

APPENDIX C: Anthropology 368 ILI Tutorial

Qualtrics Survey Software

Block 4

Name

[   ]

Default Question Block

To answer the next questions, please watch the video.

Library Website Tour

▶

List three ways you can contact a librarian from off-campus.

1. [   ]

2. [   ]

3. [   ]

Block 2

To answer the next questions, please watch the video.

Qualtrics Survey Software

Brainstorming Keywords

Think about the words you will use to search for articles and books on your topic. Then, think about some possible synonyms or related terms, e.g., for "agriculture," you could try agricultural, farm, farms, farmed, or farming. For "pottery," you could try: ceramic, sherd, or vessel.

For historic locations, such as "ancient Mexico," you could try: Yucatan or Mesoamerica.

List two possible synonyms or related terms you could use instead of "Egypt:"

1. _____
2. _____

List two possible synonyms or related terms you could use instead of "pyramid:"

1. _____
2. _____

List two possible synonyms or related terms you could use instead of "stone:"

1. _____
2. _____

Qualtrics Survey Software

Block 3

To answer the next questions, please watch the video, then also look at the library website.

Using a Library Database to Find Articles

▶ 🔊 0:00 / 7:23   CC 1x AD ⤢

Go to the library website. Find an article for which the full text is available. Then fill out the information below.

Article title	
Journal title	
Article date	
Author	
Database used to find article	

For your course, the librarian recommends starting with the databases: Web of Science and Anthropology Plus. Look at the Library archaeology subject guide, and list three other databases that cover archaeology articles:

1.

2.

3.

Which service could you use to get an article the library does not have?

○ Grab 'N Go (GNG)

○ Interlibrary Loan (ILL)

○ Mobile Information, Etc. (MBE)

Block 3

To answer the next questions, please watch the video, then also look at the library website.

How to Get a Book

▶ 🔊   0:00 / 4:31   CC   1x   AD   ⤢ next

Using the library website, find an ebook the library has. Then fill out the information below

Book title	
Author	
Publisher	

Using the library website, find a print book the library has. Then fill out the information below

Book title	
Author	
Publisher	

How far from campus do online-only students have to live to qualify for home delivery of books?

○ at least 10 miles

○ at least 20 miles

○ at least 30 miles

○ at least 40 miles

Notes

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40. Clarke and Oppenheim, "Citation Behaviour of Information Science Students II: Postgraduate Students"; Mill, "Undergraduate Information Resource Choices."

41. Long and Shirkhande, "Using Citation Analysis to Evaluate and Improve Information Literacy Instruction."

42. Reinsfelder, "Citation Analysis as a Tool to Measure the Impact of Individual Research Consultations"; Long and Shirkhande, "Using Citation Analysis to Evaluate and Improve Information Literacy Instruction."

43. Clarke and Oppenheim, "Citation Behaviour of Information Science Students II: Postgraduate Students"; Mill, "Undergraduate Information Resource Choices"; Reinsfelder, "Citation Analysis as a Tool to Measure the Impact of Individual Research Consultations."

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57. Flaherty, "Synchronous Instruction Is Hot Right Now, but Is It Sustainable?"

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Faculty Perspectives on Mis- and Disinformation across Disciplines

Laura Saunders

Librarians, who have long promoted the criticality of information literacy, were quick to identify a role for themselves in confronting the challenges of mis/disinformation through library instruction. Nevertheless, little research has been done to examine discipline faculty's perspectives on mis/disinformation or the extent to which they are addressing the issue in their classrooms. This paper begins to address this gap in the literature through a nationwide study and follow-up interviews of faculty across disciplines to probe their perspectives on the challenges of mis/disinformation. Participants were asked about their views on mis/disinformation, whether and how they address mis/disinformation in their courses, and their perceptions of their students' ability to identify and evaluate mis/disinformation. The findings of this study have implications for academic librarians, especially liaison librarians with instructional responsibilities, and may be of interest to academic library directors and deans who oversee library instruction programs.

Faculty Perspectives on Mis- and Disinformation across Disciplines

Mis- and disinformation are not new issues, but sociopolitical events over the past several years have highlighted the challenges and threats they pose. Disinformation campaigns impacted the last two American presidential elections and the Brexit vote, as well as many other elections around the world. In the wake of the COVID-19 pandemic, mis/disinformation have influenced the public's compliance with health protocols such as mask-wearing, as well as their willingness to take a vaccine, leading the United Nations Secretary General to warn that "misinformation kills."[1] In 2013, the World Economic Forum identified mis/disinformation as one of the top three global threats,[2] following that in 2019 by noting that "among the most widespread and disruptive impacts of AI in recent years has been its role in the rise of "media echo chambers and fake news."[3]

Librarians, who have long promoted the criticality of information literacy, were quick to identify a role for themselves in confronting the challenges of mis/disinformation through library instruction. Library guides, blog posts, conference presentations, and publications related to mis/disinformation proliferated. Nevertheless, little research has been done to examine discipline faculty's perspectives on mis/disinformation, or the extent to which they are addressing the issue in their classrooms. Anecdotally at least, some academic librarians who

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typically depend upon faculty invitations to provide information literacy instruction have seen their efforts to address mis/disinformation on a wider scale somewhat stymied, as they have historically with broader information literacy initiatives. One possible reason for the perceived lack of interest in or attention to mis/disinformation among faculty may be a lack of consensus as to what mis/disinformation is and how it relates to and impacts their field or discipline,[4] as is also the case with information literacy in general.[5] As a result, some faculty may view these issues as generally important but only tangentially related to their discipline or specific teaching areas.

This paper begins to address this gap in the literature through a nationwide study and follow-up interviews of faculty across disciplines to probe their perspectives on the challenges of mis/disinformation. Participants were asked about their views on mis/disinformation, whether and how they address mis/disinformation in their courses, and their perceptions of their students' ability to identify and evaluate mis/disinformation. The findings of this study have implications for academic librarians, especially liaison librarians with instructional responsibilities, and may be of interest to academic library directors and deans who oversee library instruction programs.

Literature Review

Although the terms mis- and disinformation are sometimes used interchangeably, along with the related term "fake news," they are not exactly synonymous. First Draft News, a leading research outlet, defines misinformation as "information that is false, but not created with the intention of causing harm," while disinformation is "false and deliberately created to harm a person, social group, organization or country."[6] Fake news could be understood as a type of disinformation, or "false, often sensational, information disseminated under the guise of news reporting."[7] However, some feel that overuse and politicization have "rendered the term meaningless. All sorts of things—misinformation, spin, conspiracy theories, mistakes, and reporting that people just don't like—have been rolled into it."[8] This study relied on the definitions outlined by First Draft News.

The literature on mis- and disinformation, even just within the field of library and information science, is vast, and it is beyond the scope of this paper to provide a comprehensive review. Rather, the review provides a high-level overview and focuses on issues relevant to instruction related to the evaluation of mis- and disinformation, especially in an academic library setting.

Overview

The challenges posed by mis/disinformation are real and pervasive. Inaccurate information, whether shared with the intention to deceive or not, can influence people's opinions and decisions in ways that impact their well-being and that of others, and the effect can be long-term. In fact, when initially exposed to mis/disinformation, people often continue to believe the inaccurate information even when presented with new facts or retractions, a phenomenon known as the continued influence effect.[9] When people are repeatedly exposed to the same inaccurate information, the likelihood of their perceiving the information as accurate increases, even if the information is labeled as inaccurate from the beginning.[10] The persistence of mis/disinformation is compounded by cognitive biases, which lead people to seek out and encourage them to believe information that reinforces their existing worldview.[11] Importantly, mis/disinformation has serious and inequitable social impacts. The false information campaigns often target vulnerable

individuals and communities and have been used to spread fear and hate, occasionally leading to violence that disproportionately impacts marginalized communities and individuals.[12]

These challenges are exacerbated by the fact that people generally have trouble evaluating information and distinguishing between accurate and inaccurate information. According to a Pew Research poll, 64 percent of Americans believe that fake news is causing confusion about basic facts.[13] Further, the study notes that, while Americans are fairly confident in their ability to detect misinformation, nearly one quarter admit that they have intentionally or unintentionally shared fake news stories. In a study of more than 7,000 students, researchers at Stanford reported that "in every case, at every level, we were taken aback by students' lack of preparation" and concluded that "young people's ability to reason about information on the Internet can be summed up in one word: bleak."[14] Their findings align with previous research showing that people tend to rely on superficial criteria when evaluating websites, including the site design, usability, and the page's position in the list of search results. People rarely check the "about us" pages or the credentials of the author or check to see if the site includes contact information.[15] A later study showed that both college students and historians were more likely than professional fact-checkers to be deceived by misinformation, in part because they tended to rely on clues within the text, rather than exploring outside texts to verify the information presented.[16]

Information Literacy Instruction

Information literacy and related areas such as news and media literacy, with their focus on evaluation of information, seem a natural fit for challenging mis/disinformation, and academic librarians were quick to stake a role for themselves.[17] Indeed, a web search shows hundreds of research guides, tutorials, infographics, and other resources created by academic librarians to guide students in identifying mis/disinformation. Questions have been raised regarding the extent to which information literacy instruction can insulate people against the impacts of mis/disinformation,[18] especially when the focus of such instruction is on checklist-style and task-oriented criteria.[19] Importantly, however, psychologists suggest that better critical thinking and reasoning skills can lead to better evaluation of mis/disinformation,[20] and some research has shown at least modest gains in evaluation of information with instructional intervention.[21]

As librarians and educators begin to shift their instructional focus from process-oriented tasks to critical thinking,[22] it is worth considering the debate as to whether competencies such as critical thinking and information literacy encompass a generic set of skills and dispositions that are applied across contexts, or whether they should be understood within the disciplines in which they are being implemented. While these debates are ongoing, some educators assert that either or both concepts should be understood within a discipline context. For instance, Moore argues that there are differences in how critical thinking is understood in disciplines like philosophy, history, and literature that are lost in a generic approach.[23] Similarly, based on an extensive literature review, Weiner agrees that critical thinking is discipline-dependent, although he suggests that information literacy is generic.[24] Other articles and studies, however, have suggested that information literacy, too, might be understood and applied differently across disciplines,[25] leading to suggestions and models for tailoring library instruction to various disciplines.[26]

Mis/disinformation, perhaps due to the explosive popularity of and scrutiny into "fake news" over the past several years, is often discussed more in terms of news media and social media. As such, examples of mis/disinformation are often relatively popular sociopolitical

issues such as national elections and the COVID-19 pandemic. However, it is important to recognize that issues of mis/disinformation impact every field and subject area. Certainly, health and science are widely recognized as fields impacted by mis/disinformation, with climate change and COVID-19 being clear examples. The spread of mis/disinformation has also impacted people's understandings of the risks and treatments of various types of cancer,[27] tobacco and vaping safety,[28] vaccines,[29] and even the rollout of the 5G network.[30] Mis/disinformation campaigns have also impacted the business and financial worlds. The Warsaw Institute identifies a number of potential economic motivations for spreading disinformation,[31] while *The Washington Post* reported on disinformation campaigns against corporations like Starbucks, Coca-Cola, and Costco.[32] Hampton[33] and Ostherr[34] argue for the role of the humanities in teaching the kind of close reading and critical text analysis needed for identifying mis/disinformation.

Given that mis/disinformation impacts can be found across all disciplines, and that the reasoning skills associated with competencies like critical thinking and information literacy are critical to identifying mis/disinformation, it stands to reason that conceptualizations of and approaches to mis/disinformation might vary across disciplines as they seem to do for information literacy and critical thinking. However, few studies have explored this question. One exception is Weiss et al.,[35] who surveyed 400 California State University faculty across 58 departments to explore how they define fake news as well as their attitudes toward it. While a clear majority of respondents agreed that fake news was important to them, the researchers found that definitions of and attitudes toward mis/disinformation, or "fake news," varied substantially across departments and disciplines. For example, they found that English faculty were most concerned with how readers received fake news as well as the motivations behind its creation, but were less concerned with how the news was disseminated, whereas Biology and Health Sciences faculty were concerned with means of dissemination. Faculty also varied by discipline with regard to the approaches they favored for analyzing and identifying fake news, with faculty in the College of Education emphasizing in-depth research, while those in the College of Humanities focused on content type.

Based on the survey responses, the researchers asserted that faculty across disciplines exhibited "differing views on how information is used, what makes an informed reader, and how to verify resources."[36] They inferred that these differences could be tied to differences in the fields themselves, leading them to contest that "faculty definitions of fake news and the strategies to verify information are bound by discipline-specific norms."[37] Weiss et al. note that "not much is currently in publication about the attitudes of university faculty on fake news,"[38] and, while they explored faculty's conceptualizations and attitudes toward the issue, they did not examine how these definitions and attitudes impacted their instruction, if at all. This paper builds on the work of Weiss et al. and begins to address the gap in the literature by further exploring disciplinary differences with regard to faculty attitudes toward mis/disinformation, as well as whether and how they incorporate issues of mis/disinformation in their teaching.

Methods

The purpose of this study was to explore faculty attitudes toward mis/disinformation and examine how they are responding to challenges of mis/disinformation in their classrooms, as well as to probe whether differences exist across disciplines in faculty attitudes toward and engagement with mis/disinformation. Specifically, this study explored the following questions:

- Are faculty across disciplines concerned about the spread of mis/disinformation? If so, what challenges and threats do they perceive?
- Are faculty incorporating issues of mis/disinformation into their teaching? If so, what strategies do they use, and what are their perceptions of their students' proficiencies in identifying and evaluating mis/disinformation?
- Are there differences across disciplines in faculty responses to these questions?

Because the aim of this study was to establish a broad baseline of faculty responses across disciplines, a large sample size was required. Surveys, which tend to be more quantitative in nature and can be distributed electronically and taken at the respondents' leisure, are better suited to larger sample sizes than more qualitative methods such as focus groups or interviews. However, the quantitative nature of surveys also limits the depth of responses and the ability to probe answers. As such, a mixed-methods approach of a nationwide survey with follow-up interviews was selected to capture both breadth and depth.

The population for the study was faculty teaching in public or private nonprofit colleges and universities across disciplines in the United States. To draw a random sample, a research assistant downloaded a data set of all 4-year degree-granting private and public nonprofit colleges and universities from the IPEDs database, resulting in a list of 1,834 institutions. The (rand) function in Excel was used to assign a random number to each institution. The institutions were then sorted by number, and the first 500 institutions were selected for the study. The research assistant reviewed the resultant list and removed institutions that exclusively offered religious degrees or otherwise did not meet the criteria of four-year degree-granting public or private colleges and universities. Ultimately, a random sample of 429 institutions was achieved.

For each institution, the research assistant visited the faculty directory on the institution's home page and used two random numbers generated from random.org to select two faculty members from the list. In cases where the list was broken down by discipline, two numbers from random.org were used to select two departments, and then the normal procedure was used to select faculty members from those departments. During this stage, institutions with no publicly accessible directory and institutions that did not include an email in the directory were eliminated from the sample. Ultimately, 724 faculty members were identified for the survey.

The survey was developed in and disseminated through Qualtrics (see appendix). An initial invitation to take the survey was sent out on September 10, 2020, with three follow-up emails sent to nonrespondents during the following six weeks. The survey was closed on October 21. The first block of questions asked participants to rate their level of agreement with a series of statements about mis/disinformation, including the extent to which they were concerned about its spread both in general and within their field, the efficacy or appropriateness of various methods of combating mis/disinformation, and their opinion about whether mis/disinformation should be addressed in higher education. Next, respondents were asked if they had addressed problems of mis/disinformation in any of the classes they taught during the past year. If they answered no, they were asked to indicate any reasons why they had not addressed the topic. If they answered yes, they were asked to indicate any methods they used to address the topic, and whether they had ever worked with a librarian on the topic. If they answered yes to working with a librarian, they were asked to indicate any methods they used in that collaboration. All respondents were then asked to rate their perception of their students' proficiency in various competencies related to news literacy. The content portion of

the survey ended with an open-ended question asking if respondents had anything to add. The final block of questions gathered demographic information, including the respondents' field or subject area, position, years in the field, and type of institution. Upon completing the survey, respondents were asked if they would be willing to participate in a follow-up interview. If they answered yes, they were directed to a new site to provide their contact information.

The interviews consisted of several open-ended questions asking participants to share their thoughts about mis/disinformation both in general and in the field, whether they addressed mis/disinformation in their courses and, if so, how. The interviews were all conducted by Zoom at a time convenient for the participant, and ranged from about 45 minutes to one hour. All the interviews were recorded. Once the interview was completed, the autogenerated transcript was downloaded and any personally identifying information was scrubbed, then the recordings were deleted.

The quantitative information from the surveys was analyzed using descriptive and inferential statistics. Numbers and percentages were gathered for each answer to get an overall view of faculty perspectives in general and across disciplines. The crosstabs function in Qualtrics was used to conduct chi-squared tests ($p = 0.05$) for statistically significant differences in responses by discipline. Specifically, crosstabs were used to test for differences by discipline in faculty's levels of agreement with the general statements about mis/disinformation, whether they reported addressing mis/disinformation in their courses, what methods they used if they did address mis/disinformation, or what reasons they offered if they did not. Tests were also run to look for differences by discipline in faculty's ratings of student proficiencies in news literacy skills.

Ultimately, only six respondents agreed to be interviewed; likewise, very few participants responded to the open-ended survey questions. While these are too few responses to truly analyze for patterns and cannot be used to draw comparisons across disciplines, they still provide some useful context when analyzed in light of the quantitative survey results. Each interview transcript was reviewed multiple times, and broad ideas and concepts were noted. For instance, comments about misinformation related to COVID-19, vaccinations, or mask-wearing were grouped together as health concerns. These qualitative responses were also reviewed in light of the survey responses to see how they confirm or contrast with the quantitative survey results.

Findings

An initial set of 724 surveys was distributed. After accounting for 36 emails that bounced back, the survey was sent to a total of 688 faculty members. The surveyed garnered 86 responses, for a response rate of 12.5 percent. This response rate is low, so care must be taken in generalizing results. However, the results still provide some broad insight into faculty attitudes toward mis/disinformation, the extent to which these faculty members are addressing mis/disinformation in their courses, and their perspectives on their students' news literacy proficiencies.

Survey participants came from a range of subject areas, experience levels, and positions. There was a wide distribution of faculty across fields and disciplines, from a low of only two respondents in Social Work and History (2.5%) to a high of 13 in the social sciences (16.3%). Eight respondents (10%) identified as Other. Fields and disciplines for these respondents included religion, philosophy, engineering, and urban planning. Figure 1 shows the breakdown of respondents by discipline. The vast majority of respondents (58%) were tenured

faculty, followed by untenured faculty on the tenure track (25%), and full-time contract faculty (11.3%). Only 2.5 percent of respondents identified as adjuncts. Respondents also skewed fairly heavily toward more years of teaching experience, with 45 percent indicating that they had been teaching at the college level for more than 20 years. Roughly equivalent numbers of respondents reported teaching for 5–10 years (18.8%) and 11–15 years (17.5%). The remaining respondents had been teaching for 16–20 years (11.3%) or fewer than 5 years (7.5%). The majority of respondents came from private, not-for-profit institutions (57.5%), followed by public institutions (38.8%). Although the focus for the study was on public and private not-for-profit institutions, 3 respondents (3.8%) identified as being from private for-profit institutions.

FIGURE 1
Respondents by Discipline
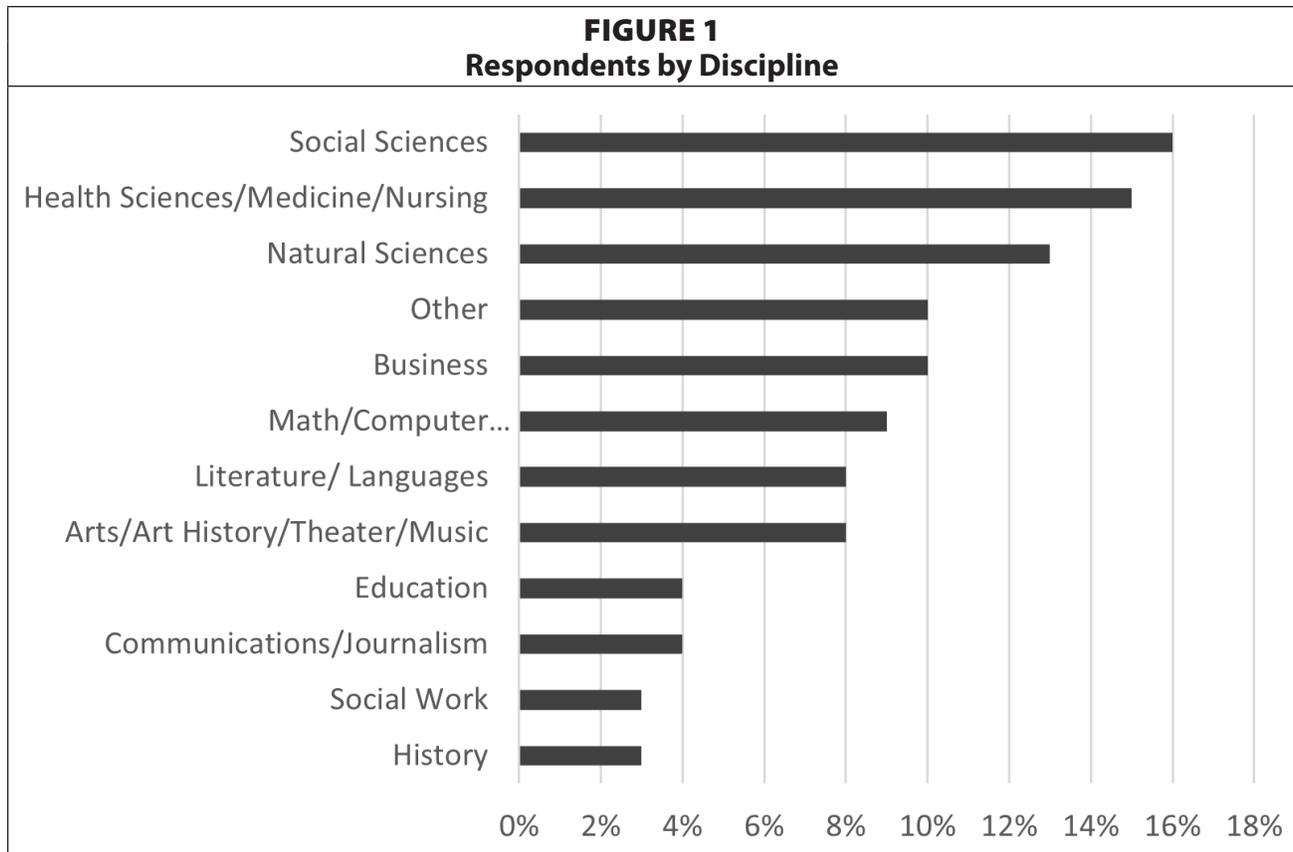
Opinions about Mis/Disinformation Impacts and Solutions

The first matrix of questions asked respondents to rate their level of agreement with several statements about the impacts of and potential responses to mis/disinformation. While there was some general agreement, there was also substantial variance in the answers, especially for certain statements. The majority of respondents expressed some concern about the spread of mis/disinformation in general. Specifically, 94 percent of respondents strongly agreed or agreed that they are concerned about the spread of mis/disinformation on social media, and 93 percent strongly agreed or agreed that they are concerned about the spread of mis/disinformation in news media. However, only 46 percent of respondents strongly agreed or agreed that they are concerned about the spread of mis/disinformation in their field/discipline, while 29 percent strongly disagreed or disagreed with that statement. There were no statistically significant differences for this question, but the responses did vary widely by field. For instance, 73 percent of respondents in the health sciences and 60 percent of respondents in the

natural sciences strongly agreed or agreed that they are concerned about the spread of mis/disinformation in their field, while 100 percent of respondents in communications and journalism, 43 percent of respondents in math, computer science, and technology, and 38 percent of respondents in business strongly disagreed or disagreed with that statement.

Several other statements showed relatively strong consensus. For instance, 89 percent of respondents strongly agreed or agreed that instruction in news literacy competencies is important in combating mis/disinformation, with most (72%) strongly agreeing, and 85 percent strongly agreed or agreed that the spread of mis/disinformation is a threat to democracy. Similarly, 88 percent strongly agreed or agreed that the spread of mis/disinformation impacts students' ability to find reliable and trustworthy information. Despite strong agreement that news literacy skills are important and students' ability to evaluate information is being impacted by mis/disinformation, respondents were somewhat more varied in their opinions about how to address news literacy. In total, 75 percent strongly agreed or agreed that instructors in higher education have a responsibility to teach news literacy skills, but less than half of those (42%) strongly agreed with the statement. Further, 14 percent strongly disagreed or disagreed that instructors in higher education have such a responsibility.

Respondents were similarly split in their opinions about other responses to mis/disinformation. While two-thirds (66%) strongly agreed or agreed that human-driven fact-checking sources are important in combating mis/disinformation, 22 percent strongly disagreed or disagreed with that statement. Just under half of respondents (49%) strongly agreed or agreed that the spread of mis/disinformation on social media should be regulated, while nearly one-third (32%) strongly disagreed or disagreed. Just over one-third (39%) strongly agreed or agreed that artificial intelligence solutions such as better algorithms are important for combating mis/disinformation, 20 percent strongly disagreed or disagreed, and a plurality (41%) are neutral. Figure 2 shows the full breakdown of responses to these statements.

FIGURE 2
Responses to Agreement Statements

■ Strongly agree   ⧄ Somewhat agree   ▩ Neither agree nor disagree   ⦀ Somewhat disagree   ⊠ Strongly disagree
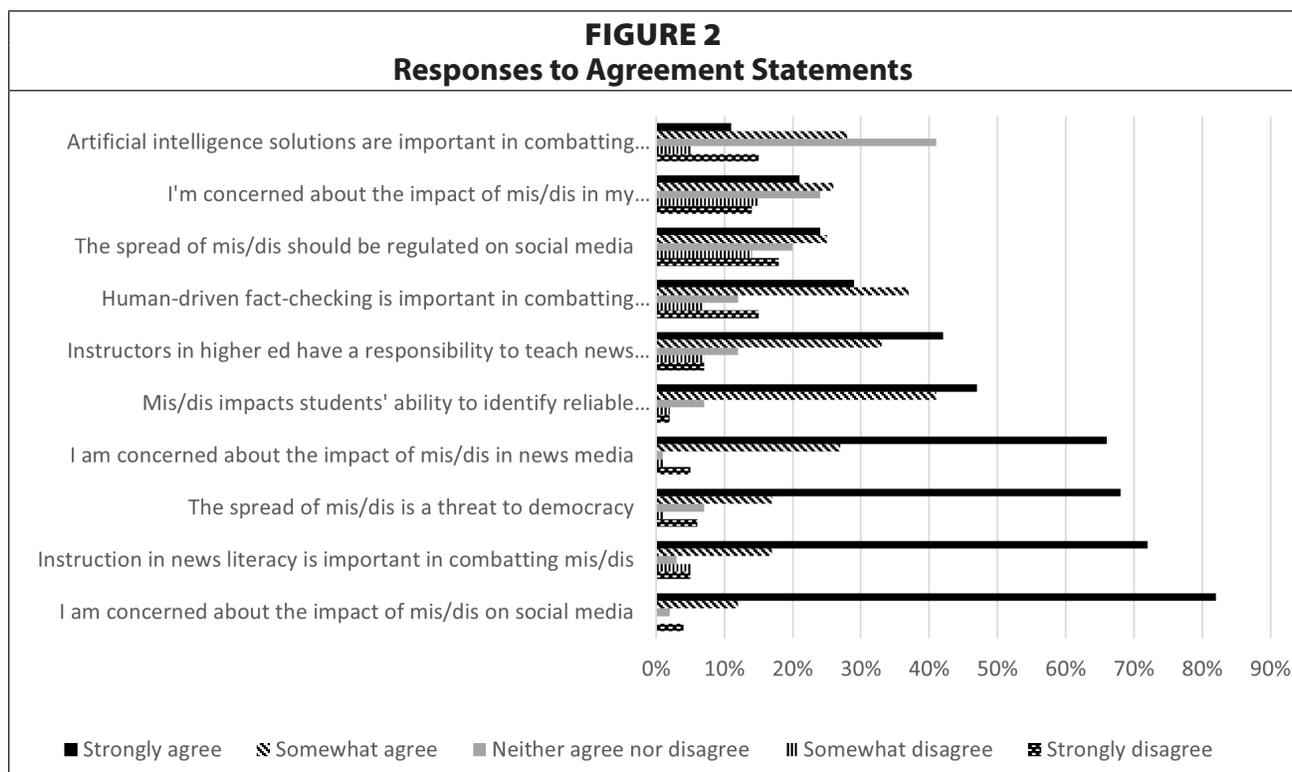
Differences across Disciplines

The study explored whether differences exist across disciplines in faculty attitudes toward and responses to mis/disinformation. The crosstab function in Qualtrics was used to run chi-squared tests of the responses to agreement statements by discipline. Some questions showed consistency across disciplines. The vast majority of respondents across disciplines strongly agreed or agreed that they are concerned about the spread of mis/disinformation on social media. Concern about the impact of mis/disinformation on students' ability to find reliable and trustworthy sources was similarly consistent across disciplines, with a majority agreeing that this is a concern. Likewise, a majority in each discipline agreed that instruction in news literacy is important in combating mis/disinformation, although, interestingly, 33 percent of respondents in both literature/languages and art/art history/theater strongly disagreed with that statement. Not a single respondent from any other discipline strongly disagreed that news literacy is important.

For other questions, there was some substantial variance in responses by discipline. While the vast majority of respondents report being concerned about the spread of mis/disinformation in the news media, a full 100 percent of respondents in the natural sciences, history, education, and social work strongly agreed with that statement, while respondents in other fields were somewhat more varied. In math, computer science, and technology, for instance, 43 percent strongly agree and 29 percent agree with that statement, but another 29 percent strongly disagree. Likewise, 83 percent of respondents in literature and languages strongly agree, but 17 percent strongly disagree. Respondents also varied across disciplines with regard to their concern about the spread of mis/disinformation in their field. For instance, faculty in health sciences showed the most concern, with 73 percent strongly or somewhat agreeing they are concerned about the spread of mis/disinformation in their field, followed by two-thirds (66%) in literature/languages and art/art history/theater. Some fields showed more moderate concern, with 60 percent in natural science, 54 percent of respondents in the social sciences, 50

FIGURE 3
I am concerned about the impact of mis/disinformation in my field/discipline
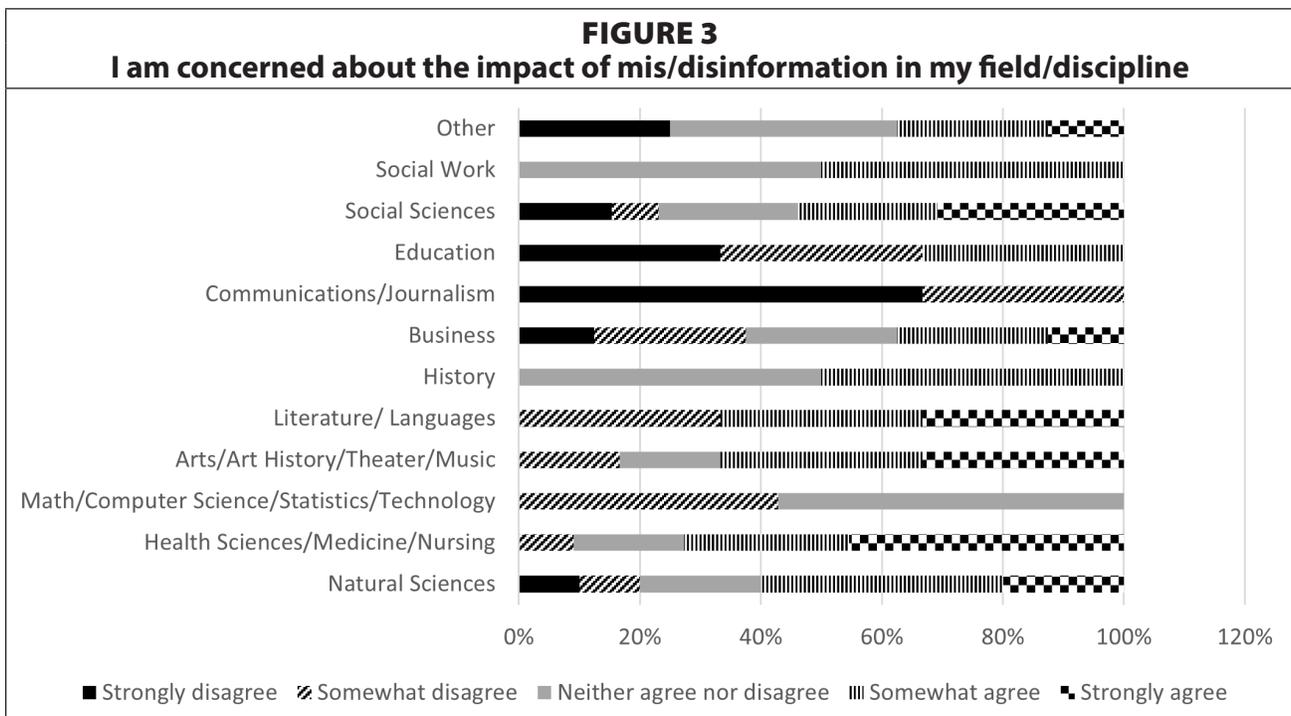
percent in social work, and 50 percent in history strongly or somewhat agreeing. Conversely, 100 percent of respondents in communications and journalism and 66 percent in education strongly or somewhat disagreed with that statement. Forty-two percent of respondents in math/computer science/technology somewhat disagreed that they are concerned by the spread of mis/disinformation in their field, and 57 percent are neutral. Business faculty showed the most variance within a field, with 37 percent strongly or somewhat agreeing, 37 percent strongly or somewhat disagreeing, and 25 percent neutral. Figure 3 shows the full range of responses to the statement "I am concerned about the impact of mis/disinformation in my field" by discipline.

While faculty were fairly consistent across disciplines with regard to the importance of news literacy instruction as an intervention for mis/disinformation, they were more varied in response to other interventions. Fifty-eight percent of health sciences faculty strongly or somewhat agreed that AI interventions are important, closely followed by 57 percent of math/computer science/technology faculty and 50 percent of social work faculty. Other disciplines were more skeptical of AI solutions, with 50 percent of art/art history/theater faculty strongly disagreeing or disagreeing that they are important, followed by 33 percent of literature/languages and communications/journalist faculty. A similar split across disciplines surfaced with regard to human-driven fact-checkers as an intervention, with 100 percent of social work and history faculty strongly or somewhat agreeing this is an important intervention, followed by 78 percent of social sciences faculty, 75 percent of faculty in business, 70 percent in natural sciences, 67 percent in health sciences, and 66 percent in literature/languages, communication/journalism, and education. On the other hand, 67 percent of faculty in art/art history/theater and 43 percent in math/computer science/technology strongly or somewhat disagreed that human-driven fact-checkers are important interventions. Figures 4 and 5 show the breakdown by discipline of these two statements.

FIGURE 4
Artificial intelligence solutions (better algorithms, etc.) are important in combatting mis/disinformation

FIGURE 5
Human-driven fact-checking resources (Politifact, etc.) are important interventions in combatting mis/disinformation
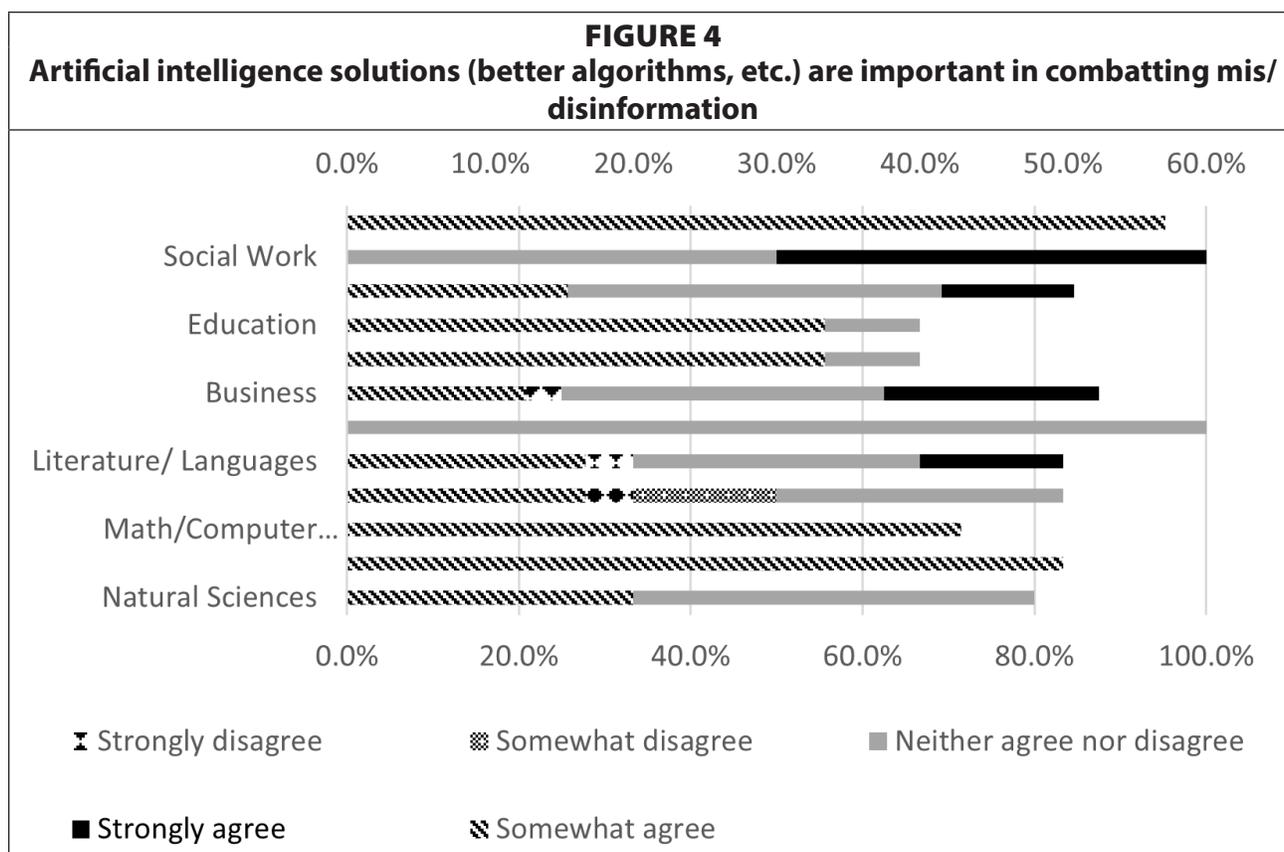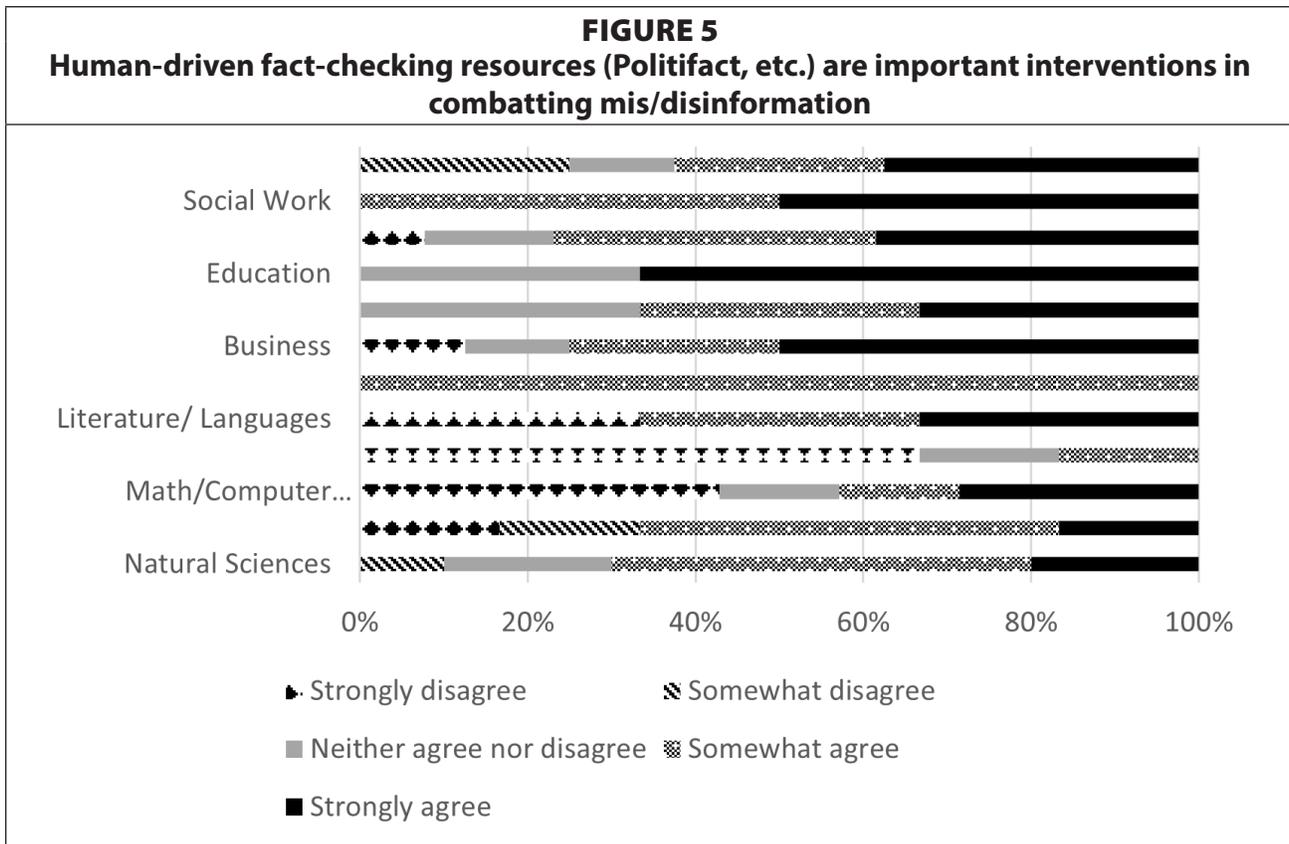
Despite some substantial variance across disciplines in responses to these statements, chi-squared tests revealed only one statistically significant difference, for agreement with the statement "the spread of mis/disinformation is a threat to democracy" ($p = 0.028$). While a strong majority across disciplines strongly or somewhat agreed with this statement, faculty in some disciplines were more skeptical. For instance, 20 percent of faculty in health sciences strongly disagreed and 20 percent were neutral; one-third of communications and journalist faculty somewhat disagreed with the statement; 17 percent of art/art history/theater and literature/language faculty strongly disagreed; and 17 percent of art/art history/theater and math/computer science/technology faculty were neutral. Figure 6 shows the breakdown of responses to this question.

Addressing Mis/Disinformation in the Classroom

A majority of respondents (67%) reported that they had addressed issues of mis/disinformation in their classrooms over the past year. However, 16 respondents skipped this question, and several disciplines were not represented in the findings for this question. Requiring students to cite trustworthy sources in assignments is the most popular method for addressing mis/disinformation (28%), followed by requiring students to argue positions using trustworthy sources (20%), and incorporating news literacy instruction (19%). Fewer respondents reported assessing students' ability to evaluate mis/disinformation (10%), including using assignments requiring students to identify mis/disinformation (9%). Respondents were also given an opportunity to write in other methods they use to address mis/disinformation and six participants did so, usually describing specific activities or lessons. For instance, one participant spends time teaching about peer review, another has students "practice turning reasonable

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FIGURE 6
The spread of mis/disinformation is a threat to democracy

Legend: ⊢⊣ Strongly disagree ⬚ Somewhat disagree ▦ Neither agree nor disagree ⬚ Somewhat agree ■ Strongly agree

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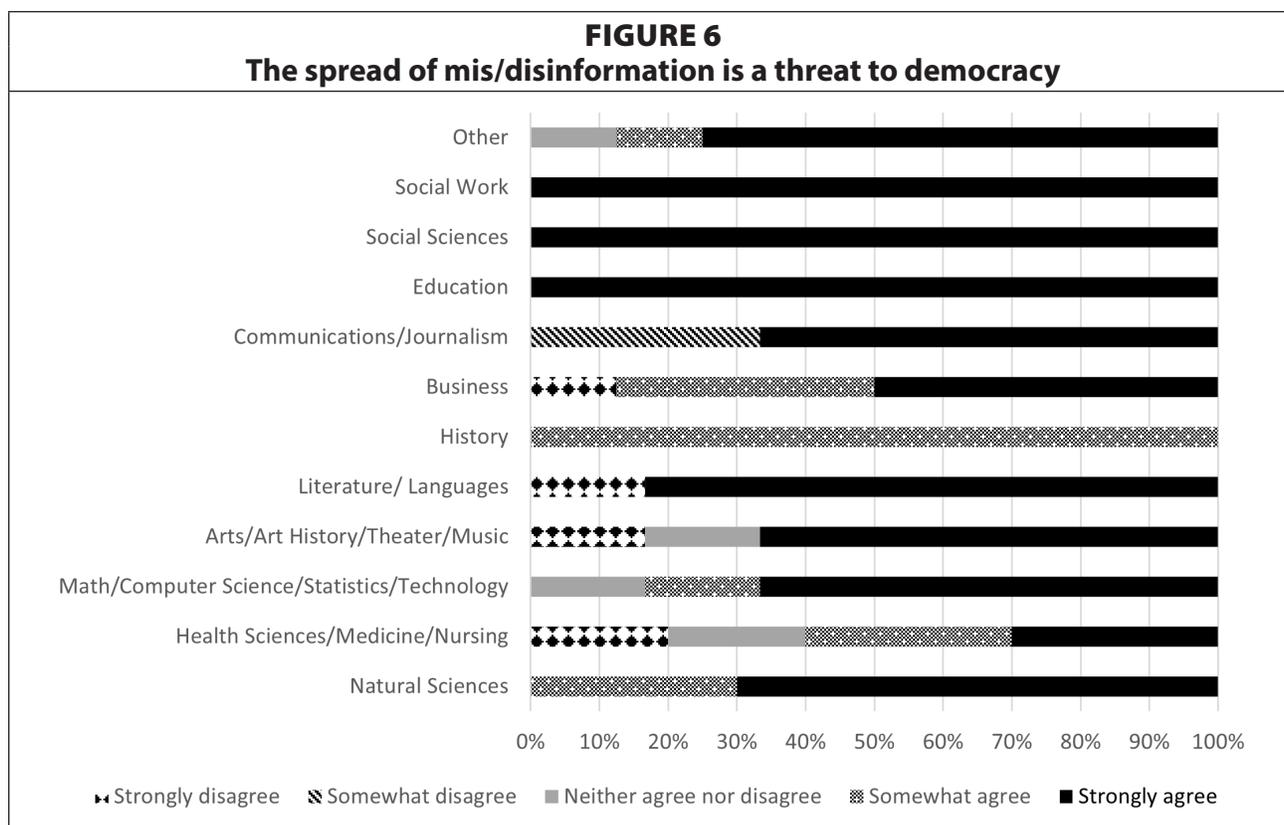
information into mis/disinformation propaganda pieces," while another says they "explained how statistics about Covid are being misrepresented to make it seem worse than it really is."

Faculty across disciplines varied somewhat with regard to whether they addressed mis/disinformation in their classes, but the difference was not statistically significant. Faculty in the social sciences were the most likely to address mis/disinformation in class (92%), followed by the natural sciences (80%), and health sciences and literature/languages (67% each). On the other hand, there were some statistically significant differences in the methods faculty used to teach about mis/disinformation across the disciplines. Specifically, there was a statistically significant difference in whether faculty require students to cite trustworthy information in assignments ($p = 0.03$). In most disciplines, 100 percent of faculty report using this requirement, but only 67 percent of education faculty, 63 percent of faculty in the natural sciences, and 33 percent of faculty in math/computer science/technology report using this requirement. There was also a statistically significant difference with regard to requiring students to argue a position using trustworthy information ($p = 0.04$). One hundred percent of faculty in literature/languages and communications/journalism require students to do this, followed by 75 percent of faculty in social sciences and business. Faculty in the natural sciences and math/computer science/technology were the least likely to report this requirement (38% and 33% respectively).

Only 28 faculty responded that they have not addressed mis/disinformation in their courses, and the number within each discipline was low. These respondents were asked to indicate why they have not addressed the topic. Interestingly, the highest percentage of respondents (48%) indicated they do not teach mis/disinformation in their classes because the concepts are not relevant to their field/discipline. This was also the only choice to show a statistically significant difference ($p = 0.03$). Somewhat startlingly, 100 percent of respondents

to this question in health sciences, math/computer science/technology, and literature indicated that mis/disinformation is not relevant to their field. Conversely, no faculty in the natural or social sciences indicated that these concepts were irrelevant to their field. Five respondents submitted other reasons for not addressing mis/disinformation, with one respondent saying faculty could use "more focused training on pedagogy in this issue," and another stating that "any such content would be ideologically skewed, usually to the left."

Working with a Librarian

A majority of respondents (79%) have not worked with a librarian to address news literacy or mis/disinformation in their courses. The responses varied by discipline, with literature/language faculty being most likely to have worked with a librarian (75% worked with a librarian) and social work, education, and math/computer science/technology the least likely (100% had not worked with a librarian). However, there was no statistically significant difference for this question.

Those faculty who had worked with a librarian reported using a variety of methods in doing so. Having a librarian guest-lecture in one or more classes and referring students to librarians for research assistance were the most popular methods at 31 percent each, followed by pointing students to research guides from the library (19%) and consulting with a librarian to design activities or assignments (14%). Only 6 percent say they consult with a librarian when assessing student work in this area.

Student Proficiencies

Participants were asked to rate their undergraduate students' new literacy proficiencies on a 5-point scale from very proficient to not at all proficient. Virtually across the board, participants' ratings clustered around the middle of the scale, with students generally being rated as somewhat proficient on each skill. Students received the highest ratings for evaluating information for relevance, with 33 percent of respondents rating them very proficient or proficient in this skill, followed by selecting appropriate information to complete a research

FIGURE 7
Student Proficiency Ratings

Legend: ■ Not at all proficient ▨ Weak ▦ Somewhat Proficient ▧ Proficient ◆ Very Proficient ☐ Unable to Comment

Categories (top to bottom):
Selecting appropriate information to support an argument
Selecting appropriate information to complete a research…
Evaluating information sources for bias
Evaluating the research methods presented in a paper
Evaluating the logic of arguments presented in a paper
Evaluating information for relevance
Evaluating information for authority
Distinguishing between popular and scholarly resources
Identifying mis/disinformation in scholarly sources
Identifying mis/disinformation in popular sources (news…

assignment at 29 percent. Students received the lowest ratings for identifying mis/disinformation in scholarly sources, with 63 percent of respondents rating them as not at all proficient or weak in this area, followed by evaluating the research methods presented in a paper (48% not at all proficient or weak), and evaluating information sources for bias (43% not at all proficient or weak). Interestingly, there were no statistically significant differences across disciplines in ratings of student proficiencies. Figure 7 shows the breakdown of responses for this question.

Interviews

Only six participants agreed to be interviewed. Because the number of interviewees was so low, their comments cannot be taken as representative of their fields, or used to make generalizations. However, their input does help to contextualize some of the survey findings and offer some additional insight into how some faculty are approaching these issues. All of the interviewees indicated that they were concerned about the spread of mis/disinformation in general, and they identified various causes. The interviewees broadly identified their fields as biology, business/accounting, creative writing, history, psychology, and social work. Several interviewees lamented that people do not take the time to vet their sources, and some also pointed to the issue of confirmation bias, or the tendency for people to accept information that reinforces their existing worldview even in the face of contradictory evidence. As one interviewee put it, "people used to go listen to the news to hear the news and now they go listen for validation." Some of them also pointed to the growing partisan divide and the difficulty that poses for having civil disagreements.

Despite shared concerns about mis/disinformation, the interviewees varied as to whether they had incorporated instruction on these topics in their courses. The accounting, biology, creative writing, and history professors were not currently addressing this topic. However, the biology, history, and creative writing instructors discussed the importance of teaching critical thinking and analysis skills; they just did not frame it within the areas of mis/disinformation. For instance, the biology professor noted that he spends substantial time on scientific literacy topics, including distinguishing between primary and secondary literature and assessing research paper methodologies, skills that could be valuable for evaluating mis/disinformation as well. This participant also intimated that he might like to do more on the topic but did not necessarily feel confident about "how to kind of put an explanatory lecture together to talk about that." This sentiment seemed to echo a response to the open-ended survey question indicating a need for more pedagogical training on teaching about mis/disinformation. The creative writing professor indicated that he had taught a course on conspiracy theories in the past and, given its relevance to the current moment, was interested in teaching it again. The accounting professor suggested that issues of mis/disinformation were less relevant to his field, stating that within the business school "we tend to stick to teaching the topics and not anything else around it."

The psychology and social work professors both addressed issues of mis/disinformation directly in their courses and talked about specific lessons or approaches they had designed. The psychology professor had one class doing a course project on fake news, involving field research, while the social work professor posed questions to her classes on hot button topics like climate change and vaccines; she had students find and evaluate resources to take a position on the topics. The social work professor noted that she discusses how to evaluate web resources as well as scholarly resources, and the psychology professor discussed the need to

assess peer-reviewed sources rather than assuming that they are necessarily accurate because they have been peer-reviewed.

Five of the six interviewees said that they had worked with a librarian in their courses in the past, although not necessarily on mis/disinformation topics. Only the accounting professor had never worked with a librarian. Of the five who had worked with a librarian, all had invited librarians to speak in their classes, and the social work librarian had consulted with a librarian to design a tutorial for her classes. In general, the participants focused on the librarians' role in helping students search databases and find information as opposed to evaluating information or other higher-level, critical thinking skills. All spoke very highly of the librarians with whom they had worked, often mentioning them by name, referencing conversations outside of the classroom, and commenting on their expertise.

The interviewees were cautiously positive in their assessment of student skills with mis/disinformation, saying students "have a lot of common sense," a "gut ability to see something that is outrageous and know that it is," and that they "already know how to assess whether something is true, or whether something is 'trueish'." The psychology and social work professors were a bit more granular in their analysis of their students' skills. The psychology professor said, "for the most part they are doing a good job with what we're asking them to do," but she also observed that her students tend to think that other people are more likely to be fooled by mis/disinformation, but generally believe they will not be, a phenomenon known as the third-party effect. She also noted that her students seem to have a harder time analyzing issues to which they are more emotionally connected, as well as analyzing and understanding positions that conflict with their own beliefs. Likewise, the social work professor discussed specific examples of students who would ignore evidence and discount reliable sources that contradicted their positions. Both the psychology and social work professors noted that they see a difference between upper- and lowerclassmen, with the older students having more developed skills. The psychology professor specifically mentioned attempting to scaffold these skills.

One unanticipated finding from the interviews was a concern expressed by three interviewees about addressing topics that might be viewed as partisan or political. Without prompting, these participants self-identified at different points on the political spectrum from progressive/liberal to conservative, but each expressed similar concerns about how discussions on political topics might be received by students. For instance, one participant mentioned a colleague who is upfront about their political stance with their students. In contrast, this participant stated, "I don't take a position. I don't espouse my personal views I believe that's inappropriate. Again I've been paid to educate my students in [the field]. Full stop." He went on to say that, when he brings examples into the classroom, he is "very careful to keep them nonbiased." Another participant noted that he introduces various theoretical perspectives, such as critical race, queer theory, and postcolonialism, as lenses for interpreting course content, but he said he is always clear with his students that he is presenting these theories as part of the scholarly conversation, not advocating for any of them. This interviewee expressed some discomfort with taking this approach but felt it was necessary "on the off chance that somebody gets the idea that, you know, I'm like, you know, trying to indoctrinate—that's supposedly—allegedly that's what we do on college campuses." A third participant shared some concern about students seeing them as "somebody who's trying to push a political agenda."

It was unclear whether these concerns were directly tied to or arising from conversations of mis/disinformation. However, given how politically charged many of these issues are, and the fact that the three interviewees who brought up these concerns were also not currently engaging with mis/disinformation topics in class (though at least one had in the past), it is possible that concerns about being perceived as having a political agenda could be hindering some instructors from addressing mis/disinformation issues in the classroom.

Discussion

The findings of this study show that faculty across disciplines are concerned about the impact of mis/disinformation in general, and they believe their students are not especially proficient in the news literacy skills necessary to identify and evaluate mis/disinformation. Although most faculty think news literacy skills are important, they vary in the extent to which they are addressing issues of mis/disinformation in their classrooms, and their reasons for not addressing the topic vary. Of those who are addressing mis/disinformation, few report working with librarians. Aside from news literacy skills, faculty vary with regard to which solutions they believe to be most important for combating mis/disinformation. The differences across disciplines were a focal point of this study, and, whether statistically significant or not, they provide some context for what is happening in the classroom.

At least half of faculty across disciplines believe news literacy skills are important in combating mis/disinformation, and most believe instructors in higher education have some responsibility to teach these skills. Importantly, although there was variance, there was no statistically significant difference across disciplines as to whether faculty addressed mis/disinformation topics in their classrooms. Math/computer science/technology and art/art history were the only fields with more than half of instructors reporting that they do not address these topics. Business was split in half, with 50 percent reporting they do address mis/disinformation, and 50 percent saying they do not. Most other fields were substantially higher, with 92 percent of social sciences faculty saying they teach about mis/disinformation. This finding suggests that, while students in majors or disciplines like math, computer science, and art might be somewhat less likely to receive explicit instruction in mis/disinformation, all students have at least some chance of receiving such instruction. Those faculty who are addressing mis/disinformation use a range of methods to do so, including explicit instruction on the topic, various assignments that require students to identify and use trustworthy sources and, in some cases, assessment of student skill in this area.

The fact that faculty across the disciplines are concerned about mis/disinformation and about their students' abilities in this area, and that just over two-thirds are addressing the topic in their classes, could have implications for academic librarians. Virtually all of the interviewees acknowledged librarians to be experts in this area, suggesting there may be a role for librarians to offer support in teaching to this topic. Indeed, those faculty who have worked with a librarian on this topic often drew on the kinds of guides, tutorials, and tools that librarians have been creating, in addition to inviting librarians to speak in their classes. Nevertheless, few instructors report working directly with librarians on instruction for mis/disinformation. It is not clear from the survey itself why so few instructors are working with librarians, but time could be a factor. At least one interviewee noted that he had had librarians come into his classes in the past, but that he tends to cover the material himself now.

Another reason might be a lack of awareness about the kind of support librarians can offer. Virtually all of the interviewees who reported working with a librarian described the librarian's role as helping students to search databases, find peer-reviewed articles, and distinguish between popular and scholarly sources, all of which are more task- or process-based skills, as opposed to the high-order critical thinking skills needed to evaluate information and its sources. Given that there is some evidence that faculty believe students' search skills are at least adequate while concerns about their ability to evaluate information persist,[39] faculty may feel little impetus to invite librarians to their classes if they anticipate the instruction will focus mostly on searching. Librarians may have to engage in outreach to raise awareness about the range of topics and skills they can address, especially with regard to identifying and evaluating mis/disinformation.

It could also be important for librarians to better understand why some faculty are not addressing mis/disinformation in their classrooms. Although no respondents said the topic was unimportant, faculty gave several reasons for not addressing this topic. Many participants indicated that they do not have time to address this content, and many believed it should be addressed elsewhere in the curriculum. Given that most faculty do think topics associated with mis/disinformation and news literacy skills are important, and most want to see them addressed somewhere within the curriculum, there might be some opportunities for librarians within general education and extracurricular programs to support news literacy instruction. Assuming that news literacy, like information literacy, is often relegated to general education and lower-level courses,[40] librarians might begin by working with faculty who coordinate those courses to provide resources and support. They could also explore offering workshops, research appointments, and other support services focused on mis/disinformation outside of the classroom to reduce the amount of class time necessary.

However, as with information literacy, these general education and extracurricular approaches to news literacy are necessarily limited and likely to be inadequate, as they typically address generic rather than discipline-specific skills and do not allow for scaffolding skill development over time. Such an approach also belies the importance faculty supposedly put on these skills. Interestingly, there was a statistically significant difference for discipline faculty who contend that the content was not relevant to their discipline. Although the numbers were small, 100 percent of faculty in health sciences/medicine, math/computer science/technology, and literature/languages who said they did not address mis/disinformation in their classrooms said that the content was not relevant to their discipline.

It might be conceivable that issues of mis/disinformation, which are generally focused on factual disputes, might not seem relevant to literature courses focusing on fiction, poetry, or creative writing. However, as the creative writing professor noted in the interview, these courses do teach close reading and critical thinking skills, which are directly relevant to information and news literacy. It is much harder to imagine how faculty in health sciences or math and computer science could argue that these topics are not relevant to their disciplines, given the amount of attention focused on mis/disinformation related to public health issues like COVID-19 and vaccines, and on the role of technology and issues like algorithmic bias, filter bubbles, and echo chambers in facilitating the spread of mis/disinformation. The nature of this survey, as well as the low response rate, make it challenging to infer why some faculty would view mis/disinformation as irrelevant to their field. Perhaps some courses are truly so narrowly focused that discussions of mis/disinformation would not be relevant although,

again, it is hard to imagine any area of health sciences where that would be true. Regardless, librarians should be aware that, in some cases, and perhaps especially in some disciplines, faculty might not be receptive to outreach focused on mis/disinformation. Future research might probe this area.

Interestingly, two participants expressed some uneasiness with their own ability to teach about mis/disinformation. In response to the open-ended survey question, one participant who identified as a history instructor wrote that "as instructors we probably could use more focused training in pedagogy on this issue." That sentiment was echoed in the interview portion of the study by the biology professor. Although he was confident in his own fact-checking and evaluative abilities, he noted that he did not feel that he had the expertise to develop an in-depth lecture or lesson on mis/disinformation, stating "that's kind of where I feel the weakest." Although these are only two participants' thoughts, it is possible that they reflect a wider swath of instructors, and this could signal an opportunity for librarians to provide professional development and pedagogical training for these instructors. Librarians could present history and theory of mis/disinformation, discuss tools and techniques for identifying and evaluating mis/disinformation with an emphasis on critical thinking, and share activities and learning objects that could be integrated into courses. Because the ratio of librarians to students generally makes it impossible for librarians to embed into or guest-lecture in more than a few courses each semester, this sort of "train the trainer" approach might increase the number of students exposed to instruction on mis/disinformation by allowing faculty to incorporate the instruction into their lessons themselves. As such, this approach could also alleviate the need to take up class time with one-shot sessions. Perhaps such training could also help some faculty see the connections between issues of mis/disinformation and their discipline.

One of the more interesting results of this study is that, despite some substantial variance in responses, there were very few statistically significant differences among the disciplines. This finding stands somewhat in contrast to Weiss et al., who made a greater case for disciplinary differences with regard to mis/disinformation. Notably, however, Weiss's study focused more narrowly on definitions, whereas this study took a somewhat broader view. However, even when this study found variance, it was often as much within disciplines as across disciplines. And, interestingly, those findings were sometimes contradictory. For instance, although 50 percent of literature/language faculty strongly or somewhat disagreed that they have a responsibility to teach news literacy skills, 67 percent indicated that they have addressed issues of mis/disinformation in their classes. This discrepancy could reflect the fact that literature and language teachers often bear responsibility for teaching in general education courses, which might be more likely to focus on current events and/or to have learning outcomes related to information and related literacies. Whatever the reason, overall findings suggest that there is substantial interest in mis/disinformation topics and in teaching news literacy skills *somewhere* within the curriculum, and that resistance or hesitancy to teach those topics might be more a function of individual faculty's sense of the topic and time pressures than an inherently discipline-based difference.

Conclusion

This study demonstrates that faculty across disciplines are broadly concerned about the impacts of mis/disinformation, but they vary in the extent to which they are incorporating mis/disinformation topics into their courses, and few are working with librarians on the topic.

While the variable lack of attention to mis/disinformation and low levels of collaboration with librarians may be somewhat discouraging, the study also points to opportunities for librarians. The findings also reveal that most faculty agree that news literacy skills are important. They largely believe that their students' news and information literacy skills need some improvement, especially with regard to evaluating information, and many feel some responsibility for teaching these skills. Interviewees were strongly supportive of their librarians, acknowledging their expertise. Librarians could build on these good feelings and general interest in the topic to promote greater attention to mis/disinformation in the curriculum. Through outreach efforts, librarians could raise awareness about the topic and about the range of news literacy skills they can support, with an emphasis on evaluation and critical thinking over search skills. They might also focus on "train the trainer" approaches to provide faculty with the knowledge and pedagogical background to feel more confident in addressing these topics themselves.

APPENDIX. Faculty Perceptions of Mis/Disinformation and News Literacy

Your response to the following survey is greatly appreciated. I am a faculty member at Simmons University School of Library and Information Science currently studying misinformation and news literacy in undergraduate programs. You have been randomly selected as a teaching faculty member whose primary teaching responsibility is at the undergraduate level. Your responses to this brief survey will assist other faculty members, librarians, and library directors plan for curricula to improve student learning in this important competency.

The survey should take about 10–15 minutes to complete. During the survey you may choose to stop participation at any time.

You will not be asked to provide any personally identifiable information. At the end of the survey, you will be asked if you are willing to be contacted for a brief follow-up interview. If you are interested, you will be redirected to a separate form, so your name will not be attached to your survey responses.

If you have any questions about this survey, you can contact Laura Saunders at Simmons College: laura.saunders@simmons.edu. You can also contact the Human Protections Administrator in the Simmons College Office of Sponsored Programs at 617-521-2415 with questions about the study ethics.

Thank you very much, in advance, for sharing your experience and ideas!
Laura Saunders, PhD
Assistant Professor
Simmons College Graduate School of Library and Information Science

START SURVEY
This survey uses the following definitions:
Misinformation: Inaccurate information shared by accident
Disinformation: Inaccurate information shared on purpose to mislead/deceive
News literacy: "critical-thinking skills for analyzing and judging the reliability of news and information, differentiating among facts, opinions and assertions in the media we consume, create and distribute."—schooljournalism.org
1. Please rate your level of agreement with the following statements (strongly agree to strongly disagree):
   a. I am concerned about the impact of mis/disinformation in news media
   b. I am concerned about the impact of mis/disinformation on social media
   c. I am concerned about the impact of mis/disinformation in my field/discipline
   d. The spread of mis/disinformation impacts my students' ability to identify reliable and trustworthy information
   e. The spread of mis/disinformation should be regulated on social media
   f. The spread of mis/disinformation should not be regulated
   g. News literacy is an important skill
   h. Instruction in news literacy competencies is important in combatting mis/disinformation

      i.   Artificial intelligence solutions (better algorithms and the like) are important in combating mis/disinformation

      j.   Human-driven fact-checking resources (Politifact and others) are important interventions in combating mis/disinformation

      k.   Instructors in higher education have a responsibility to teach news literacy skills

2.   I have addressed the problems of mis/disinformation in one or more classes I have taught over the past year

      a.   Yes/no (If yes, go to question 4; if no, go to question 3)

3.   What are some of the reasons you do not address mis/disinformation in your classes [check all that apply]?

      a.   I do not have time to add this content

      b.   This content is not relevant to my field/discipline

      c.   This content is not important

      d.   This content is important but should be addressed elsewhere in the curriculum

      e.   Students have already learned these concepts

      f.   Other [please specify]

[Go to Question 8]

4.   How have you addressed issues of mis/disinformation in any of your courses [check all that apply]?

      a.   I include assignments or activities that require students to identify mis/disinformation in one or more classes that I teach

      b.   I incorporated instruction on news literacy skills (finding and evaluating information, identifying mis/disinformation) in one or more of my courses during the last year

      c.   I require students to cite trustworthy information in their assignments

      d.   I require students to argue positions using trustworthy information

      e.   I assess student ability to identify mis/disinformation in one or more classes that I teach

      f.   I assess student ability to evaluate mis/disinformation in one or more classes that I teach

      g.   Other [please specify]

5.   Thinking about the *undergraduate* students you have taught during the last year, please rate your students' proficiency in the following areas (very proficient to not at all proficient):

      a.   Identifying mis/disinformation in popular sources (news media, social media, and other popular sources)

      b.   Identifying mis/disinformation in scholarly sources

      c.   Distinguishing between popular and scholarly resources

      d.   Searching for information

      e.   Evaluating information for authority

      f.   Evaluating information for relevance

      g.   Evaluating information for trustworthiness

      h.   Evaluating the arguments or methods presented in a paper

      i.   Evaluating information sources for bias

      j.   Selecting appropriate information to complete a research assignment

    k.   Selecting appropriate information to support an argument

6. Have you ever worked with a librarian in addressing mis/disinformation or news literacy in any of your courses?
    a.   Yes/no (If yes, go to question 7; if no, go to question 8)

7. What are some of the ways that you have worked with a librarian [check all that apply]?
    a.   A librarian has guest-lectured in one or more class sessions
    b.   I consulted with a librarian when designing activities or assignments with news literacy or mis/disinformation components
    c.   I consulted with a librarian when assessing student work
    d.   I refer students to the librarians for assistance with research
    e.   I point students to a guide/handout from the library
    f.   Other [please specify]

8. Is there anything else that you would like to add?

9. In what field do you primarily teach?

10. What is your position?
    a.   Tenure-track faculty/untenured
    b.   Tenured faculty
    c.   Contract faculty/full-time
    d.   Adjunct/part-time
    e.   Teaching assistant
    f.   Other, please specify

11. How many years have you been teaching at the college level?
    a.   >5
    b.   6–10
    c.   11–15
    d.   16–20
    e.   20+

12. Which best describes your institution?
    a.   Public
    b.   Private, not-for-profit
    c.   Private, for-profit

13. What is your institution's basic Carnegie Classification?
    a.   Doctoral University
    b.   Master's College or University
    c.   Baccalaureate College
    d.   Baccalaureate/Associate's College
    e.   Associate's College
    f.   Special Focus

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Toward Engaged Scholarship: Knowledge Inclusivity and Collaborative Collection Development between Academic Libraries and Archives and Local Public Communities

Amanda Y. Makula and Laura S. Turner

In *Open and Equitable Scholarly Communications*, ACRL calls for more diverse and inclusive collection development (CD) by academic libraries and archives. Meanwhile, higher education is increasingly committing to community-engaged scholarship. This study investigated the extent to which academic libraries and archives are collecting, curating, and/or preserving knowledge produced by their local public communities. Researchers administered an electronic survey to relevant listservs and conducted follow-up interviews to develop a case study of one library's efforts. Ninety of the initial 118 survey respondents (76%) indicated that their academic library intentionally collects, curates, and/or preserves materials created or owned by the local public community, with a majority working with minority or underrepresented populations in their communities. Respondents also reported working with unpublished archival material more than twice as often as nonarchival/circulating material, reflecting academia's movement toward greater inclusion of traditionally excluded voices in the scholarly record. Additional research is needed for a host of issues raised by this work, in particular the relationship between university-community collection development and student learning. Library leaders can promote university-community engagement and knowledge diversity by incorporating local community knowledge into their collection development commitments and practices and tying this work to the parent institution's strategic plan.

" …the world is not separated into the scholarly and the ordinary."[1]

Introduction
"Collection development necessarily responds to trends in academia, bringing forward new frameworks that shift the whats, whys, and hows of acquiring library materials," write Debo-

rah K. Boudewyns and Shannon L. Klug.[2] Helen N. Levenson agrees, arguing that collection development, and specifically CD policies, should be flexible and responsive, adapting to the institution's unique mission and vision and ever-evolving to reflect local context and priorities as well as changes in the larger information landscape.[3] In a study by Tony Horava and Michael Levine-Clark, the authors found support for an approach to collection building that is "nimble in responding to changes in focus for the university."[4] These authors signal growing consensus that collection development should be viewed holistically, as intimately interconnected to the academic enterprise as a whole: as higher education changes, so too should academic collections and collection-building practices. The key question then becomes: what are those changes? This article identifies significant trends within academia toward greater knowledge inclusivity and community-engaged scholarship and argues that, by broadening the scope of their collections to include materials produced by their local public communities, academic libraries and archives have a tangible way to support both movements.

In a paper prepared for the Canadian Commission for UNESCO, titled "Open Science Beyond Open Access: For and with communities: A step towards the decolonization of knowledge," Leslie Chan et al. trace a gradual opening of science and scholarship beginning in the last half of the twentieth century: from primarily exclusive knowledge systems—Western, male, capitalist, and empirical—to broader, more inclusive ones, encompassing indigenous, feminist, communal, and experiential ways of knowing.[5] This movement, often described in the literature with terms such as *knowledge democratization* or *decolonization*, *cognitive* or *epistemological justice*, and *participatory* or *community-engaged research*, calls for the academy "to restore the knowledge that has been erased or silenced in the current system" by broadening the canon of knowledge to include contributions from those who have been excluded historically.[6] In addition to the rapid growth of research addressing these movements, there is concrete evidence of their influence in the form of "engaged scholarship" within higher education, defined by Brown University's Swearer Center as:

> …the co-creation of knowledge that shifts the position of students and community groups from knowledge consumers to knowledge producers and partners in problem-solving. Engaged scholarship is the generation of new knowledge through the combining of academic knowledge and community-based knowledge, eliminating a hierarchy of knowledge and a one-way flow of knowledge outward from the college or university …[and] the recognition that in certain circumstances the expert will be a non-credentialed, nonacademic collaborator.[7]

Engaged scholarship is not new. It has roots in the idea of *multiversity*, envisioned by Paul Wangoola two decades ago as a "community knowledge bank" where modern and indigenous knowledge come together in synthesis to address humanity's greatest challenges.[8] Wangoola distinguishes the multiversity from a university "insofar as it recognizes that the existence of alternative knowledges is important to human knowledge as a whole."[9] In other words, the body of knowledge, and thus human progress, is strengthened by contributions from those outside the academy. Building new knowledge by cultivating close relationships between universities and local communities is steadily gaining momentum. "Over the past three decades, urban university-community partnerships have moved from dispersed and provisional ad hoc relationships to intentional and systematic institutional commitments," says

Dr. Joshua Yates, current Fellow and former Research Director of the Thriving Cities Lab at the Institute for Advanced Studies and Culture (IASC).[10] The Carnegie Foundation has noted this trend and now offers a "Community Engagement Classification" to institutions that provide evidence of substantial commitment to "collaboration …[with] their larger communities (local, regional/state, national, global) for the mutually beneficial exchange of knowledge and resources in a context of partnership and reciprocity."[11] As of this writing, 360 institutions carry the designation, many of whose institutional strategic plans prioritize community engagement partnerships.[12] The *Field Guide for Urban University-Community Partnerships*, a national scan and working kit to advance university-community engagement, describes a situation in which institutions are increasingly looking for ways to "integrate, and to some extent redirect, community engagement and partnership across the entire institution."[13]

Enter the academic library and archive. As new definitions of knowledge and commitments to engaged scholarship revolutionize academia, academic libraries and archives have the opportunity to join and shape these conversations, particularly through their collections and collection development practices. The pivotal Association of College and Research Libraries' (ACRL) publication *Open and Equitable Scholarly Communications: Creating a More Inclusive Future* outlines connections between greater equity and diversity in knowledge construction and academic libraries and archives' collection development decisions, asking them to revisit "…what content is deemed important enough to be collected and preserved."[14] The authors devote a section ("Creating More Representative and Open Collections") to identifying research that is needed to "prioritize developing collections that better represent a broader range of scholars and scholarship."[15] For example, they ask: "Are there nonwritten or otherwise nontraditional cultural heritage works being produced locally that should be acquired?"[16]

Academic libraries and archives have an opportunity to connect these questions to their own collections and collection building practices, to explore how to "work collaboratively to ensure inclusive collection and interpretation approaches, working with and for underrepresented communities …[on] the identification and preservation of significant local knowledge."[17] While the library literature contains individual, isolated examples of academic libraries and archives actively partnering with their local public communities to collect, curate, and/or preserve local forms of knowledge, particularly by members of historically underrepresented groups, to date there appears to be no national scan or landscape analysis. This study, selected for and generously funded by an ACRL Scholarly Communications Research Grant, sought to identify whether, how, and on what scale this work is happening, what drives or hinders it, and what it looks like in different institutional settings.

Literature Review

While this study concentrated on the United States, examples of libraries and archives outside the US provide inspiration for this work. In "Knowledge Exchange and Community Engagement: An Academic Library Perspective," Sidorko and Yang detail a host of efforts by the University of Hong Kong Libraries to engage both local communities and global society, driven in part by their parent institution's strategic priority for knowledge exchange, defined as "engaging, for mutual benefit, with business, government or the public to generate, acquire, apply and make accessible the knowledge needed to enhance material, human, social, cultural and environmental well-being."[18] In particular, the "Hong Kong Memory Project" sought to preserve the city's collective memory and cultural heritage through the curation

and presentation of oral histories in an online repository, to ultimately "serve as a major community resource for all Hong Kong people and those with interests in Hong Kong history, architecture, culture, customs, etc."[19]

In Indonesia, the library at Petra Christian University launched the Surabaya Memory (SM) Project by collaborating with individuals and groups external to the campus. An early goal of the project was to collect and digitally preserve in the library's institutional repository the city's historical and cultural heritage materials; later, this partnership blossomed into additional outreach such as exhibitions, educational activities, and events held in local communal spaces like malls.[20] SM eventually led also to the city's planning department sharing public documents and government reports, and to the library's increased digitization and cataloging work. In "Leadership Role of an Academic Library in Community Outreach: Surabaya Memory Project," Toong Tjiek Liauw asserts that SM has helped define the institution as an "engaged university,"[21] which Westney characterizes as one that fosters "dynamic partnerships …with external constituencies to advance knowledge while building community through collaboration."[22] In the case of SM, the project also elevated the status of the library within its parent institution. The knowledge generated by the university-community interactions came full circle and was integrated into the university's academic curriculum by providing course assignments and applied service-learning opportunities.[23]

The "Chinese Canadian Stories Project," led by the University of British Columbia Library, sought to unearth the important but often under- and misrepresented contributions of Chinese immigrants to Canadian history.[24] The library welcomed community members and groups, such as the Gee How Oak Tin clan association, to share their family histories and expertise through digitization workshops and translation of primary sources. Another Canadian venture, the Digital Archives and Marginalized Communities Project (DAMC) at the University of Manitoba, used a participatory approach with community stakeholders to create databases documenting missing and murdered indigenous women, sex worker communities, and the legacy of Indian residential schools in Canada.[25] Collection development efforts, "driven by priorities established in conjunction with community partners," included public records in the form of both print and web media, ephemera, commemorative initiatives, informational pamphlets, images, and the like alongside academic publications.[26] The communities' involvement was all-encompassing, beyond "typical processes such as collection development, appraisal, arrangement, and description [to] …planning the digital archives itself, controlling all aspects of design, functionality, and appearance," and even hiring community members to serve as consultants.[27] This participatory, collective ownership approach was made possible only by building deep relationships, open communication, and trust among community, activist, and academic partners and by practicing sensitivity to access and privacy concerns.

Closer to home, we find scattered examples in the published literature of university-community collaborative collection development within the United States. The University of Louisville Archives and Special Collections has a collection development plan that specifically includes "a focus on documenting the greater Louisville area …[and] reflects the University of Louisville's commitment to …community engagement."[28] The Louisville Underground Music Archives (LUMA) project intentionally incorporated community members' knowledge and input through community donation days, community-supplied metadata, and an advisory board with representation from members in the local music scene.[29] Boston's Northeastern University Library's Archives and Special Collections Department also worked with community

advisors to collect histories from the city's "African American, Chinese, Latino, and gay and lesbian communities" in an effort to diversify their collections, bring forth underrepresented perspectives, and counter dominant narratives in mainstream media.[30] Another project guided by an advisory board is the *Gi-gikinomaage-min*, a collaboration between Grand Valley State University Libraries and the Native American community of West Michigan to document the Urban Native Relocation Program by conducting oral histories, digitizing primary source materials, and partnering with local organizations. Shell-Weiss, Benefiel, and McKee, in their article "We Are All Teachers: A Collaborative Approach to Digital Collection Development," eloquently summarize the project as "a model not just for collaborative collection development but also for community engagement," as these collections "add to the diversity of perspectives represented in their [the library's] holdings."[31] The project builds relationships with the community beyond the institution and invites community knowledge into the canon of the academic library. Shell-Weiss et al. are clear that this project intends not only to document, but also to give voice and platform to, the community and ultimately to channel this information to power Native Studies scholarship and curricula, thereby creating new knowledge.[32]

Methods

Rather than limit the study to a single department within academic libraries, such as archives or special collections, the researchers chose to invite responses from anyone employed in an academic library in order to capture a wide, bird's-eye view of the current landscape of library-community collection development partnerships. For example, in some libraries, perhaps subject or liaison librarians are working with their academic units on community collaborations that generate new materials for the library's circulating collection; institutional repository (IR) managers might ingest unique community collections into the IR; technical services departments might perform original cataloging on the items; and/or perhaps reference and instruction librarians incorporate the materials into classroom settings. By inviting responses regardless of one's title or position, the study could unfold without preconceptions of which personnel and departments were most likely involved in the work; if the study had targeted one entity only, such as acquisitions, work in other areas may have been missed. This approach also allowed respondents to report on their library's and archive's activities even if they were not directly involved in the work, in order to mitigate cases where those who *were* involved did not respond. The researchers recognize that academic librarianship and archival work are distinct, but there is overlap insofar as archives typically operate within the context of the parent library, as part and parcel of the whole.

This study, vetted by the researchers' institutional review board, employed a mixed methodology. Researchers administered a 20-question electronic survey via Qualtrics to relevant library electronic discussion lists (see table 1) and incentivized its completion by the option to enter one's email address for a $100 gift card drawing. (Appendix A presents the survey instrument, the questions of which were developed from the authors' own experiences working with the local lowriding community on the San Diego Lowrider Archival Project to document the history of the movement in the city and surrounding region.) The survey, a mix of open- and closed-ended questions, contained basic demographic questions about the respondent's institution and position, followed by questions asking whether/how the respondent's academic library currently engages in collaborative collection development with its local public community, when and why the work initially began, and how they

would describe the community population(s) and materials involved in the project(s). If the respondent indicated that their library did not engage in this work, the survey asked why, and whether their library had any future plans to pursue it. Information identifying specific persons and institutions has been removed from results presented below.

TABLE 1	
Listservs on Which the Authors Solicited Survey Respondents	
Electronic Discussion List (Listserv)	**Listserv Address**
ACRL Digital Scholarship Section (DSS) Digital Humanities Discussion Group (ALA)	dss-dh_dg@lists.ala.org
ACRL Scholarly Communication (ALA)	scholcomm@lists.ala.org
ALCTS Acquisitions Section (ALA)	acqnet@lists.ala.org
ALCTS Collection Management Section (ALA)	colldv@lists.ala.org
ALCTS Preservation Administrators' Interest Group (ALA)	padg@lists.ala.org
College Libraries Section List (ALA)	collib-l@lists.ala.org
Electronic Resources in Libraries List	eril-l@lists.eril-l.org
Library and Information Technology Association List (ALA)	lita-l@lists.ala.org
OCLC-Cataloging	oclc-cat@oclclists.org
SCORE—CARL IG: Scholarly Communication and Open Resources for Education (SCORE)	score@listserv.carl-acrl.org
Serials in Libraries Discussion Forum (NASIG)	serialst@simplelists.com
Sharing and Transforming Access to Resources Section (STARS) (ALA)	stars-l@lists.ala.org
University Libraries Section List (ALA)	uls-l@lists.ala.org

At the conclusion of the survey, respondents whose libraries are presently involved in collaborative collection development with the local community could indicate that they were available for a follow-up interview with the researchers to provide greater detail about the project's vision, genesis, development, and future direction. The interview was designed as an opportunity for participants to bring attention to their work, voice their experiences and recommendations, and spark a national conversation on the evolution and diversification of collection development practices. (Appendix B lists the interview questions; like the survey, the interview questions grew out of the authors' own experiences working on a collaborative collection development project.) The researchers also sought to interview a member of the library's local public community, a person identified and recommended by the library respondent due to their heavy involvement in the work, to gain a multifaceted view of the library-community collaborative collection development experience. (Appendix C contains the community member's interview questions, which parallel those of the library interview.) Due to health and safety concerns related to COVID-19, researchers conducted interviews virtually via Zoom. A case study featuring Georgia College and State University in Milledgeville, Georgia, is presented in the results section below.

Results
Survey
An initial 145 survey responses were received; but, after removing responses in which institu-

tions were not clearly identified, were located outside the United States, or were duplicated, the viable total responses were reduced to 118. These 118 respondents were employees at United States academic libraries, with a wide variety of geographic locations and institutions represented. The highest percentage were from doctoral universities (34%) as classified by Carnegie, followed closely by master's colleges or universities (31%). Thirty-two percent (32%) of the total reported that their institution is located in a town/city/metro area with a population under 50,000, while 20 percent are located in an area with more than a million people.

When asked to identify the single category that best described their position, 31 percent classified themselves as faculty librarians, 20 percent as department heads/chairs, 18 percent as nonfaculty librarians, 14 percent as director/dean, 11 percent archivists, 3 percent as support/paraprofessional, and 3 percent as other. It is important to note that respondents self-identified as librarians (either faculty or nonfaculty) more than four times as often as archivists, suggesting that the work of collecting and curating community materials is not limited to archives and archivists but intersects with librarianship as well. In addition to this classification, respondents were required to provide their position title. Figure 1 is a word cloud that represents the frequency of terms (greater frequency is indicated by larger font size) occurring in these titles. The top five most frequently occurring terms were "Librarian," with 53 occurrences, followed by "Collections" with 29, "Special" with 22, "Head" with 21), and "Services" with 19. (Two terms were removed from the pool because they were so specific they would have jeopardized the respondents' anonymity.)

FIGURE 1
Visual Representation of the Frequency of Terms in Respondents'
Self-identified Position Titles

Figure 2 illustrates respondents' answers to the survey's central question: Does your library collaborate (or has it collaborated) with the local community on collections work (development/curation/preservation)? Significantly—and perhaps surprisingly—more than *three quarters* of respondents answered affirmatively.

FIGURE 2
Percentage of Respondents Whose Library Collects, Curates, and/or Preserves Materials from Their Local Public Community

Does your academic library intentionally collect, curate, and/or preserve materials (of any type) created or owned by the local public community (surrounding your academic institution), or has your academic library done this work in the past?

- Yes, we collect, curate, and/or preserve materials created by the local public community or have done this work in the past (n = 90, 76%)
- No (n = 22, 19%)
- I don't know (n = 4, 3%)
- No, but we have future plans to collect, curate, and/or preserve materials created by the local public community (n = 2, 2%)

After completing this core question, 55 respondents exited the survey, with the remaining 63 completing the rest. When asked how long their library has been doing this work, 42 (67%) of the 63 indicated that it began over a decade ago. One respondent commented, "Archiving these materials has been incredibly significant to the Libraries and the Archives for decades." Another said, "Our college was founded at the same time our town was founded; the town's history and our college history are inextricably linked since the early 1800s. Therefore, we have been collecting materials from our community for nearly 180 years." For a small number (5), the effort is less than two years old: "This is a fledgling initiative for us but ties strongly to our campus mission and vision," one wrote, while another offered, "We are a relatively new (3 years old) archive in the university library and are excited to involved [sic] the community and grow the collections so that the area is represented."

FIGURE 3
Timeframe When Respondents' Libraries First Engaged in Collaborative Collection Development with Their Local Community

When did your academic library first collect, curate, and/or preserve materials created/owned by the local public community?

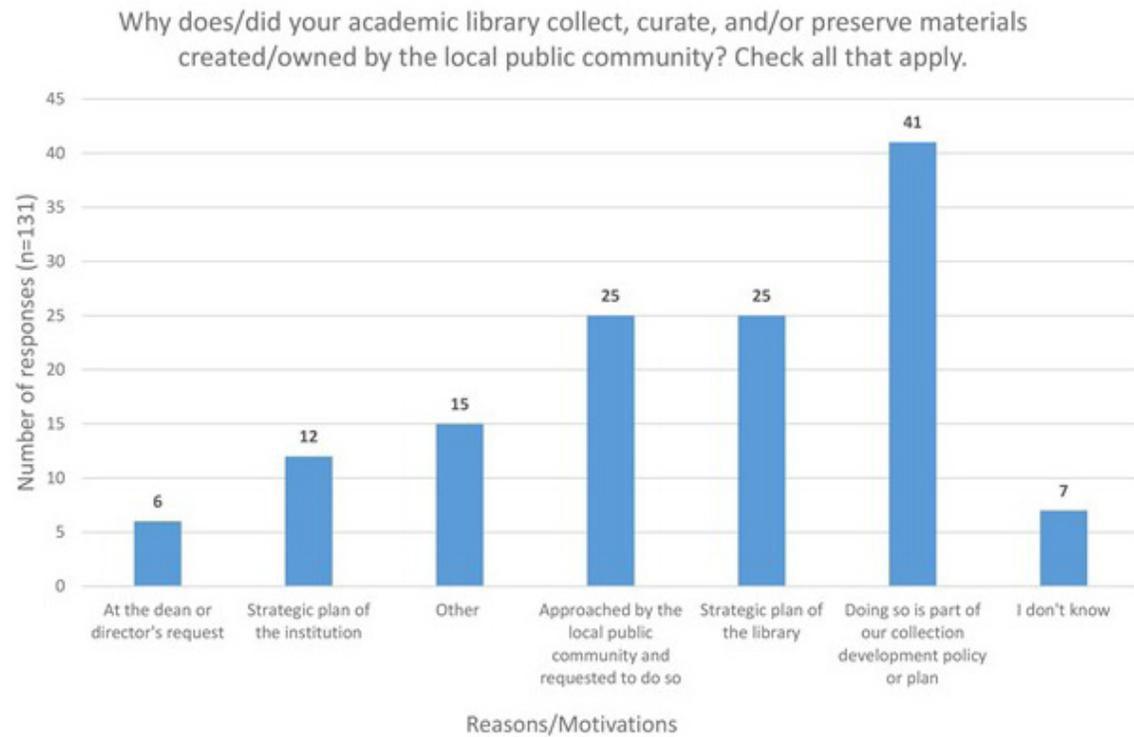| Timeframe	Number of respondents (n=63)
Within the last year	2
1-2 years ago	3
3-5 years ago	8
5-10 years ago	1
Over 10 years ago	42
I don't know	7
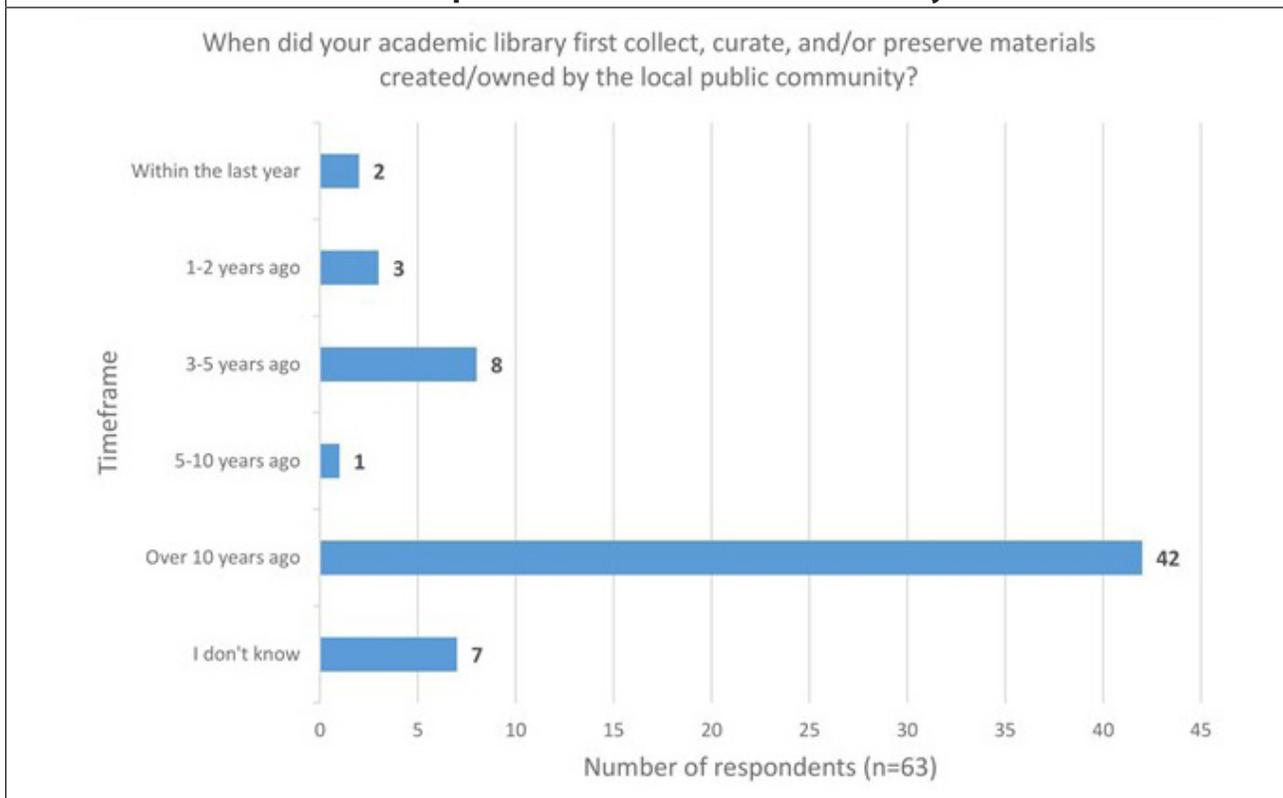
When asked to identify *why* their library does this work, respondents most frequently indicated its inclusion in their library's collection development policy or plan, followed equally by inclusion in their library's strategic plan and a request by their local public community. Figure 4 shows this breakdown. In their comments, respondents expounded on the factors driving these collaborations. Some referred to a responsibility to preserve the materials, lest they be lost forever. Others cited support for student and faculty research, as the materials provide rich learning experiences, as well as long-standing relationships between the institution and the local community. Some situate the work within their broader institutional context: for example, "We consider it part of our mandate, as the flagship institution of our state, to collect materials about the region."

Fifty-seven (57) respondents supplied qualitative information about the nature of their collaborative collection development work—for example, the history/origins of the project(s), the materials (type, format, content), their workflows and processes, and the demographics of the communities with whom they work. This data revealed a wide, diverse range of unique projects; here are some of them:

- "We partnered with the natural science community and considered ourselves the best local option for collecting local data—about specimens, coastal conditions, local population/demographic shifts, and formed a data portal."
- "There is an ongoing research project led by a faculty library [sic] to document a regional theater. Their items have been digitized and placed in the University's institutional repository."
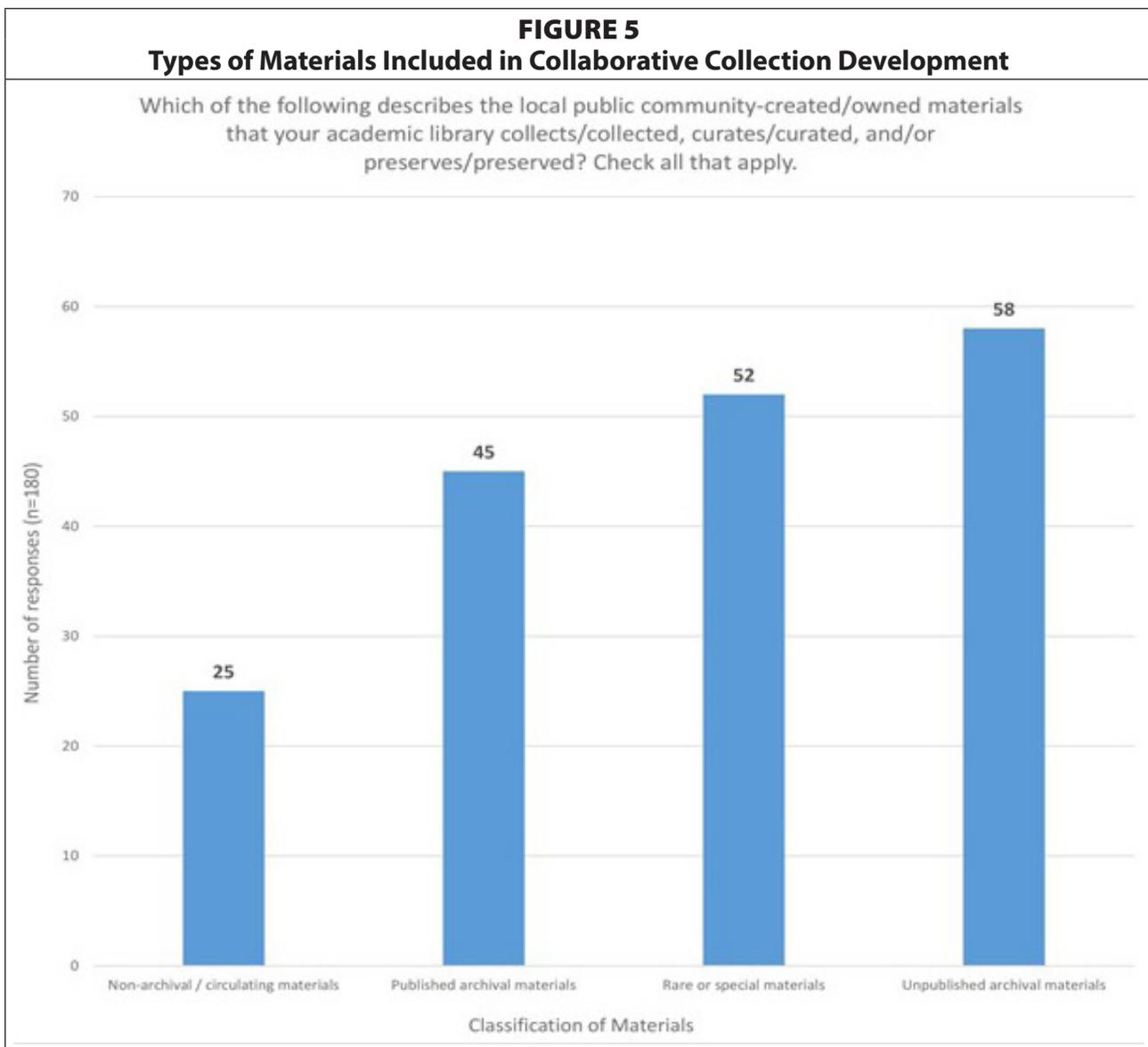
FIGURE 4
Respondents Classify the Reasons/Motivations for Their Collaborative Collection Development Efforts

Why does/did your academic library collect, curate, and/or preserve materials created/owned by the local public community? Check all that apply.

- "The materials were collected at one day events for a history harvest. Format was usually photos and digitized on the spot. New workflows are being developed so the community can submit materials directly to the institutional repository."
- "Our mission is to document the history and people of the local area so we accept donated collections, and actively seek them. In addition, we conduct oral history interviews locally to curate representative collections about our city and region."
- "In the latter part of the 20th century and continuing today, the library collects local government documents, including budgets, financial reports, grand jury reports, environmental impact reports, and climate action reports."
- "We have a circulating music collection (primarily CDs) of musicians/bands/solo acts that have either a small or large connection to the city of Milwaukee."
- "[Our library] collects materials by and about Riverside and San Bernardino counties as part of its larger collection development plan. These materials may be placed in the circulating collection and/or Special Collections and University Archives. While books are my primary collecting format, the Library is open to other formats as well."
- "We do web crawling of some local community blogs that focus on University events as well as Twitter accounts unaffiliated with the University for the same reasons."

For all their diversity, many of the projects emphasize historical documentation of local communities and organizations, ostensibly to capture and reveal a more complete picture of their establishment, development, growth, and change. In some cases, the projects have an explicit connection between the university and the local public community, such as current

collaborations between faculty members or units on campus and specific community populations or organizations, while in others the connection is less precisely articulated. The materials themselves are extremely varied and dependent on the specific project and institution's focus. They include books, manuscripts, images, video, audio, posters, signage, art, data, family and personal papers, genealogical documents, oral histories, CDs, cassette tapes, church records, newspaper clippings, scrapbooks, diaries, letters, brochures, pamphlets, zines, maps, ledgers, meeting minutes, vital records, realia, local government documents, directories, and more. It is important to note that the majority, though not all, of the collections described are archival, historical in nature with preservation goals forefront. But some are more contemporary and are made available in the circulating stacks or in other ways, such as "exhibitions to highlight these materials." One respondent wrote that they routinely confront "the decision of whether to put such books in the stacks or archives." The trend toward archival materials is evident in figure 5, which depicts respondents' classification of the types of materials they collect, curate, and/or preserve.

FIGURE 5
Types of Materials Included in Collaborative Collection Development

Which of the following describes the local public community-created/owned materials that your academic library collects/collected, curates/curated, and/or preserves/preserved? Check all that apply.

Like the materials, the populations with whom respondents partner on collaborative collection development are diverse. The survey asked, "Is the local public community population(s) with whom your academic library has worked to collect, curate, and/or preserve their materials a minority or underrepresented population within your town or city? If yes, please elaborate." Thirty-six respondents (57%) answered "yes," while 19 (30%) answered "no," and 8 (13%) indicated they did not know. (See figure 6.) Qualitative responses provided greater details about the populations. In some cases, they are religious groups (such as Jewish or Quaker communities), while in others, they are racial or ethnic minorities (such as Indigenous or Latinx communities). Respondents emphasized the importance of giving voice to historically underrepresented communities, displaced populations, women, and people of color. In one representative example, a respondent wrote, "I live in one of the whitest states in the country, but I'm proud of my library's efforts to preserve the works and voices of all aspects of the community. Patrons are often pleasantly surprised by the breadth of our collections."

Not all respondents are engaged in collaborative collection development. Figure 7 depicts reasons expressed why respondents' libraries do *not* collect, curate, and/or preserve materials created by their local public community. The most often cited reason was that such work is not part of their library's collection development policy or plan (20, or 21%), followed closely by space (15, or 16%), staffing (14, or 15%), and budget and time constraints (each 13, or 14%). Respondents described a host of challenges:

- "We don't have the dedicated staff or the equipment available to do it. We have won a grant that will hopefully allow us to do this finally."

FIGURE 6
Percentage of Respondents Engaged in Collaborative Collection Development with Minority or Underrepresented Populations

Is the local public community population(s) with whom your academic library has worked to collect, curate, and/or preserve their materials a minority or underrepresented population within your town or city?

13%

30%

57%
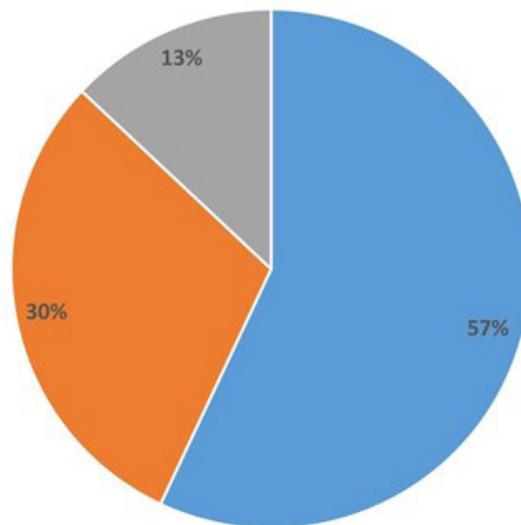
■ Yes (n=36)   ■ No (n=19)   ■ I don't know (n=8)

- " …it was not sustainable and we were not successful because of the workload."
- "It requires a lot of patience, time, developing procedures, workarounds but can be very beneficial for the local research community."
- "Over the 50 years of institutional life the strategic plans of campus and library have been challenged by personnel changes, the vagaries of public financial support, larger university goals, technology changes, and the needs of campus and community. Throughout this time, no one plan was followed and the archives grew from assorted projects rather than planning. Even today local efforts are disjointed …The physical facility is space limited, especially as library space is procured for other academic endeavors."
- "It can be difficult, as a University Special Collections, to adhere to the collecting mandate set by the administration, while also leaving room for materials that may be slightly outside this scope, but that would be beneficial to collect as they do reflect our local population …We also have limited room within our Vault, so cannot collect everything brought to us by the community. We also do not have a dedicated preservationist."
- "Although I have a degree in archives as well as in library science, the archiving activities definitely take a back seat to library work, and I cannot spend more than a few hours a week on them."

Despite the obstacles, most respondents (76%) nonetheless have found ways to do the work of collaborative collection development. One such respondent was Holly Croft, Digital Archivist at Georgia College (GC) & State University, who shared, "We have recently hired a community engagement archivist to focus on collecting materials from our underrepresented

FIGURE 7
Respondents Classify the Reasons/Motivations That Their Libraries Do Not Engage in Collaborative Collection Development Efforts
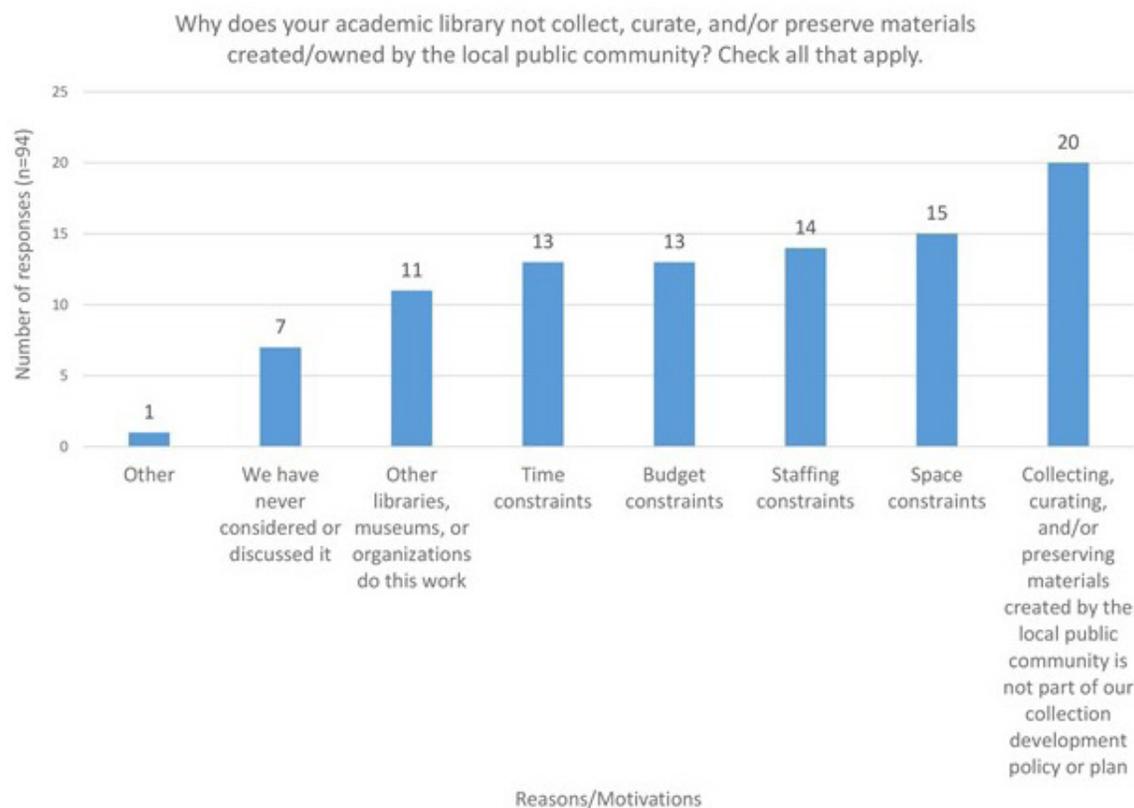
communities in the local area." This action—combining community engagement, collection development, and underrepresented communities—aligned so closely with the research agenda at hand that the researchers promptly contacted Holly and her team at GC to request interviews. While the GC interviews were not the first—researchers had also interviewed a respondent from another institution—their projects were unique in that they were already well underway: not only had grants been received, but community digitization efforts and workshops had taken place. They had the experience necessary to reflect on what had worked well and what posed a challenge. Moreover, they had a local community member involved in the projects who agreed to be interviewed. For these reasons, researchers chose to profile GC as a specific example of an academic library engaged in collaborative collection development with its local communities.

Case Study: Georgia College & State University (Milledgeville, Georgia)

Georgia College & State University is a four-year, public liberal arts school with an approximate enrollment of 6,000 undergraduates and 1,000 graduate students.[33] The institution is located in Milledgeville, a community of fewer than 20,000 residents in central Georgia. In its strategic plan, the institution notes its Carnegie Community Engagement classification.[34]

In two separate virtual interviews, Croft and Jessamyn Swan, whose title "Community Engagement Archivist" reflects a deep institutional commitment to this work, described the Ina Dillard Russell Library's efforts to collect, curate, and preserve Milledgeville's local community history and knowledge. Croft noted that GC's leadership—in particular, GC President Dr. Steve M. Dorman, Interim Library Director Dr. Shaundra Walker, and Associate Director for Special Collections Nancy Davis Bray—has been exceptionally committed to the library's community engagement efforts, explaining that this support "has influenced the way that Special Collections has been able to collect."[35] According to the homepage of the Special Collections website, the department's mission is first and foremost to "serve the middle Georgia region by: 1) documenting the history and culture of Milledgeville/Baldwin County and its contiguous counties and, 2) by ensuring that the lives and experiences of our diverse communities receive historical recognition and representation."[36] Croft herself views collaborative collection development with the Milledgeville community as a responsibility of the college to the town. She used the term "allyship" to describe the type of relationship the Russell Library aims to cultivate with the local community.[37]

In their interviews, Croft and Swan described three distinct college-community collaborative collection development endeavors, each guided by a community advisory board. A third interview with Melvin Baymon Sr., a Georgia College alum and leader in Milledgeville's African American Baptist community, provided additional insight into one of those endeavors, the "Common Heritage" project.[38]

1. Common Heritage: Documenting Milledgeville's African American History

In his interview, Baymon recalled his serendipitous involvement with "Common Heritage." A few years ago, he and his son Jamal, who was then 24 years old, began exploring both their own family history and the early history of their El Bethel Baptist Church, used historically as an educational site when the local school burned down. They wanted to establish an archive; they even had a church-owned property to house the materials. Around the same time, in the fall of 2018, Baymon attended a community gathering in which representatives from the

college shared their desire to document and preserve the town's African American history. "We were looking for direction, and looking for a partner," he said of his church's archiving efforts, so this meeting felt fortuitous.[39] His son, excited about the partnership, encouraged him to join forces with the college.

Funded by a $12,000 grant from the National Endowment for the Humanities, "Common Heritage" seeks to preserve and share the region's African American history and heritage.[40] Notably, in an interview with the local newspaper the *Union-Recorder*, Interim Library Director Shaundra Walker centers knowledge diversity at the heart of this work: "The whole gist of this project is about recognizing the knowledge that exists in the community and amplifying it and elevating it."[41] The project originally grew out of two endeavors: former city manager, Mr. Barry Jarrett, convened a group to collect oral histories, while Dr. Walker established the groundwork to procure physical documents. (See figure 8.) The two efforts merged into one, and today the oral history group acts as a community advisory board for library-community partnerships.[42] In a series of "harvest days" held at local community sites, community residents brought personal artifacts—such as photographs and documents—where the items were scanned and returned to their owners.[43] (See figure 9.) Participants received digital copies of their items and were asked to grant permission for the digitized materials to be added to online collections that ultimately would be shared with the Digital Library of Georgia.

FIGURE 8
From bottom left, clockwise: Former Russell Library employee David Dawha, library employees Tanya Darden and Evan Leavitt, and Interim Library Director Dr. Shaundra Walker peruse local historical materials. *Photo credit: Anna Leavitt. Reprinted with permission.*

FIGURE 9
Former library graduate assistant Jarvis Glenn scans an item from Harvest Day participant Edna Stone. *Photo credit: Anna Leavitt. Reprinted with permission.*

As part of the project, the library also offered an historic preservation workshop for community members and mounted a panel discussion featuring local historians alongside an academic expert on historic African American schools.[44] (See figure 10.) Baymon emphasized the significance of these events, as they conveyed to the community the college's commitment to partnering with them. He appreciated the way that library representatives shared skills, knowledge, and tools and provided community members with new learning opportunities. This "giving back" was particularly important because, although GC is quite old (founded in 1889), Baymon characterized its relationship with the local African American community as relatively new.[45]

Baymon is passionate about the project and described the joy of working alongside local experts and historians, such as author James Finney, who in 2010 published the book *The Making of Milledgeville: The Pictorial History of Baldwin County*.[46] On the other hand, he found that the most challenging aspect was getting people to follow through on their promises to contribute their materials. He encountered hesitation among some and discovered that championing the project's ultimate aims—to unearth and celebrate the vital contributions of the Black community to the region's history—was critical in garnering support and participation. Another challenge was the onset of COVID-19. On March 7, 2020, a community harvest day was held. The project was gaining momentum, Baymon said.[47] And then the pandemic struck. Progress came to a halt. Still, he is optimistic about the future and has many goals he hopes the project will achieve. He describes how crucial it is to tell the stories of *all* parts of

FIGURE 10
Workshop leader Shaneé Murrain talks with participant Lula Larkin. *Photo credit: Anna Leavitt. Reprinted with permission.*

the community, as doing so instills pride in residents and helps them feel connected to their past. "I want young people to access it, to be inspired, to find that they and their family have a story, and that they *matter*. There are many unsung heroes, and by finding them, you find yourself."[48]

2. Remembering Central State Hospital (CSH): A Community Memory Project

Currently underway, the second project, a partnership with the public Twin Lakes Library System (TLLS), originally began when Stephen Houser, the Director of TLLS, approached Croft during her third week on the job.[49] Together, GC and TLLS applied for and received a nearly $50,000 Institute of Museum and Library Services (IMLS) grant for "Remembering Central State Hospital (CSH): A Community Memory Project."[50] The hospital, founded in 1842 but now closed, was "once the world's largest mental institution" and an integral part of Milledgeville and its surrounding community.[51] The project seeks to collect oral histories by conducting interviews with former hospital employees (and potentially former patients) and to harvest digital copies of artifacts possessed by community members, ultimately to record memories "from local community members, who can tell a story that is not often told when we speak about our town."[52] Facilitated by core team members Croft, Swan, Houser, and Russell Library's Manager of Facilities Operations & Planning Evan Leavitt, "Remembering CSH" seeks to build greater awareness and knowledge of mental health and "to give neurodiverse individuals the opportunity to tell their stories, to frame their stories in a context that promotes

understanding and compassion, and to encourage our community to explore their connections to CSH."[53] Once complete, the final product will be shared through GC's institutional repository ("Knowledge Box") and the Digital Library of Georgia, as well as physical and digital exhibits and a day-long symposium during Mental Health Awareness month in 2022.

3. The Seventh Circle Chronicles

Swan began her appointment as Community Engagement Archivist in October 2019; during her interview for the position, she pitched a social justice, community engagement project called the "Seventh Circle Chronicles," named after Dante's *Inferno*, that would give voice, through the collection of oral memoirs, to three "invisible minority" groups in rural mid-Georgia: LGBTQ+ individuals, domestic violence survivors, and inmates convicted of violent crimes.[54] In an unpublished handbook Swan is preparing on the philosophical underpinnings of the project, she writes:

> Like most archives that contain holdings from the modernist era of professional practice, the majority of our holdings tends to reflect the perspective of one demographic: straight white men of middle class or higher economic status …The Seventh Circle Chronicles project will collectively canvass an estimated 24.5% of our population. It will be the latest in a series of initiatives hosted by this institution to the end of diversifying our holdings and in doing so, better representing our actual—diverse—population of stakeholders.[55]

Swan hopes the project will "validate the experiences of people living in a social underworld" and "open and democratize" the archive to all members of the surrounding communities.[56] The physical recordings and transcripts generated by the project will be housed in Special Collections, and digital copies will be made available online. She emphasizes the importance of sensitivity to privacy concerns, involving community participants only at their own comfort level, and acknowledges that anonymity, redaction, and terms of moratorium will be necessary in some cases.

Discussion

The purpose of this study was to explore whether and how academic libraries and archives are partnering with their local public communities to collect, curate, and/or preserve community-created knowledge, particularly nontraditional forms of knowledge historically excluded from the academy; to examine the benefits, opportunities, and challenges of doing so; and to challenge and encourage academic libraries and archives to explore connections between collection development and community engagement. This study confirms that academic libraries and archives are collecting, curating, and preserving knowledge and memory from their local public communities—particularly minority or underrepresented populations—and offers tangible evidence of the opening within the academy, described previously by Chan et al., to knowledge held by those traditionally excluded from scholarly conversations.[57]

This work of collaborative collection development is happening across many different institutional and community settings; it is not highly correlated with institutional classification or town/city/metro size, though in most cases (67%) the work has been underway for a decade or more. In their reflections and interviews, respondents articulated the wide variety

these collaborative collections and partnerships take, including the vast array of materials involved, the diverse populations with whom they partner, and the many challenges that slow or inhibit the work. The majority of the work is happening specifically within archives departments; respondents logged more than twice as many occurrences of unpublished archival material as nonarchival/circulating material in their collaborative collection development efforts. Further research and exploration are needed on whether and how archives are prepared to undertake this work, what additional support they need, as well as how other departments within a library can contribute to this work.

In nearly a third of cases (31%), the library's collection development policy or plan motivates the work. This finding suggests that codifying collaborative university-community collection development into official library policy is an important component of establishing and supporting the work. An example of a collections policy that integrates community engagement is MIT's "Creating a Social Justice Mindset: Diversity, Inclusion, and Social Justice in the Collections Directorate of the MIT Libraries."[58] The policy contextualizes the work of collection development within a broader responsibility to dismantle inequities in power and privilege within scholarly discourse and knowledge production. Calling for "representation of marginalized perspectives" and "community outreach and inclusion," the policy explicitly seeks to "incorporate non-majority voices …[and] deliberately acquire materials through non-traditional publication channels."[59] In addition to library policies and plans, academic libraries should tie this work to their parent institution's strategic plan, mission, or goals, if the parent prioritizes engaged scholarship (for example, those institutions with the "Community Engagement" Carnegie classification). Engaging in work that explicitly supports the parent's commitments and strategic direction is an important way for academic libraries and archives to articulate their value, gain esteem, and attract resources.[60]

Additional areas of research not addressed but prompted by this study include issues such as: processing considerations, access issues, copyright and intellectual property concerns, building relationships and trust among community partners, relationships between existing community archives and academic libraries, communities' rights to decline participation, privacy concerns, outreach strategies, obtaining institutional and external support, making room for this work among competing priorities, and tactics for tying the work to broader library and institutional missions and goals. A particularly pressing area for further investigation includes the connections among collaborative collection development, community-engaged scholarship, and student learning. Several survey respondents mentioned how the materials are used to support student research. For example:

> Archiving these materials has been incredibly significant to the Libraries and the Archives for decades. Community members, faculty members, undergraduate and graduate students, international scholars, members of the media, etc. have all made extensive use of the collection. Our students and faculty frequently use the Archives to inform community-engaged scholarship.

Inviting locally produced forms of knowledge into academic libraries—whether in the form of archival content and/or circulating materials—provides students (and faculty) the opportunity to interact with new and different kinds of information and to engage with new and different sources. This incentive is especially relevant to the "Authority Is Constructed

and Contextual" frame of ACRL's *Framework for Information Literacy for Higher Education* (2016), which seeks to develop in learners an understanding of the nuances of determining a source's authority and expertise and strives to cultivate their ability to "question traditional notions of granting authority and recognize the value of diverse ideas and worldviews."[61] Integrating history, memory, and knowledge from local communities, especially historically marginalized groups, into the library and—ideally—the curriculum, provides students with a more comprehensive and critical view of the topic at hand. It gives voice to those who have been silenced or overlooked in academia in the past, enriches the educational experience of today's students, and supports social justice efforts. As Porterfield summarizes: "With concentrated efforts to collect underrepresented voices in the archival record …repositories are uniquely situated to teach information literacy skills …in a way that promotes social change."[62] Much has been written about the ways in which primary sources and unique holdings in academic archives and special collections can support student learning,[63] but research is lacking on whether, and how, academic libraries are specifically using unique collections *from their own local communities* to provide new learning environments. One impressive example that emerged from this study is at the University of the Pacific, where an interdisciplinary and interdepartmental (the Library; History; Art; Computer Science; Geological and Environmental Sciences) partnership with the local Filipino community resulted in a virtual, interactive model of the California city of Stockton's Little Manila district in the mid-twentieth century, before it was razed to build a crosstown freeway. The final products of this project have become part of both the university curriculum and the library's collection, as well as serving as a teaching tool for local schools.[64]

Finally, COVID-19 poses special challenges for this work. In many cases, outreach and personal connections were key to successful partnerships, but, now that physical contact and face-to-face interactions pose potential danger to one's health, will this work be as effective in a virtual environment? How can libraries cultivate relationships with members of local communities during the pandemic? What new approaches and processes can move the work forward?

Conclusion

As scholars and activists call for wider diversity and inclusivity in definitions of knowledge, and academia prioritizes collaborative, community-engaged scholarship, new opportunities arise for academic libraries and archives to support these values through collection development commitments and practices. Despite challenges, academic libraries and archives are working in a wide variety of ways to collect, curate, and preserve unique forms of knowledge produced by their local public communities. In many cases, these efforts seek to give voice to underrepresented or marginalized populations whose expertise and ways of knowing have been excluded historically from the canon of scholarly knowledge. There are many issues and considerations connected to this work, and additional research is needed, particularly regarding how engagement with local community collections impacts student learning. Libraries and archives committed to collecting, curating, and preserving local community knowledge can draw inspiration from institutions currently involved in this work (such as the Ina Dillard Russell Library at Georgia College), establish it as a priority within their own official collection development policy or plan, and attract attention and resources from their parent institution by connecting it to broader institutional mission, vision, and goals.

APPENDIX A
Survey Instrument

Collaborative Collection Development: Academic Libraries and their Local Public Communities

Hello,

My name is Amanda Y. Makula. I am a faculty member at Copley Library at the University of San Diego, San Diego, CA. My co-investigator Laura S. Turner and I are conducting a research study funded by an ACRL Scholarly Communications Research Grant (www.ala.org/acrl/awards/researchawards/scholcommgrants) and we would like to invite you to participate if you work in an academic library. We plan to publish the results of this research and share it at a professional library conference.

The purpose of this study is to learn if and why academic libraries and their archives are intentionally collecting, curating, and/or preserving materials—of any type—created or owned by their local public community.

If you decide to participate, you will complete one online survey that takes up to 15 minutes. You will be asked things like: "Does your academic library intentionally collect, curate, and/or preserve materials (of any type) created or owned by the local public community (surrounding your academic institution), or has your academic library done this in the past?"

You will also be asked a few questions about yourself and your institution, such as your institution's name and Carnegie Classification, your role at the institution, and the population of the town or city in which your institution is located.

This study involves no more risk than the risks you encounter in daily life.

In the published results from this research, qualitative responses, while not attributed to specific individuals, may be identifiable by the nature of the project(s) and/or materials they describe. We will keep the study data for a minimum of eight years.

There is no compensation for taking part in this survey, but you will have the opportunity at the end of the survey to provide your email address to be entered into a drawing for a $100 gift card.

Additionally, if your academic library has collected, curated, and/or preserved materials created or owned by the local public community, you will have the opportunity to volunteer for a follow-up in-person interview with the researchers. Interview participation requires that a member of the local public community with whom you have collaborated also be interviewed separately for their perspective. You will both receive a $100 gift card for your participation.

Taking part in this study is entirely optional. Choosing not to participate will have no effect on any benefits to which you are entitled. You may also quit being in the study at any time

or decide not to answer any specific questions. Should you decide to participate, please print out a copy of this page for future reference.

I am happy to answer any questions you may have about the study. You may contact me at (619) 260-6850 or amakula@sandiego.edu. You can also contact Laura S. Turner at (619) 260-2365 or lauraturner@sandiego.edu. If you would like to participate, please acknowledge your consent below and then begin the survey. **The survey will close at midnight on Friday, January 31.**

Thank you for your time.
Amanda Y. Makula

Q2 I consent to participate in this survey.
- ☐   Yes

Q3 Institution name: _____

Q4 What is the **Carnegie Classification** of your institution?
- ☐   Doctoral University
- ☐   Doctoral/Professional University
- ☐   Master's College or University
- ☐   Baccalaureate College
- ☐   Baccalaureate/Associate's College
- ☐   Associate's College
- ☐   Special Focus Two-Year
- ☐   Special Focus Four-Year
- ☐   Tribal College

Q5 What is your position title? _____

Q6 Which of the following best fits your position title?
- ☐   Director/Dean
- ☐   Department Head/Chair
- ☐   Faculty Librarian
- ☐   Nonfaculty Librarian
- ☐   Archivist
- ☐   Support/Paraprofessional
- ☐   Other (please specify below): _____

Q7 What is the population of the town, city, or metro area in which your institution is located?
- ☐   0–50,000
- ☐   50,000–100,000
- ☐   100,000–250,000
- ☐   250,000–500,000
- ☐   500,000–1,000,000
- ☐   More than 1,000,000

Q8 Does your academic library intentionally collect, curate, and/or preserve materials (of any type) created or owned by the local public community (surrounding your academic institution), or has your academic library done this work in the past?
- □ Yes, we collect, curate, and/or preserve materials created by the local public community, or have done this work in the past
- □ No, but we have future plans to collect, curate, and/or preserve materials created by the local public community
- □ No
- □ I don't know

Display This Question:

If Does your academic library intentionally collect, curate, and/or preserve materials (of any type)… = Yes, we collect, curate, and/or preserve materials created by the local public community, or have done this work in the past

Q9 Which of the following activities describe your academic library's engagement with materials created/owned by the local public community? Check all that apply.
- □ We collect/have collected local public community-created/owned materials
- □ We curate/have curated local public community-created/owned materials
- □ We preserve/have preserved local public community-created/owned materials

Display This Question:

If Does your academic library intentionally collect, curate, and/or preserve materials (of any type)… = Yes, we collect, curate, and/or preserve materials created by the local public community, or have done this work in the past

Q10 When did your academic library first collect, curate, and/or preserve materials created/owned by the local public community?
- □ Within the last year
- □ 1–2 years ago
- □ 3–5 years ago
- □ 5–10 years ago
- □ More than 10 years ago
- □ I don't know

Display This Question:

If Does your academic library intentionally collect, curate, and/or preserve materials (of any type)… = Yes, we collect, curate, and/or preserve materials created by the local public community, or have done this work in the past

Q11 Why does/did your academic library collect, curate, and/or preserve materials created/owned by the local public community? Check all that apply.

- ☐ Strategic plan of the institution
- ☐ Strategic plan of the library
- ☐ Doing so is part of our collection development policy or plan
- ☐ At the dean or director's request
- ☐ Approached by the local public community and requested to do so
- ☐ I don't know
- ☐ Other (please specify below): _____

Display This Question:

If Does your academic library intentionally collect, curate, and/or preserve materials (of any type)… = Yes, we collect, curate, and/or preserve materials created by the local public community, or have done this work in the past

Q12 What can you tell us about your academic library's collecting, curating, and/or preserving materials created/owned by the local public community? For example:
- ☐ the demographics of the local public community population(s) whose materials your academic library collects/collected, curates/curated, and/or preserves/preserved
- ☐ the format, type, and/or content of the materials
- ☐ the processes and/or workflows employed for collecting, curating, and/or preserving the materials

_____

_____

_____

_____

_____

Display This Question:

If Does your academic library intentionally collect, curate, and/or preserve materials (of any type)… = Yes, we collect, curate, and/or preserve materials created by the local public community, or have done this work in the past

Q13 Is the local public community population(s) with whom your academic library has worked to collect, curate, and/or preserve their materials a minority or underrepresented population **within your town or city**?

If yes, please elaborate.
- ☐ Yes _____
- ☐ No
- ☐ I don't know

Display This Question:

If Does your academic library intentionally collect, curate, and/or preserve materials (of any type)… = Yes, we collect, curate, and/or preserve materials created by the local public community, or have done this work in the past

Q14 Which of the following describes the local public community-created/owned materials that your academic library collects/collected, curates/curated, and/or preserves/preserved? Check all that apply.
- □ Nonarchival/circulating materials
- □ Published archival materials
- □ Unpublished archival materials
- □ Rare or special materials

Display This Question:

If Does your academic library intentionally collect, curate, and/or preserve materials (of any type)… = Yes, we collect, curate, and/or preserve materials created by the local public community, or have done this work in the past

Q15 Is there anything else you'd like to tell us about your academic library's collecting, curating, and/or preserving materials created/owned by the local public community?

_____

_____

_____

_____

_____

Display This Question:

If Does your academic library intentionally collect, curate, and/or preserve materials (of any type)… = No

Q16 Why does your academic library not collect, curate, and/or preserve materials created/owned by the local public community? Check all that apply.
- □ Time constraints
- □ Budget constraints
- □ Space constraints
- □ Staffing constraints
- □ Collecting, curating, and/or preserving materials created by the local public community is not part of our collection development policy or plan
- □ Other libraries, museums, or organizations do this work
- □ We have never considered or discussed it

- □ Concerns about intellectual property issues
- □ I don't know
- □ Other (please specify below): _____

Q17 Why does your academic library plan to collect, curate, and/or preserve materials created/ owned by the local public community? Check all that apply.
- □ Strategic plan of the institution
- □ Strategic plan of the library
- □ Doing so is part of our collection development policy or plan
- □ At the dean or director's request
- □ Approached by the local public community and requested to do so
- □ I don't know
- □ Other (please specify below): _____

Q18 What can you tell us about your academic library's plans for collecting, curating, and/or preserving materials created/owned by the local public community? For example:
- □ the demographics of the local public community population(s) whose materials your academic library plans to collect, curate, and/or preserve
- □ the format, type, and/or content of the materials
- □ the processes and/or workflows your library will employ for collecting, curating, and/or preserving the materials

_____

_____

_____

_____

Q19 Because your academic library collects, curates, and/or preserves materials created/owned by the local public community (or has done so in the past), you are eligible to participate in a follow-up in-person interview with one of the researchers of this study. Participation requires that a member of the local public community population with whom you collaborated also be interviewed separately for their perspective. You will both receive a $100 gift card for your participation. The researcher would come to your location so no travel is required on your part. Please provide your name and email address if you would like to be considered for an interview. Thank you!

Your Name	
Your Email Address	

Q20 Thank you for completing this survey!

If you would like to be entered into a drawing for a $100 gift card, please enter your email address: _____

APPENDIX B
Interview Questions for Library Representative

When did your library begin collecting, curating, and/or preserving materials created by the local public community? How did this partnership come about?

How many such projects with the local public community do you have? Please describe each.

How would you describe the philosophical or theoretical underpinnings of the project(s)?

Who initiated the project(s)? Does that person(s) work in your academic library, in a community organization, or somewhere else? Please provide their title(s).

Who was involved throughout the project(s), and what were their roles? Please include everyone, both those in your library and those in the local public community.

What kind of work at your library goes into maintaining the project(s)? Who does this work?

Have you had to relinquish other work or projects to have time and resources to devote to this project(s)?

Did/do you receive institutional support or grant funding for the project(s), or do you plan to seek institutional support and/or grant funding? If so, please describe.

What does a "typical day" in the life of this project(s) look like?

What have been the greatest challenges of this project(s)?

Would you do anything differently if you could? If so, what and why?

What have been the greatest opportunities or rewards of this project(s)?

How do you define or measure whether or not the project(s) has been successful?

What are your future plans for this project(s)? What do you envision it will look like in 5, 10, or 20 years?

What else would you like people to know about this project(s) and/or partnership?

What questions do you have for me?

APPENDIX C
Interview Questions for Community Representative

When did you begin working with X library on this project(s)? How did this partnership come about?

How many such projects with X library do you have? Please describe each.

How would you describe the philosophical or theoretical underpinnings of the project(s)?

Who initiated the project? Does that person(s) work in your local community, in X library, or somewhere else? Please provide their title(s).

Who was involved throughout the project, and what were their roles? Please include everyone, both those in the local public community and in X library.

What kind of work in your community or organization goes into maintaining the project?

Who does this work?

Have you had to relinquish other work or projects to have time and resources to devote to this project(s)?

Did/do you receive any funding or support for the project(s) (for instance, from a parent organization, from a grant, or other source), or do you plan to seek funding or support? If so, please describe.

What does a "typical day" in the life of this project(s) look like?

What have been the greatest challenges of this project(s)?

Would you do anything differently if you could? If so, what and why?

What have been the greatest opportunities or rewards of this project(s)?

How do you define or measure whether or not the project(s) has been successful?

What are your future plans for this project(s)? What do you envision it will look like in 5, 10, or 20 years?

What else would you like people to know about this project(s) and/or partnership?

What questions do you have for me?

Notes

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Navigating the Network: An Exploratory Study of LGBTQIA+ Information Practices at Two Single-Sex HBCUs

Justin de la Cruz, Amy Winfrey, and Stephanie Solomon

Using focus groups and interviews, this study investigates the information practices of 23 LGBTQIA+ students attending Morehouse College and Spelman College in Atlanta, GA. Responses suggest that students rely heavily on peer support and word of mouth for information seeking and sharing. Social media seems to play a large role in sharing information on campus, even for students who are not active on social media platforms. And students' personalities (such as level of extroversion) may indirectly impact the amount of information they receive. Overall, these students seemed to face the challenge of being accepted for who they were on campus, which may have negatively impacted their information exchanges.

Introduction

If academic libraries intend to provide services for their entire campus (faculty, staff, and students), they must ensure that all of their potential patrons both have access to library services and feel comfortable using them. In this vein, Lynn Silipigni Connaway embraces the concept of the library in the life of the user, encouraging academic libraries to proactively engage with their communities to understand their information needs and, in turn, shape library services: "The challenge is, first and foremost, to remember to listen. Unless we understand students' lives, we will not be able to fit within their natural information flows."[1] One "multiply marginalized"[2] group—Lesbian, Gay, Bisexual, Transgender, Queer, Intersexual, Asexual, and similar sexual and gender minority identifying (LGBTQIA+) people of color—is particularly susceptible to being overlooked in academic libraries: White heteronormative biases are built into the Library of Congress Classification[3] and pervade academic libraries' spaces, staffing, and reference service delivery.[4] Consequently, there is a dearth of research on this population, their information needs, and their use of academic libraries.

Accordingly, this study explores the information practices of LGBTQIA+ students attending two single-sex Historically Black Colleges and Universities (HBCUs), Morehouse College

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and Spelman College, to begin an investigation into areas where academic libraries could improve their services. By collecting data from students, we hope to shed light on implicit biases in campus and library services and to provide possible suggestions for improvement. Morehouse College, established as a men's college in 1867, and Spelman College, founded as a women's college in 1881, are located side by side in the Atlanta University Center (AUC), and both institutions express their missions in gendered terms—preparing "Morehouse Men" and "Spelman Women" for lifelong success. Although there are no official definitions of a Morehouse Man or Spelman Woman, documents outlining the administration's expectations of their students often refer to feelings of brotherhood and sisterhood.[5] Heteronormative labels are thus ingrained in the cultures of both campuses.

Through this study we aim to address the following three research questions:

1. How do HBCU students who identify as part of the LGBTQIA+ community seek out and share information related to their various experiences on campus?
2. What role does the library play in these processes?
3. How could the library provide better information services for this population?

Conversations about the LGBTQIA+ experience usually take an all-encompassing approach. The reality is that there is no monolithic, "one size fits all" experience, and we hope to avoid implying any such thing with this article. There are innumerable segments of the LGBTQIA+ community, and each has unique issues and concerns. The present research was

FIGURE 1 **List of Terms**	
Afrekete	LGBTQIA+ student group at Spelman College.
Atlanta University Center (AUC)	A collection of four private HBCUs: Clark Atlanta University, Morehouse College, Spelman College, and the Interdenominational Theological Center.
Brother/Sister Program	Each incoming freshman at Morehouse and Spelman is paired with a student from the other college. That is, a student at Morehouse will be assigned a student at Spelman as his "Spelman Sister," and she would refer to him as her "Morehouse Brother."
Clark Atlanta University (CAU)	A coeducational HBCU formed in 1988 through the consolidation of Clark College (founded in 1869) and Atlanta University (founded in 1865).
Historically Black Colleges and Universities (HBCUs)	According to the Higher Education Act of 1965, "any historically black college or university that was established prior to 1964, whose principal mission was, and is, the education of black Americans, and that is accredited by a nationally recognized accrediting agency or association."[8]
Morehouse College	A private, historically Black, liberal arts men's college founded in 1867.
New Student Orientation (NSO)	A week of orientation activities for every incoming AUC student held in August before the start of the fall semester.
Predominantly White Institutions (PWIs)	Institutions of higher education where Whites account for 50 percent or greater of the student enrollment.
Robert W. Woodruff Library	Academic library that serves the member institutions of the Atlanta University Center.
Safe Space/ Morehouse Adodi	The LGBTQIA+ student group at Morehouse College was first named Safe Space. It was renamed Morehouse Adodi in the fall semester of 2019.
Spelman College	A private, historically Black, liberal arts women's college founded in 1881.

designed as an exploratory study of information practices that might be helpful to libraries. Both academic and public libraries have sought ways to meet the needs of their patrons, but according to Bruce Allen Carter, there is a lack of research on the needs of LGBTQIA+ Black college students; the literature largely focuses on students at Predominantly White Institutions (PWIs).[6]

It will be helpful to define our terms before proceeding. Merrill Perlman provides a succinct analysis of capitalization for racial terms; we consider capitalizing "Black" and "White" as analogous to capitalizing "African American" and "Caucasian."[7] In our focus groups and interviews, students used the term "Black" almost exclusively, which is why we will use Black instead of African American. And while many abbreviations have been used to refer to sexual and gender minorities, we have settled on Lesbian, Gay, Bisexual, Transgender, Queer, Intersex, Asexual, and the plus sign (LGBTQIA+) to represent all sexual and gender orientations outside of cisgender heterosexuals. In certain situations, to help avoid verbosity, "queer" will be used as a single term for students identifying as LGBTQIA+.

Figure 1 provides a summary of important keywords, terms, and abbreviations used throughout this article for the reader's reference.

Literature Review

Our research focuses on the ways LGBTQIA+ students at Morehouse College and Spelman College seek out and share information about their experiences on campus, which aligns with the concept of information practices as described by Vanessa Lynn Kitzie.[9] We are interested in how these students seek out and find support from their peers and institutions and what channels they use to communicate. Kitzie, quoting Brenda Dervin,[10] describes information practices as "enactments of interactions between persons, structures, realities, and information within a given moment in time-space." Kitzie contends that, when studying the LGTBQIA+ population, it is important to investigate "the social and cultural strategies that shape their resultant information practices."[11] Accordingly, participants' identities cannot be separated from the strategies they use. Reijo Savolainen states that "the concept of [information] practice shifts the focus away from the behavior, action, motives, and skills of monological individuals."[12] Thus, one key aspect of studying information practices relevant to this research is seeing people "as members of various groups and communities that constitute the context of their mundane activities."[13]

An extensive search revealed no literature regarding Black LGBTQIA+ individuals and academic libraries at either Predominantly White Institutions (PWIs) or Historically Black Colleges and Universities (HBCUs). However, there have been studies on providing library services to LGBTQIA+ populations that should be noted here. Some literature focuses on providing services from a "queer perspective" and argues that library workers should be LGBTQIA+ activists in their libraries and on their campuses: Mehra and Braquet and Drabinski propose that LIS professionals move from seeing themselves as merely neutral providers of information to active social change agents.[14] Others have surveyed LGBTQIA+ students to determine information needs from their perspectives. Pascal Lupien emphasized the importance of having an updated collection, noted patrons' lack of awareness of resources already available in the library, and encouraged libraries to present a welcoming and nonjudgmental environment so students feel comfortable asking for help.[15] Melissa Adler came to a similar conclusion, that "librarians who strive to offer a strong LGBTIQ collection and services can have a tremendous impact on library users' experiences."[16] Kitzie also examined the information

practices of people with LGBTQIA+ identities and emphasized the importance of librarians being aware of the LGBTQIA+ community's "experiential and embodied knowledge" when serving and providing resources, as well as being willing to look outside of formal information sources.[17] Aubri Drake and Arlene Bielefield surveyed adults who identified as transgender, concluding that they have different accommodation needs from all LGBQTQIA+ individuals.[18] These studies speak to the ways libraries can improve their services for LGBTQIA+ patrons, which informs the approach to our third research question on this topic.

Broadly speaking, there remains a dearth of literature on HBCU academic libraries and the needs of their students. While a few articles on HBCU libraries have focused on the digital divide and online communications,[19] none surveyed the library from the students' perspective. Irene Owens offers a review of the library literature regarding HBCUs, but most of the studies focused on collections, programs and services, disparity among libraries, and staff.[20] There is no mention of literature assessing students' needs from their viewpoint, something we propose to partially address by exploring how LGBTQIA+ HBCU students find information support.

There is also a specific need for HBCUs to provide more support for their LGBTQIA+ students at an institutional level. One survey discovered that, out of 99 HBCUs, only 21 have LGBTQIA+ student organizations.[21] Several articles address the historically conservative stance most HBCUs take toward issues of LGBTQIA+ students and the need for more student support for that population; these studies cite the institutions' Christian legacies, the perception of homophobia in the Black community, and strong commitments to traditions as some of the reasons for the resistance to change.[22]

Methodology

We used focus groups and individual in-depth interviews with a total of 23 LGBTQIA+ students from Morehouse College and Spelman College to gather qualitative data for this exploratory study. This study was approved by the Institutional Review Boards at both Morehouse College and Spelman College, who also both gave permission for us to deposit anonymized transcripts from this research in the AUC Woodruff Library's institutional repository.[23] Before providing quotes in this article and posting the transcripts online, we cleaned the data of identifying information, including names, roles in organizations, and specific locations, such as students' dorms. These research practices were told to all participants before their participation, and all participants signed informed consent forms that detailed these practices as well. All participation was completely voluntary, and participants could withdraw from the study and ask that their responses be withdrawn at any time.

We hired two student assistants from the LGBTQIA+ student community, one from Morehouse and one from Spelman, to help recruit participants and conduct the focus groups and interviews. The choice to ask student assistants to lead focus groups and interviews was made with the intention of avoiding any potential bias of librarians asking students questions about library services: we are working to improve library services that we provide to students, but in doing so we are asking those students to critique our work. Students may be uncomfortable providing criticisms of library services directly to librarians and may simply say what they think we want to hear. Additionally, since we are essentially outsiders to the LGBTQIA+ student population, there was a concern that students may feel uncomfortable sharing their experiences with us directly via focus groups and interviews. Using students as interviewers mitigates these potential problems.

All study participants were members of the LGBTQIA+ community. From Morehouse, participants self-identified as five gay males, one queer/questioning male, and one bisexual male. From Spelman, participants self-identified as five bisexual females, three pansexual and polyamorous females, two queer females, two lesbian females, one female demisexual, one nonbinary queer participant, one transgender queer participant, and one participant unsure/questioning. We relied on convenience and snowball sampling, asking our student research assistants and participants to spread the word, posting flyers on campus, and contacting campus faculty and staff to gather participants.

We interviewed a total of 23 students: seven in the Spelman focus group, two in the Morehouse focus group, nine Spelman interviews, and five Morehouse interviews. All students chose to participate either in a focus group or in an interview; no students participated in both. All participants were given a $20 gift card for their time.

Both focus groups were conducted in a library meeting room. The Spelman focus group lasted 60 minutes and the Morehouse session lasted 28 minutes, with the length discrepancy most likely explained by the difference in the number of participants (seven versus two, respectively). Notably, each focus group ended with participants asking the moderator to turn off the sound recording so that participants could further discuss topics that had arisen during the discussion.

For the in-depth interviews, our research assistants interviewed participants at any time and in any location on campus that was sufficiently private. Interviews from both Spelman and Morehouse ranged from 5 to 23 minutes. Five interviews lasted 10 minutes or less, and only four interviews exceeded 20 minutes. It is difficult to explain this variation in length. Some respondents were terse in their responses, and student assistants did not always ask follow-up questions during interviews.

Both research assistants completed online human subjects training, and both were trained on conducting qualitative research through mock focus group sessions with librarians who were instructed to be unruly participants. To give the students experience managing unruly focus groups, one librarian was asked to derail the conversation (by going off topic), while others were told to stay quiet or provide vague, general answers without depth.

Our focus group guide was developed based on techniques from Guest, Namey, and Mitchell.[24] We designed the focus group guide in consultation with our student research assistants, who, as members of our target research population, proofread the questions to improve their clarity. Data collected from focus groups were used to inform the construction of interview questions. We reviewed the data for overarching themes and then attempted to craft interview questions based on those themes. Our student research assistants were helpful at this stage as well, once again reviewing our questions for clarity.

Three of the five Morehouse interviews featured questions that differed partially from the other interviews due to a misunderstanding. Instead of using our final interview guide, our student assistant from Morehouse used our initial brainstorming draft of interview questions, which was a long list of ideas (36 questions, in total) that were not all exclusively focused on information practices. Our Spelman student assistant, who conducted all nine of the Spelman interviews and two of the Morehouse interviews, used the finalized set of questions (28 questions). The two sets of questions had a great deal of overlap: of the 28 finalized questions, 21 of those same questions were on the initial draft of interview questions, while an additional two questions referenced the same subjects (alumni and campus safety) in slightly different ways. The eight additional questions delivered to three of the Morehouse interviews covered

various topics that were sometimes unrelated to information practices (example: "Do you think the straight experience is different from that of the LGBTQIA+ experience on campus?"). The associated student responses that did not address our primary research questions were excluded from analysis; but, since the remaining two sets of questions had such a large overlap, we used all of the interviews we received in our analysis.

Our research design was informed by the applied thematic analysis approach defined by Guest, MacQueen, and Namey,[25] and data analysis was done via Microsoft Word. There were four stages of data analysis (see figure 2) and four final themes (see figure 3).

FIGURE 2
Stages of Data Analysis

Preliminary Analysis

We analyzed focus group recordings for preliminary themes. These themes provided the basis for the formation of our interview questions:

(1) Information shared by administration
(2) Information behaviors mapped to personality
(3) The role of social media
(4) "Tolerance" versus "Acceptance" on campus

Main Analysis

We then analyzed focus group and interview transcripts for themes. We used these themes to construct our codebook:

(1) Acceptance — how campus reacts to LGBTQIA+ students
(2) Administration — Morehouse College and Spelman College sharing LGBTQIA+ information
(3) Personality — Information behaviors mapped to personality
(4) Social Media — Using social media to connect and share/receive information
(5) Other — All other data that seem relevant but do not fit into the above codes

After this stage, we worked independently to analyze transcripts again, applying the codes from our codebook. We then reviewed each other's work and discussed the outcomes to agree on the codes we were applying to the data.

Final Analysis

We extracted the coded segments from the transcripts to their own documents and consolidated everything down to four large themes, each with various subthemes (see Figure 3).

FIGURE 3
Themes and Subthemes

Acceptance

- Overall contentment with the campus experience.
- Lack of approval from the campus community, which may proclaim a "tolerance" of LGBTQIA+ students, but which may not provide an accepting, inclusive environment for them.
- Lack of approval from the Black community writ large: historical erasure, and pressure from families and alumni.
- Positive connections with other LGBTQIA+ students.

Support

- Administrative support: sharing information in emails, on flyers, and through New Student Orientation sessions.
- Lack of administrative support: a narrow focus on HIV information sharing, promoting heteronormative values.
- Great support from LGBQTIA+ student organizations.
- Great information sharing support from close peers.

Personality

- Introverts may share and receive less information due to maintaining fewer connections, but may also avoid negative interactions on campus.
- Extroverts may be more involved in activism, more outspoken, and may experience more negative interactions.

Social Media

- Among other things, social media is used for social rights campaigns, and to spread awareness of LGBTQIA+ issues.
- Many apps are being used, but GroupMe was the most popular for seeking and sharing information about college life and campus activities.
- Updates on campus harassment, violence, threats, and safety tips are spread through social media, allowing students to connect in the wake of negative experiences.

Findings

The most prevalent themes were acceptance and support from campus and personal communities, participant personality, and—perhaps most notably—social media. Each of these elements impacts the ways in which these students gathered and disseminated campus-related information, made social connections, and discussed LGBTQIA+ related topics.

Acceptance

The paramount issue was acceptance. Participants frequently acknowledged what they perceived as a lack of approval from not only their campus community, but from the wider Black community. Some of these students indicated that they have not shared their sexual identity or preferences with their families due to a fear of being ostracized or misunderstood. Further, even those who were open with their gender and sexuality indicated that they hoped the status of being an HBCU alumni would "soften the blow of queerness" for their parents. Students variably felt contentment, felt pressure to conform to gender standards, and found acceptance within the AUC LGBTQIA+ community, all of which impacted their ability to comfortably share and receive information on campus—people generally do not share as much information when they are uncomfortable.

A small contingent of students expressed contentment with their AUC experience. Interestingly, many of these students also mentioned negative incidents or encounters. For example, one Morehouse interviewee shared that "people who get on certain [student group] boards or positions feel like they have to like hide parts of who they are," whereas later, when asked what advice they would provide to incoming students, the same participant said, "Morehouse is a place where you can be comfortable in your sexuality and your queerness in general."

Others expressed a sense of pressure to conform to the ideal of the "Spelman Woman" and "Morehouse Man." For most participants, there was a clear line between being accepted versus simply being tolerated on the two campuses. As one Morehouse student put it, "you can be queer at Morehouse, but not explicitly so." A Spelman interviewee expressed a similar sentiment: "it's not nearly as LGBTQ inclusive [on campus] as they [the administration] make it sound." Further, some expressed significant concern over contradictory standards throughout the AUC. One Morehouse student discussed the differences in social interaction expectations for queer students versus non-LGBTQIA+ identifying students:

> Let's say, a party… straight people at parties. You know, they're chilling, they're having a great time, they're minding their own business. Gay people at parties are minding their own business, but when a gay person is expressing themself on the dance floor—they're twerking or whatever—then everybody has a problem with it. So yeah, it just makes the gay people uncomfortable, the queer people uncomfortable.

A Spelman student pointed out the lack of acknowledgment for the college's LGBTQIA+ history: "Spelman does not recognize how many queer people are on this campus. They don't even recognize on our Founder's Day that the college was started by lesbians. So, when you have that level of erasure there, really, you have to carve out your own place." To explain this point: Sophia Packard and Harriet Giles founded the Atlanta Baptist Female Seminary in 1881, which became Spelman College in 1924.[26] Most historical sources fail to address the nature of their relationship, but Faderman describes their "romance of opposites": Packard

doted on Giles in diary entries, the two spent more than three decades together, and in 1909 Giles was buried with Packard under a single tombstone.[27]

With so many participants feeling marginalized and minimized, it is no surprise that calls for more outward acceptance from the AUC were prevalent throughout this study. This was encapsulated by a Morehouse student's statement, "I don't want to be tolerated. I want to be accepted. I want to be respected. Not because the rules tell you to, but because it's morally correct to respect me as a human being."

An overwhelming majority of students said they had not researched whether Morehouse or Spelman provided support to LGBTQIA+ students, so they entered the AUC without knowing what they would find in terms of acceptance. However, once on campus, many of these students found a much-needed connection to their LGBTQIA+ peers through various methods, including joining student groups such as Afrekete (at Spelman) and Safe Space (at Morehouse). One Spelman student shared why she felt more comfortable around her LGBTQIA+ peers:

> I feel like I connect better with people who are bisexual, because when I tell people who are straight—like girls who are straight—that I'm bisexual—kinda like when a guy tells another guy he's gay—it's like they automatically think you like them, but it's not even like that. That's why I feel like I connect with LGBTQ students, because they get me.

These networks seemed to provide not only a way to share information, but also the validation and support that members of this community may need to succeed. The face value acceptance and support provided on campus seems to be more effective when supplemented with the connections to—and interactions with—other LGBTQIA+ identifying students.

Support

As is common on college campuses, both Spelman and Morehouse administrations share information about campus events, activities, student groups, and campus safety through emails and flyers posted in public gathering areas. Several students found these methods of information sharing helpful in directing them toward LGBTQIA+ specific groups and events: "[in my] first semester [the administration] sent out some information on Afrekete and that piqued my interest, so that's where I met most of the queer community." Further, New Student Orientations (NSOs) introduced students to campus resources and services. Among those mentioned by students were Morehouse's Safe Space, Spelman's Women's Resource Center, and the Title IX office. For some students, simply having a space dedicated to their specific needs is evidence enough that their campus is an inclusive space. However, many felt these resources were the most basic of requirements for any college campus and explained that more targeted outreach and service efforts would better serve the AUC's LGBTQIA+ community.

A topic that repeatedly made an appearance throughout interviews and focus groups was the need for more unabashed support for LGBTQIA+ students from campus administration. One Morehouse student noted, "me, as a freshmen, we never got the experience, that supposed NSO meeting with everyone in that building learning about the LGBT community and expression and everything like that. No, we didn't get that." Among the suggestions concerning potential areas of improvement were promoting events in a way that is inclusive to sexual minorities, updating the curriculum to include a better focus on intersectionality, and increasing the num-

ber of events specific to the LGBTQIA+ community. As one Morehouse student said, "they don't really have any events that's like centered around us, outside of HIV testing." Another Morehouse student pointed out that a Valentine's Day event flyer portrayed a stereotypical heterosexual couple, which implied that LGBTQIA+ students were not welcome at the event.

For the Spelman focus group, the idea of having counselors on campus specific to LG-BTQIA+ needs was alluring:

> *Participant 2*: We could have a counselor or something.
> *Participant 3*: You know, like lots of schools have diversity inclusion faculty, but it might focus on disabilities, but like having also one…
> *Moderator*: A counselor that is specific for LGBTQIA+ individuals?
> *Participant 3*: Right!

Overall, students acknowledged that there is some support from campus administration, but they also feel the entire AUC community would benefit from more outward expressions of administrative support for LGBTQIA+ issues.

While participating students acknowledged both support and lack of support from campus entities, there was one thing they agreed upon: the strongest support came from other members of the LGBTQIA+ community. Foremost were student groups specific to LGBTQIA+ students, Afrekete and Safe Space, as well as alumni who had participated in those groups. One Spelman student stated that Afrekete helps "you understand what's going on and, like, what's pertinent to the community here. So, it definitely keeps you in the loop." Further, a Morehouse student said these groups allow LGBTQIA+ students to "just come together and share information that happens on each of our campuses and kind of just spread awareness on, like, what's going on and the issues." Clearly, these groups are critical to increasing LGBTQIA+ students' sense of belonging, meeting others in the community, and finding and sharing information.

Outside of official groups, many students indicated that they most routinely gathered and shared information about campus life by communicating with a small group of close friends, in person or via text. Some participants were more active in sharing information with their close social group, such as the Spelman student who said:

> I guess I kind of am a maternal figure in a lot of ways, so people do come to me for advice. And especially like, you know, a little bit younger people come to me for advice. I don't see myself as like the arbiter of everything. I'm definitely not the most knowledgeable person, but I've definitely given advice and like helped people out.

Other students said they mostly receive information when they check in with their close friends. In the Spelman focus group, one participant said:

> I ended up asking other students, and that's how I find a lot of my information out. Because more students can ask more people and reach out to more and different sources of information, so I find that rarely do I ever find answers for problems on campus from people that work there.

One Morehouse student said he still checks with his resident assistant (RA) when he has questions. A Spelman student said that she frequently visited Spelman's Women's Research & Resource Center, which posted information on campus events, and "if I'm not finding out through that, I'm finding out through friends who keep their ear to ground and know more than me." She then directly recognized her role as information receiver among her contacts: "I'm not willing to go out and be like, 'Yeah, I know all these people who throw these parties,' because I don't care… I let my network kind of be that network, so they find out that stuff for me."

These examples could point to a bigger trend: information gatherers sharing with small groups of information receivers. In this kind of model, reaching the information sharers would be key to disseminating information across larger groups of students.

Personality

Student personality greatly impacted perceptions of both acceptance and support on campus. Although we did not ask any questions directly related to personality type, many participants self-identified as introverts or extroverts in their interviews. Introverts often did not detect many issues for the LGBTQIA+ community on campus. On the other end of the spectrum, participants who self-identified as extroverts commonly pointed out injustices and contradictory policies present throughout the AUC.

Participating students who identified themselves as introverts frequently reported decreased peer interactions, which seemed to impact their information-sharing and -gathering opportunities compared to those students who self-described as extroverted. Introverted students were typically less open to outwardly identifying as a part of the LGBTQIA+ community because they did not want to "let [their] sexuality define [them] as a person"; and, although they had a general awareness of queer organizations on campus, they were not active members. One Spelman transfer student said, "I didn't know that there were people like me [at Spelman] for the longest. I didn't know there were orgs on campus that were, like, suited to LGBTQ people, so it was just a lot of kind of figuring things out and playing it by ear." This could indicate that transfer students might not receive the same information that incoming freshman students do via orientation activities. Some of the introvert-identifying students reported that they share their sexual identities one-on-one with other students if they are asked but do not feel the need to broadcast their sexuality in person or on social media.

On the other side of the spectrum, many students participating in this study identified themselves as not only extroverted people, but LGBTQIA+ activists. In addition to indicating a higher quality of information sharing due to being around like-minded people, these students also commonly expressed a feeling of obligation to be outspoken about their sexual identity and to defend their LGBTQIA+ peers. One Spelman student asserted, "if you're not an activist I would question why. And if your politics are not queer-centered and you identify as a queer individual, I would also question why." According to these students, including pronouns and other LGBTQIA+ identifiers in social media profiles, sharing experiences on social media platforms, and being visibly active in queer organizations are an integral part of battling for equality and acceptance not only within the HBCU community, but within society as a whole. Several of these students believed that "you have to lead by example" and that by being open about their identity they "could be helping somebody and not even realize it." Additionally, extroverted participants regularly advocated for "putting things like their

pronouns in their bio because it just takes it out of trans people's responsibility, if everyone is doing it." Contrary to what introverted students said, many of the participants falling into this category indicated that their sexuality could not be removed from their identity and social activism: they were constantly striving, in the words of one Spelmanite, to "[make] sure that Spelman is the best and the safest place for LGBTQ [students]."

Students seemed to present different views of their environments and interactions based on their personality type. Consequently, introverted students may suffer from a sort of information deprivation due to having fewer contacts and communications with peers as compared to extroverted students. More research is needed in this area.

Social Media

Social media is perhaps the most effective tool in connecting this population of students. One participating student stressed the value of social media in their efforts to change how the LGBTQIA+ community is treated within the AUC: "We are trying to get trans rights on this campus and social media, like Twitter, is like a big thing that we've been using. Just getting as many people to retweet us as we can and making dialogue with people." Participants mentioned using social media to share and obtain information, connect with others, and research topics about which they are passionate.

Students identified several social media and dating platforms that they regularly used for communications. While Instagram, Twitter, Snapchat, Tinder, and Grindr were all mentioned, GroupMe was the clear leader in locating and sharing information. GroupMe is an app that allows anyone to start a conversation by inviting others to it, like group text messaging. Students said that a GroupMe could be created for people taking a class together, for example, or for students living in the same dormitory. One participant indicated that, "everything goes down in the GroupMe. Every single party, every single event, just ask, 'cuz somebody knows. It's on there." However, not all social media platforms are treated this way. The sheer number of outlets being used daily by students provides not only a multitude of places to share and obtain information, but also a choice about which types of material they would like to share on each platform.

Students identified several ways in which social media improves their experience on the AUC campus. Only a few students researched the presence of LGBTQIA+ services and groups before deciding to attend Spelman or Morehouse because, as one focus group participant put it, "I didn't want to go to a school that was homophobic and transphobic." There was a consensus that, once on campus, students identifying as LGBTQIA+ were able to share and obtain information more easily, with one student stating, "it's changed from not knowing to just searching on Twitter and that's it." Furthermore, using social media as a tool to normalize and support various LGBTQIA+ movements both on and off campus was common, as was identifying and connecting with supporters of their community. Students were also sometimes able to determine which of their campus peers may be a threat. One student said that, even if they don't use social media, "people are dropping screenshots of tweets in the group chat, or people are like, 'Look at this homophobic thing somebody said on Instagram.'" In this way, social media platforms have become an extension of the public, peer-inhabited physical space of campus. This allows LGBTQIA+ students to stay in touch, but it also allows targeting and harassment to extend to cyberspace.

Assault, harassment, and discrimination were mentioned in both focus groups and interviews. One student shared, "if someone is like, 'Hey, I just got like gay bashed' or something,

then we'll, like, disseminate that information on all of our social media accounts, put it in our GroupMe, and you know, give people tips like, 'Walk in groups' and 'Carry mace' and things like that." As previously mentioned, both schools do share information with students in a variety of ways, but as one student put it, "[social media] just helps a lot with, like, spreading the word and raising awareness… no one really checks their college email, especially at Spelman, because we get so many emails a day versus people just going on Twitter when they're in the [cafeteria]. It's, like, way easier to reach people."

Students also spoke about advocating for issues on social media. Some use social media platforms to support movements and groups that align with their values: "It's way easier to be like, 'Hey, can I retweet this to show solidarity with you?' versus 'Oh, I don't have time to go to this meeting.'" This can provide an opportunity for students to share their thoughts, feelings, and experiences, while also providing information about this community's struggles to those not in the LGBTQIA+ community. A Morehouse student expressed their belief that being open about their sexuality on social media "kinda helps to push the normality of who I am and what I identify as," which can have a significant impact on normalizing LGBTQIA+ presence in places (like HBCUs) where it has historically been neglected.

Unfortunately, there is a dark side to social media that some students mentioned. One Morehouse student received a negative message on Snapchat reading, "Yo, everybody knows you're gay, just come out already." There was also the issue of "random people either commenting rude stuff or talking about it to other people or a family member talking about it to you or whatever." Social media provides various platforms for students to connect, which means opportunities for both beneficial information exchanges and harassment. But it is also interesting to note that in general these students still seemed to rely on small, tightly knit networks of trusted peers to share and discover information that was personally important to them via text or group-based apps like GroupMe.

Discussion

LGBTQIA+ students attending HBCUs face a unique challenge. HBCUs tend to operate in "very culturally conservative environments," which means that "many HBCUs compel students who identify as gay or lesbian to suppress these identities while on campus."[28] Consequently, LGBTQIA+ students can experience challenges with identity formation and expression.[29] Participants were eager to discuss issues of identity, especially on how their LGBTQIA+ identity interacts with their racial identity of being Black in America. While we focused on information practices to research how students connect with their environments, peers, and social structures, we found these discussions of identity to be robust and deserving of additional research.

Overall, we found a few themes that addressed our first research question of how LGBTQIA+ students seek out and share information. Our research suggests that personality may play a role in the information practices of LGBTQIA+ students attending single-sex HBCUs. Students identifying as introverts might establish fewer social connections. And since many students indicated that they relied on their close social networks for information, introverted students may suffer from a sort of information deprivation. Those who espoused social activism seemed to indicate that they built larger information networks through student groups and organizations involved with activism, which may have enriched their information-gathering experiences. Concurrent with these effects, students'

level of extroversion may align with their willingness to share information, including personal information about their gender and sexuality. A willingness to share personal information (whether from a sense of confidence or safety with peers) may strengthen social connections and enhance students' access to information, but further studies are required to explore these topics.

Another important finding involved social media being used, among other things, to spread information on safety and awareness. Students spoke about how they disseminated information about incidents of harassment and violence on campus on social media and through group chats. Acts of harassment, intimidation, and violence at Morehouse and Spelman have confirmed the need for a more open dialogue regarding LGBTQIA+ issues. In April 2018, during the data collection phase of our study, LGBTQIA+ Spelman students received hate mail slipped under the doors of their dormitory rooms.[30] These incidents spurred the creation of the #SpelSafe hashtag on Twitter and Instagram, where current students contextualized the harassment and where Afrekete posted a list of demands for Spelman administrators.[31] Additionally, in July 2019, while writing up the results of our study, a Morehouse employee was placed on unpaid administrative leave pending an investigation into claims about sexual misconduct with LGBTQIA+ students. These claims were posted to Twitter, which allowed other students to respond and share their own experiences the way Spelman students did with #SpelSafe.[32] Students reported absorbing information shared on social media even if they are not active participants on the platforms, as one interviewee pointed out: "people are dropping screenshots of tweets in the group chat, or people are like, 'Look at this homophobic thing somebody said on Instagram.'"

Our second research question dealt with the role that the library played in LGBTQIA+ student information practices. Overwhelmingly, in both focus groups and interviews, students expressed that, when they needed to find information about classes, social activities, and campus life, they relied on peers and mentors for support. One senior student at Spelman remarked that she felt like "a maternal figure in a lot of ways" because younger people would come to her for advice. Other Spelmanites "ended up asking other students" to find out information and relied heavily on the information-seeking practices of others: "I let my network kind of be that network, so they find out that stuff for me." Students did not mention seeking information about these topics from the library and, overall, tended to view the library in a traditional light—as a place to study. A Morehouse student said, "I used to go [to the library] a lot, like at least three times a week last semester," but he visits less frequently now because he didn't "feel as comfortable anymore for some reason." To explain his discomfort, he mentioned that the library didn't seem as consistently quiet as other places on campus for studying purposes. But later in the focus group, the same student mentioned that "me walking [to the library] sometimes at night, well, me leaving here at night, I'd be like 'Let me just walk faster' or something. And I guess that's just security or personal reasons." The reason for some LGBTQIA+ student participants rejecting the library as a study space is undeterminable given the information gathered in this study. However, it is reasonable to infer that, given the anti-LGBTQIA+ occurrences on campus, there may be some fear associated with walking back to their home campus at night. Libraries could mitigate such concerns through concentrated efforts to ensure the safety of all patrons. Promoting safety efforts on social media platforms could spread the message to the LGBTQIA+ community, which could in turn increase their use of library spaces.

Many students who responded that they felt comfortable and safe on campus tended to be socially active, openly LGBTQIA+, and outspoken. But they also often mentioned that they were concerned about the possible safety of some of their LGBTQIA+ peers. To address our final research question, one service that libraries could offer to LGBTQIA+ students is a safe place for meeting and studying, including a safe method of transportation to and from the library. The AUC Woodruff Library offers a campus shuttle during open hours and security escorts to the parking lot at any time (upon request), which is something to think about marketing more to LGBTQIA+ patrons.

Some students asked for LGBTQIA+ materials to be visibly collected and promoted, through book displays, author visits, exhibits, and book clubs for students. One Morehouse student remarked on the library's exhibit on the civil rights movement, saying there could be a similar exhibit on "something that was specifically Black queer centered," like the Stonewall riots. Moments earlier, the same student had expressed, "What could the library do for me? I don't know. I don't know what to expect from the library for queers." This seems to indicate that even having these discussions—inviting LGBTQIA+ students into the library and asking them what we could do better—can have an impact on our students and help them generate ideas on how libraries can help them.

While there is no foolproof way to apply these findings in a way that fits every library, there are a few additional takeaways that should be considered. The social media practices of LGBTQIA+ students offer libraries a unique opportunity to conduct outreach to this population: if members of this community encounter a surprisingly supportive environment—or, in contrast, a negative one—they may share their experiences with their information network. Promoting LGBTQIA+ displays, events, or collections on specific social media platforms or in conjunction with LGBTQIA+ student organizations' social media accounts may also boost a library's ability to reach this population. Further, having a willing participant from this community share such information on their own networks could extend a library's positive presence. Libraries could also consider searching popular social media platforms for the issues that LGBTQIA+ students are discussing to determine if there are any library or campus services that could assist them with their college experiences.

One unintentional outcome of our research related to this last point was particularly telling: both focus groups we conducted indicated that they would like to continue talking in private immediately after the audio recorder was turned off. A Morehouse participant said, "I think we could do things for the entire queer spectrum, keep it at that—and leave my pettiness—I'm going to wait until after the tape is done with—then we can really…" before trailing off. During the Spelman focus group, one student said, "Can you turn off the recorder? 'Cause I kind of wanted to spill my tea about my [dormitory] hall take after the audio is off." LGBTQIA+ students clearly have urgent needs, and simply facilitating conversations in the library could be a good way to start assisting them.

Limitations

Although we found some examples of LGBTQIA+ information practices and challenges that these students face, our study was an exploratory one, so we do not believe the results can be generalized to a larger population. Recruiting students was difficult, so we relied on convenience and snowball sampling to find participants. Many respondents indicated they thought it would be more difficult to be an LGBTQIA+ student at Morehouse rather

than at Spelman, which may explain why we had more trouble recruiting Morehouse students to participate—students may have felt unsafe speaking about their experiences on campus. Ideally, future studies could try to obtain a larger, more representative sample of participants.

We also experienced a slight setback in data collection when one of our student assistants used the incorrect set of interview questions for three Morehouse interviewees. Although roughly 75 percent of the questions overlapped (that is to say, 21 of our finalized 28 questions were given to these three interviewees), this mistake means that the data collected from these three interviews is slightly less robust and less focused on information practices. Both student assistants also missed some opportunities to probe further into the answers given during interviews, which could have been addressed through providing additional training and mock interview sessions for the student assistants.

Conclusion

While this study adds to the literature on queer students, students of color, students at HBCUs, and students at single-sex institutions, there is a need to continue researching and publishing on these topics to develop frameworks for information practices that libraries can use to assist LGBTQIA+ students. Specifically, future research could focus on the impact of personality types on information practices, including whether introverted Black LBGTQIA+ students have fewer social connections or suffer from information deprivation.

Another avenue of research could be identity formation in LGBTQIA+ Students of Color: students who represent both racial and sexual/gender minorities may struggle with pressures over presenting competing identities. One starting point for such studies could be Deborah Hicks, who found five approaches to identify formation in the context of information behaviors: "identity as personal project, identity and social groups, identity as self-presentation, fragmented discursive subjects, and intersectional, hybrid and global identities."[33] Additionally, Bruce Carter examined Black gay men who were members of HBCU college marching bands and who in terms of identity spoke about attempting to appear as "strong" Black men, "passing" as straight, and being rejected.[34] Ford also interviewed Black male graduates of HBCUs, who similarly discussed navigating issues of Black masculinity and gender norms and experiencing "homophobic and heterosexist harassment" while simultaneously affirming that they "were nurturing environments for their Black identity."[35] Finally, Lori Patton and Symone Simmons interviewed Black women who identified as lesbians and attended an HBCU to explore their "developmental experiences."[36] The women expressed an awareness of a "triple consciousness" and explained that "their choice about which identity would be more salient was determined by context."[37]

Providing specific support to LGBTQIA+ students of color should be a priority for HBCUs in particular and for academic libraries and institutions of higher education more broadly. Libraries are not politically neutral; when library workers do not demonstrate positive support for LGBTQIA+ students of color, they miss an opportunity to proactively provide information services for a maligned minority population. In short, if we do not show that we are pro-LGBTQIA+, then we tacitly represent the status quo, which has been harmful to sexual and gender minorities throughout history.

Acknowledgments

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Science Students' Information Literacy Needs: A Survey of Science Faculty on What and When Each Skill Is Needed

Richelle Witherspoon, Philip Taber, and Alex Goudreau

In this study, undergraduate science instructors and faculty were surveyed and interviewed to investigate the information literacy needs specific to their disciplines. Respondents shared their perspectives on IL skill development throughout science degrees and the dependence of that skill development on successful study within the field. Analysis of the results expands on current understanding of the types of resources most useful to early degree students, the most appropriate IL skills to prioritize as students progress through their degrees, and the challenges that reading and critiquing primary research pose for students. Findings from the study align with previous research on information use and literacy in the sciences and build on it by offering librarians greater insight into what underlies, drives, and impedes IL skill development for science students. Practice recommendations based on study findings are made for librarians teaching science students.

Introduction

Librarians have been grappling with the importance of information literacy (IL) in postsecondary education for decades.[1] Recent work shows that IL instruction correlates strongly with measures of student success,[2] and a great deal of research in the library literature has been dedicated to developing an understanding of student IL needs.[3] There is also a recognition of the differences between disciplines and how those differences might impact IL needs and development. However, the specific needs of individual fields are not well known, something that is especially true in the natural sciences. To address this, the present study used surveys and interviews from undergraduate science instructors and faculty to better inform librarians on the needs of undergraduate science students as they complete their degrees. The study focused on faculty and instructor perceptions of the most appropriate resources and skills needed at each point in their students' degrees, and the challenges facing science students when interacting with the literature in their disciplines. In addition to providing specific instructional targets for

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information literacy, this project reveals some common misconceptions in science IL instruction and some of the factors influencing student interactions with information. It may also have implications on broader library practices by helping science librarians select resources more appropriate and intellectually accessible to their student populations.

The Importance of IL Instruction

The positive correlation of IL skills for undergraduate students is well established in the literature. Bowles-Terry,[4] Vance, Kirk, and Gardner,[5] and Blake et al.[6] all report a positive correlation between IL instruction and GPA. Other studies draw similar conclusions.[7] Faculty perspectives are also in line with these findings. In a study by Saunders,[8] faculty agreed that IL is important for students, often using words like "critical" and "essential" when responding. One faculty member in Saunders' study said, "I can't think of anything you can do in the world today that you can do without this… [There is] no task that doesn't involve information. Every person in the world today at every level needs it."[9] Another study, by Sophie Bury, also shows a "strong and enduring faculty belief in the value of solid student IL proficiencies,"[10] and Lorna Dawes explores faculty's pedagogical and philosophical perceptions of teaching IL in her 2019 study.[11] There is even an institutional recognition of the importance of IL in postsecondary education, as evidenced by the inclusion of an IL module for the National Survey of Student Engagement (NSSE) used by more than 200 institutions.[12]

IL Skill Needs

A parallel focus of IL research in postsecondary institutions has been on what information literacy skills students need to be successful and whether they have them. The research suggests that students possess some IL knowledge even before they begin their postsecondary education. Kocevar-Weidinger,[13] for instance, provides evidence that students understand searching as a multistep process involving different types of information and the corroboration of information across multiple sources. On the other hand, there remain many skills that students do not possess upon entering the postsecondary environment and that should be developed as part of library professionals' commitment to student success, especially given the correlation with other success measures noted above. Researchers have shown that most undergraduate students (and even some graduate students) will turn to Google before using more academic sources.[14] Students also have trouble knowing where to start their searches, have been shown to have little understanding of advanced search options (like Boolean operators) that would help them narrow their searches to more relevant results, and some don't realize the limitations of nonacademic resources and/or know how to identify credible sources.[15]

Which IL skills students have and need has been examined in the literature at some length,[16] but the specifics of how and when those skills are developed by discipline has received less attention. Only one study by Cope and Sanabria[17] has tackled disciplinary differences in faculty perception of IL in the last 10 years; of the 20 interviews conducted, only a handful were in the sciences. The study concludes that disciplinary differences exist and provides some general guidance to librarians on what those differences might be. The science fields are the primary focus of this paper, and previous work has shown that the timelines and values underlying IL skills and instruction in science differ from those in other disciplines.[18] The difficulty in reading, understanding, and appraising peer-reviewed literature in the sciences delays the development of other IL skills as compared to other fields. The Association of College & Research Libraries

(ACRL) recognizes the differing needs of science students in their science-targeted IL standards, *Information Literacy Standards for Science and Engineering/Technology.*[19] The *Standards* are broken into a series of categories and subcategories, referred to as *Standards* and *Performance Indicators* respectively. In addition to the core IL skills common across disciplines, the *Standards for Science and Engineering/Technology* emphasize the importance of understanding how information is created in their fields, being able to recognize and make judgments on ethical, legal, and socioeconomic issues surrounding information they may be accessing, and knowing about and using the many kinds of information that are common to their fields.

The standards developed by ACRL, however, offer no indication about when each skill can or should be acquired during a science degree. Little information to this effect is available. Some studies, like one by Lantz and Dempsey,[20] have reported on the skills possessed by specific science cohorts, and others have reported on faculty perspectives on science student IL skills.[21] While these works do not refer to year of study, they underscore some of the differences between IL in the sciences and IL in other disciplines. The persistent refrain from this body of research is that science students often cannot interact with the peer-reviewed literature at a sophisticated level before a graduate level, with some faculty remarking that some of the statistical tools and methodologies used in the literature is beyond even their own understanding.[22] In Perry's work,[23] faculty interviews revealed that students often encountered and selected articles that were beyond their ability to understand, and "the question 'Would students be able to recognize and discard studies with methodological flaws?' received an almost unanimous 'no'."[24] Faculty also commented that a few advanced undergraduate students may have some ability to appraise methodology, but that it was generally not expected until the graduate level. Interestingly, however, the same study—and others[25]—also found that science faculty place a high value on their students' ability to treat information critically and to evaluate sources.

The Present Study

Few librarians have science degrees, with one survey showing that, even among science, technology, engineering, and mathematics (STEM) librarians, only 30 percent have subject-specific backgrounds.[26] Similarly, a survey of 970 Canadian academic librarians conducted by the Canadian Association of Professional Academic Librarians (CAPAL)[27] found that only 16 of the 346 master's degrees held by responding librarians were in the natural sciences. Academic training in the field helps librarians understand the needs of students at a granular level. Without knowing which, what, how, and when IL skills are needed, science librarians may struggle to know how best to support students in their disciplines. In fact, it can act as a barrier against library involvement in science IL instruction, as one of the primary reasons given by instructors for not collaborating with librarians is that their discipline-specific needs and expectations have not been met by librarians in the past.[28]

To address the knowledge gap about what IL skills are needed and when by undergraduate science students, this study used a mixed-methods approach. Faculty and instructors in biology, chemistry, and physics were surveyed in the first part of the study about 14 IL skills. For each of these skills, respondents indicated in which year of the program the skill was needed (if at all). The second part of the study involved 10 semistructured interviews to gain additional context and clarity. Results from both parts of the study were synthesized to help contextualize IL in the sciences and provide recommendations for librarians working in those fields.

Methods

Survey of Science Faculty

Faculty and instructors teaching in four-year biology, chemistry, and physics degree programs were recruited using Canadian and American listservs. The listservs were chosen for their likelihood of serving actively teaching faculty and instructors in the fields they represent, for the number of candidates they were likely to capture, and for their representation across the three scientific fields under consideration. Local instructors were also consulted as field experts for specific listserv recommendations. The listservs used were ECOLOG-L of The Ecological Society of America, the Chemistry Education Division list of the Chemical Institute of Canada, the distribution lists of the Society for College Science Educators and the Canadian Association of Physicists (CAP), and Advlabs-L of the American Association of Physics Teachers. Other associations offering listservs were also approached as distributors for the survey, but they either declined participation or failed to respond to email requests. An introductory email describing the purpose and nature of the study, including a link to the survey, was sent to potential participants. As compensation for responding to the survey, each participant could enter a drawing to win one of two $100 gift cards (CAD or equivalent). The project was approved by the University of New Brunswick Research Ethics Board.

The survey (see appendix A) was built in the LimeSurvey platform, took between 5 and 7 minutes to complete, and had 18 questions, the majority of which were multiple choice. The survey opened with two questions about the discipline and geographic area of the respondent. These questions were followed by a multiple-choice array with 14 information literacy skills and asked the respondent to "please indicate the point at which students in your degree program should have the following skills (particularly as they relate to the literature/information types used in your field)." Elements recognized in both ACRL's *Information Literacy Standards for Science and Engineering* and the literature on student IL needs, such as the ability to critically appraise information, generated the IL skills questions. Each skill had response options of "first year," "second year," "third year," "fourth year," "Graduate," "N/A," and "No answer." The survey closed with two additional questions, which addressed the major reference/discipline-specific resources and a final opportunity for instructors to comment on any other important information topics that might not have already been addressed. The survey was designed by the principal investigator (PI) and reviewed separately by the co-investigators (Co-Is); then it was assessed by two external researchers for bias, ambiguity, and overall clarity. It was also released in stages so that any issues discovered in the survey could be resolved with minimal impact on responses; no such issues were reported once it had been released, and it remained unchanged throughout the distribution phase. The survey remained open until no new responses had been received for at least one week. The majority of responses were received within the first three days of distribution on any given listserv.

Of the 174 surveys collected, a total of 120 were included in this study. Surveys that were not included were less than 50 percent complete or failed to report the discipline of the respondent. Of the 120 surveys included in the analysis, 45 of the respondents taught biology, 32 taught chemistry, and 43 taught physics. Regarding geographic context, 42 percent of respondents were teaching in Canada at the time of response, and 58 percent were teaching in the United States.

TABLE 1
The median responses to each of the 14 IL skill questions indicating in which year of the degree a skill is required. Responses are shown both as a total across the sciences and by discipline.

Please indicate the point at which students in your degree program should have the following skills:	Median of Year in Program			
	Biology	Chemistry	Physics	All
Recognize the purpose, audience, and value of different information sources	2	2	2	2
Recognize that information may need to be constructed from raw data or experiments	2	2	2	2
Recognize and use field-specific information sources (like manuals, handbooks, and the like)	2	2	2	2
Synthesize information to draw direct conclusions	2	2	2	2
Read and understand most scientific articles in the field	4	4	Grad school	4
Assess the tools, methodologies, and/or analyses in a study to determine their appropriateness	4	4	Grad school	4
Identify the correct searching tool for the type of information needed (such as library catalogue or database)	2	2	2	2
Construct a search that uses appropriate keywords and synonyms	2	2	2	2
Construct a search that uses advanced searching syntax (like Boolean operators, proximity searching, truncation, and others)	2	2	3	3
Recognize that a search needs to be refined and adjust it appropriately	2	2	3	2
Examine and compare information from various sources to evaluate it for validity	2	2	3	3
Analyze the structure and logic of supporting arguments	2	3	3	3
Recognize prejudice, deception, and/or manipulation in information or its use	3	3	3	3
Extend initial synthesis of information at a higher level of abstraction to construct a new hypothesis	3	4	4	4

Survey Results

The medians of the survey results, broken down by question and discipline, are shown in table 1. The median was chosen as the measure of central tendency for this survey because of the essentially nominal (and therefore discontinuous) nature of the data and because it is more resistant to outliers than the mean. Tables 2 and 3, indicating the means, standard deviations, and modes of the responses by question and discipline, are available in appendix B.

Respondents were also asked to list up to five reference sources they felt were critical to their disciplines and with which their students needed to be familiar. The most frequently mentioned resources by discipline were science journals and databases (biology and physics), and the CRC Handbook of Chemistry and Physics (chemistry). A table listing other frequently mentioned reference sources by discipline is available in appendix C.

Some of the survey results raised questions that required deeper exploration:
1. Why are none of the 14 skills queried in the survey considered essential in a student's

first year of study (as captured in table 1), and what implications does this have on the types of IL instruction they receive and resources they access in their first year?

2. Why are students not expected to be able to read and understand research articles until late in their degrees and yet are expected to be able to perform advanced database searches and consider information critically before then? Table 1 indicates that faculty and instructors expect these skills to have developed by the fourth year or the graduate level.

3. Since students are unable to read and understand research articles until the fourth year, what resources should they be searching for and using for their degrees? This question was partially, but not sufficiently, answered by the reference sources suggested by survey respondents.

These questions emerging from the survey results informed the choice and development of the interview questions that comprised the second part of this study.

Follow-Up Interviews

In part 2 of the study, questions raised from the survey results were addressed through interviews with respondents. At the end of the survey in part 1, respondents were asked if they were willing to be contacted later for further information. A list of the 54 respondents who so indicated was compiled, and all were invited to participate in the interview phase of this project. Participants were recruited using email invitations and offered a $20 (CAD or equivalent) gift card to thank them for their time. Ten respondents agreed to be interviewed (response rate: 18.5%): 3 from biology, 3 from chemistry, and 4 from physics.

Interviews were conducted by the PI using the video conferencing platform preferred by the interviewee. Interviews were audiorecorded for transcription purposes and ranged between 10 and 20 minutes in length. A semistructured interview format was used, in which four questions were asked of all interviewees and allowed for additional clarifying questions. The questions were emailed to the interviewees prior to the interview, so the interviewees could consider their responses, and then the questions were repeated during the interview. These were the questions:

1. According to the results of our survey, science students are generally not expected to be able to read and understand most articles in their discipline until around the fourth year. Why do you think that is?

2. If students are not using articles effectively until later in their undergraduate degrees, what kinds of resources should they be relying on in the first and second years?

3. According to the results of our survey, students should be achieving the ability to read and understand articles and the ability to critically assess information at around the same time. How do you think these skills develop/co-develop?

4. According to the results of our survey, students should be developing database searching skills during their second and third years. What kinds of information should they be targeting/retrieving with these searches?

Upon completion, all interviews were divided among and transcribed by the PI and Co-Is and analyzed using a multistep process. First, the PI immersed herself in the data by reviewing the transcripts several times to ensure a full recollection of the content of the interviews. Next, the PI extracted distinct concepts and statements, in the form of participant quotes, from each interview transcript and collated those statements in one location. These statements were

then reviewed again, and the PI assigned each a preliminary code that captured its meaning. Like-coded items were grouped together, and the preliminary codes were updated to reflect the broader theme within those groups. The Co-Is then were given the codes and reviewed the transcripts with those codes in mind. They made notes as they reviewed and consulted the coding done by the PI. Conflicts in coding were resolved collaboratively, and some adjustments to the naming of codes was made. The coding was complete when all authors agreed that the codes had been applied accurately, consistently, and completely to all the interview data. Six major themes emerged from this process and are discussed below.

Themes from the Interviews

Six themes emerged from the interviews: 1) research articles in the sciences are written for experts, not students; 2) there is value in having students read articles even if they aren't fully understood; 3) students are unable to critically appraise research in articles; 4) students are able to evaluate information sources for nonscientific content; 5) there are many information sources other than the peer-reviewed research that are appropriate for science students; and 6) instructors consider science students' searching skills to be underdeveloped. These themes and the responses that led to their development are described in detail below. Quotes from the interviews, which are provided theme by theme below, are associated with the interviewee using that interviewee's academic rank and discipline to preserve their anonymity while indicating disciplinary context.

Research articles in the sciences are written for experts, not students

Interviewees agreed, almost unanimously, that primary research articles are not intellectually accessible to first- and second-year undergraduate students. Common reasons given included the highly technical language used in scientific writing, siloing among the sciences that makes it hard to understand research outside of a specific subdiscipline, and the amount of background knowledge needed to understand current research. "We silo out so early and so intensely that until you get to a graduate level [students are] not even going to understand all of the, most of, the material in [their] own field" (Instructor, chemistry). Another interviewee stated, "It's because in our field knowledge is very cumulative […] the amount of knowledge you need to be able to read the literature is quite extensive." (Professor, physics) Underscoring this, four of the 10 interviewees said that even *they* couldn't read all the articles in their fields. An instructor in chemistry said, "I understand one type of physical chemistry article so I… I can understand spectroscopy articles, but I wouldn't be able to follow fully anything else, period. Sometimes even within other physical chemistry journals."

There is value in having students read articles even if they aren't fully understood

Despite a general acknowledgment that first- and second-year undergraduate students can't be expected to read and understand most articles in their disciplines, four interviewees expressed a belief that there was still value in having them read articles. A senior instructor in chemistry explained, "I think that even before fourth year, students could get something out of an article." These interviewees highlighted skills like parsing important information and developing an understanding of an article's structure and layout. The same senior instructor in chemistry clarified, "Going back to 'do they understand every piece of the article?', maybe not, but in [a previously mentioned] example they very much should be able to use that ar-

ticle to say: 'oh, this showed that microwave degraded the vitamin C by 50%.'" Similarly, an assistant professor in biology talked about the importance of teaching students "how to take away, for a journal article, what you need to take away from it without getting lost in the minutiae" that they can't understand. In general, interviewees perceived methods sections as the most significant barriers to students, while abstracts, introductions, discussions and conclusions contain at least some information intellectually accessible to students.

Students are unable to critically appraise research in articles

Interviewees unanimously agreed that the ability to critique an article for its content is most often developed during graduate degrees. A few key exceptions were mentioned by four interviewees: particularly gifted fourth-year students, some students after completion of their thesis work, and students in a course where critiquing articles is a specific learning goal. Overall, though, interviewees agreed with this professor of physics, that "it's harder to be critical unless you're right in the middle of it, and those skills probably—in my opinion anyway—would develop more strongly in graduate school." (Professor, physics)

Students are able to evaluate information sources for nonscientific content

Five interviewees mentioned various ways students can assess research articles—and other information sources—that do not require a full understanding of the content. "Things like who is thinking up the research questions, who's funding the research, different kinds of equity issues" were highlighted by a senior instructor in chemistry, while an assistant professor in biology said the ability to question "'Is this a good source,' 'what are the biases,' 'who's the audience that's being written for,' should come before they develop the ability to read journal articles." Interviewees also talked about the importance of knowing what different types of information are available and the strengths and limitations of each.

There are many information sources other than the peer-reviewed research that are appropriate for science students

When asked about the types of resources most appropriate for first- and second-year undergraduate students, interviewees offered a wide variety of options. Following are several frequently mentioned resources:

- Reviews: Five of 10 interviewees mentioned reviews—peer-reviewed topic overviews—because of their tendency to be easy to read and the lack of challenging methods sections.
- Textbooks: Five interviewees identified textbooks as good information sources, again because of readability.
- Easy journals: Three interviewees noted "easy journals" had primary research articles that were more intellectually accessible. An easy journal was defined by two interviewees as those with high-impact factors (such as *Nature* or *Science*) because they felt the writing standards tend to be higher in those journals, making their articles easier to read and understand. The remaining interviewee described easy journals as being science education journals, which are scientific in nature but are meant to be accessible to nonscientists.
- Blogs, online digests, forums, and the like: Three interviewees recommended platforms where students could interact with researchers or where they could read about scientific work without having to engage with the peer-reviewed literature.

Other resources mentioned by only one or two respondents included popular science articles, audiovisual media and podcasts, educational resources, reference tools, sections of primary articles, safety sheets, science websites, news, and course notes.

An additional recurring suggestion in the context of resources (mentioned by five interviewees) was that lower-year undergraduate students could be well served by an instructor-curated list of resources. Such a curated list could have a range of resource types and might contain peer-reviewed research that the instructor deemed intellectually accessible to the students, or high-quality but non–peer-reviewed materials.

Instructors consider science students' searching skills to be underdeveloped

Seven of the interviewees mentioned some aspect of their students' literature searching abilities, and most of their comments concerned their students' lack of formal training. Interviewees indicated that their students seldom received literature searching instruction—either from a librarian or from their course instructors—and their use of searching tools like Boolean operators was thought more likely to be accidental than deliberate. Two interviewees suggested that advanced searching skills are not necessary for students since they are using Google or other databases where they can locate relevant results despite poor search skills. A professor of physics addressed both elements by observing that "students are unknowingly using Boolean searches already by going into Google …and just typing as many words as they can think of."

Discussion

This study offers considerable insight into science faculty's expectations of their students' IL skills not previously captured in the literature. These insights are instructive for science librarians, especially those for whom the study of science is not in their own educational background. The combination of the facts gathered in the survey and corresponding themes gathered in the interviews yields particularly interesting insights into how faculty and science librarians might provide more timely and relevant IL instruction to undergraduates. The patterns that emerge from these pairings are the focus of this discussion.

Respondents in both the survey and interviews agree, almost unanimously, that science students should not be expected to fully understand peer-reviewed research in their fields until at least their fourth year and often not until the graduate level. Analysis of the interviews explained that this is due to the highly technical nature of the peer-reviewed research, the intense siloing within scientific subdisciplines, and a need for extensive background knowledge to understand it. Despite these challenges, however, several interviewees did suggest that students can benefit from reading research articles because they should be able to parse out some of the important information and also develop a better understanding of the shape and nature of peer-reviewed literature in their fields.

Faculty and instructor responses also suggested that the ability to read and understand the literature develops at around the same time as their ability to treat information critically. What was unclear at the time of the survey was how that co-development occurred. From the interviews, the authors found that, on the one hand, students are not able to critically assess peer-reviewed research for its content—the methodologies being employed, for example, or the appropriateness of a specific statistical analysis—until graduate school. On the other hand, not all critical appraisal of information sources requires a deep understanding of the content. Judgments about the presence of bias, funding and equity issues, authority of author

or publisher, and who the target audience is can be made early in a science degree, as they have little to do with complicated and intellectually inaccessible article content.

The study also shows the belief by faculty and instructors that science students need to be able to build advanced searches in databases (using Boolean operators, proximity terms, and so on) in their second and third years, though there were concerns about their students' ability to do so, with several interviewees expressing disappointment at students' poor skills and the lack of training students receive.

Finally, given the acknowledged complexity and intellectual inaccessibility of the peer-reviewed research in the sciences in both phases of the study, there was a critical need to know what kinds of resources would best serve science students early in their undergraduate careers. Part of the answer to this was provided in the survey in the form of a list of reference sources that were important for students in each of the natural sciences, but this list failed to fully capture the breadth and diversity of information types in the sciences as it focused only on published reference sources. Faculty and instructors expanded on this, identifying other types of information sources that their students should be using early in their degrees without specific titles or sources. Their responses included reviews, textbooks, easy journals, blogs, online digests, forums, popular science writings, and more.

In deciding if or how to implement changes based on the results of this study, it is important to consider the limitations in the design. In particular, this study faced two challenges in data collection: sampling response rate and the number of questions that could reasonably be asked of the respondents. In the matter of response rate, the use of listservs was essential for our recruitment methodology, as it allowed us to sample a large number of faculty and instructors across the relevant disciplines while still managing to target our survey effectively to that population. However, listservs also present unknowns, most notably the number of people subscribed. Thus, the authors were unable to determine how widely the survey was distributed, making it impossible to calculate a response rate. The authors speculate that the low response rate to the invitation to be interviewed (# of survey respondents vs interviews) may be an indication of an overall low response rate to the survey itself. However, this concern is diminished by the high level of agreement across participants in both parts of the study. It is likely that a higher response rate would simply reinforce what was found in this study without changing the results or conclusions.

In the matter of the number of questions that could reasonably be asked, the survey was designed to collect as much impactful information as possible while placing as little burden on the respondents as possible to help maximize our response rate. There are additional questions that could have been asked, such as whether tenured faculty and term-instructors differ in their perspectives on undergraduate IL needs. The authors chose to exclude these questions in favor of greater emphasis and specificity on the topic of IL needs in the interest of focusing on concrete teaching and learning objectives to facilitate science librarians working with students. Future research is needed to address these other aspects of IL in the sciences.

Recommendations for Practice

The findings from both the survey and interviews align with previous research done on information use and literacy in the sciences, such as that done by Perry[29] and Lantz and Dempsey.[30] It builds on their work by drawing attention to specific aspects of information in those fields that may impact student development of those skills. Based on our findings, and acknowledg-

ing the widely accepted value of and need for discipline-specific IL instruction, the authors offer three recommendations to librarians teaching science students:

1. Science librarians should continue to focus on teaching database search skills, but they should consider the scientific reading level of their students and teach skills that help students find more topical and intellectually accessible materials (like reviews) in academic databases. Such searching instruction could also include teaching students to parse the retrieved research articles for the information suitable to their level.

2. In addition to database searching skills, science librarians should focus on directing first- and second-year undergraduate students to non–peer-reviewed materials that are intellectually accessible to them. They should point students toward formats they can fully understand like popular science articles, forums, and the like.

3. When discussing appraisal of the literature, science librarians should focus on teaching upper-year undergraduates evaluation of environmental and contextual elements of the research, without requiring them to critique the research methodologies and results themselves.

Effective information literacy instruction has a significant impact on student success. This is just as true in undergraduate science programs as in any other field, but little has been known about whether science librarians are equipping students with the right skills at the right time. This paper offers direction for librarians teaching in the sciences to facilitate effective, evidence-based practice.

APPENDIX A
(formatted from digital original)

Requirements
- 4-year degree program
- Biology, Chemistry, or Physics
- Faculty or instructor

What discipline do you teach in? Chemistry Biology Physics
What province/state is your university/college in? _____

TABLE 1 Please indicate the point at which students in your degree program should have the following skills (particularly as they relate to the literature/information types used in your field):		Year of Study					
		1	2	3	4	Grad	N/A
General information literacy Please indicate the point at which students in your degree program should have the following skills:							
1	Recognize the purpose, audience, and value of different information sources						
2	Recognize that information may need to be constructed from raw data or experiments						
3	Recognize **and use** field-specific information sources (like manuals, handbooks, and other sources)						
4	Synthesize information to draw direct conclusions						
With specific emphasis on published journal articles Please indicate the point at which students in your degree program should have the following skills:							
5	Read and understand most scientific articles in the field						
6	Assess the tools, methodologies, and/or analyses in a study to determine their appropriateness						
Searching for information Please indicate the point at which students in your degree program should have the following skills:							
7	Identify the correct searching tool for the type of information needed (such as library catalogue, database, or other searching tool)						
8	Construct a search that uses appropriate keywords and synonyms						
9	Construct a search that uses advanced searching syntax (like Boolean operators, proximity searching, truncation, and other searching tools)						
10	Recognize that a search needs to be refined and adjust it appropriately						
Thinking critically about information Please indicate the point at which students in your degree program should have the following skills:							
11	Examine and compare information from various sources to evaluate it for validity						
12	Analyze the structure and logic of supporting arguments						
13	Recognize prejudice, deception, and/or manipulation in information or its use						
14	Extend initial synthesis of information at a higher level of abstraction to construct a new hypothesis						

What reference/field-specific resources are most important for students in your discipline to know? (such as CRC handbook, conversion tables, major handbooks and manuals, and the like)

    1.   _____

    2.   _____

    3.   _____

    4.   _____

    5.   _____

Are there any other important topics related to information/literature that your students need to know about, and when in their degrees would they need to know it?

_____

_____

_____

_____ .

Are you willing to be contacted in the future to discuss this further? Yes No

Are you interested in entering to win a $100 gift card? Yes No

Would you like to receive a summary of the study results? Yes No

Contact information: _____ (email address)

APPENDIX B

TABLE 2								
The mean responses with standard deviations to each of the 14 IL skill questions, in which the values 1–4 indicate the year of the undergraduate program in which a skill is required, and 5 indicates that the skill is not expected until graduate school. Responses are shown both as a total across the sciences and by discipline.								
Please indicate the point at which students in your degree program should have the following skills:	Biology		Chemistry		Physics		All	
	M	SD	M	SD	M	SD	M	SD
Recognize the purpose, audience, and value of different information sources	1.89	1.01	1.69	0.86	2.07	1.03	1.90	0.98
Recognize that information may need to be constructed from raw data or experiments	1.67	0.64	1.81	1.00	1.86	0.86	1.78	0.82
Recognize and use field-specific information sources (like manuals, handbooks, and other sources)	2.09	1.12	1.81	0.97	2.36	0.88	2.11	1.01
Synthesize information to draw direct conclusions	2.42	1.18	2.28	1.08	2.56	0.93	2.43	1.07
Read and understand most scientific articles in the field	3.56	0.99	3.72	1.14	4.45	0.74	3.92	1.03
Assess the tools, methodologies, and/or analyses in a study to determine their appropriateness	3.89	1.05	3.56	1.11	4.30	0.86	3.95	1.04
Identify the correct searching tool for the type of information needed (such as library catalogue, database, or other searching tool)	2.00	1.07	2.09	1.03	2.58	1.01	2.23	1.06
Construct a search that uses appropriate keywords and synonyms	1.89	0.96	2.06	0.98	2.26	1.09	2.07	1.02
Construct a search that uses advanced searching syntax (like Boolean operators, proximity searching, truncation, and other searching tools)	2.56	1.29	2.48	1.29	2.89	1.03	2.65	1.21
Recognize that a search needs to be refined and adjust it appropriately	2.53	1.25	2.22	1.01	2.71	1.02	2.51	1.12
Examine and compare information from various sources to evaluate it for validity	2.60	1.16	2.56	1.19	2.93	1.12	2.71	1.16
Analyze the structure and logic of supporting arguments	2.60	1.19	2.78	1.24	3.02	1.01	2.80	1.15
Recognize prejudice, deception, and/or manipulation in information or its use	2.89	1.27	3.19	1.47	3.07	1.23	3.03	1.31
Extend initial synthesis of information at a higher level of abstraction to construct a new hypothesis	3.56	1.06	3.56	1.24	3.95	0.87	3.70	1.06

TABLE 3

The mode of the responses to each of the 14 IL skill questions, in which the values 1–4 indicate the year of the undergraduate program in which a skill is required, and 5 indicates that the skill is not expected until graduate school. Responses are shown both as a total across the sciences, and by discipline.

Please indicate the point at which students in your degree program should have the following skills:	Mode			
	Biology	Chemistry	Physics	All
Recognize the purpose, audience, and value of different information sources	1	1	1	1
Recognize that information may need to be constructed from raw data or experiments	2	1	1	1
Recognize and use field-specific information sources (like manuals, handbooks, and other sources)	1	1	2	2
Synthesize information to draw direct conclusions	1	2	2	2
Read and understand most scientific articles in the field	3	5	5	5
Assess the tools, methodologies, and/or analyses in a study to determine their appropriateness	5	4	5	5
Identify the correct searching tool for the type of information needed (such as library catalogue, database, or other searching tool)	1	1	2	2
Construct a search that uses appropriate keywords and synonyms	1	1	2	2
Construct a search that uses advanced searching syntax (like Boolean operators, proximity searching, truncation, and other searching tools)	2	3	3	3
Recognize that a search needs to be refined and adjust it appropriately	2	3	3	2
Examine and compare information from various sources to evaluate it for validity	2	2	2	2
Analyze the structure and logic of supporting arguments	2	3	3	3
Recognize prejudice, deception, and/or manipulation in information or its use	3	5	4	2
Extend initial synthesis of information at a higher level of abstraction to construct a new hypothesis	3	4	4	4

APPENDIX C

Reference sources mentioned by two or more survey respondents:

TABLE 4

Reference sources listed by at least two respondents as being critical to their disciplines. Each respondent had the option of listing up to five such resources. Each reference source listed is followed by a bracketed number indicating how many times it was provided in answer to this question. Some of the resources/resource types in this table might arguably not be considered reference sources, but the authors did not deem such judgments sufficient to exclude them from the table.

Biology

      Bergey's Manual of Systematic Bacteriology (2)
      Textbooks (2)
      Field guides/manuals (4)
      Google Scholar (2)
      Science journals/databases (6)
      Taxonomic keys (2)

Chemistry

      CRC Handbook (17)
      Chemistry websites (2)
      Internet (2)
      Merck Index (2)
      NIST Chemistry WebBook (2)
      Perry's Chemical Engineers Handbook (2)
      SciFinder (6)
      Spectral databases (2)
      Science journals/databases (10)
      Textbooks (5)

Physics

      ArXiv (2)
      CRC Handbook (9)
      Instrument manuals (2)
      Integral tables (4)
      NIST (2)
      Particle Data Group Handbook (6)
      Science journals/databases (13)

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An Exploration of Business Librarian Participation in Knowledge Synthesis Reviews

Zahra Premji, Ryan Splenda, and Sarah Young

Systematic reviews and other forms of knowledge synthesis are increasingly common in the social sciences, including in business and management research. We surveyed academic business librarians to determine the extent of their involvement, in any capacity, in knowledge syntheses. Of 71 eligible responses, 30 percent were involved in supporting knowledge synthesis, while others expressed an awareness of and interest in knowledge synthesis methods and have participated in training opportunities to support these types of projects in the future. While still nascent, knowledge synthesis support by business librarians presents potential as a new service area providing opportunities for deep engagement with faculty research.

Introduction

The amount of published research has grown tremendously in the past several decades, and the rate of publishing increased significantly with the advent of digital publishing platforms. At the same time, the paradigm of evidence-based policy and decision-making has gained traction across sectors, and so has the need to synthesize evidence and knowledge from research. Systematic approaches to knowledge synthesis have proliferated, beginning with meta-analysis and systematic reviews, which became established in medical research in the 1970s and 1980s, to methods such as realist reviews, meta-narrative reviews, and many others spanning research disciplines.[1]

The discipline of business and management has been somewhat slow to adopt systematic methods of knowledge synthesis. However, a search for meta-analyses and systematic reviews in the business and management subject areas in the Web of Science Core Collection reveals a near 20-fold increase in these types of studies since 2000 (see figure 1). Moreover, the concept of "evidence-based management" has become a topic of study, with the term appearing in the titles or abstracts of nearly 700 published articles in the past five years.[2] Some recent management literature indicates a growing recognition of the role of knowledge synthesis in the discipline.[3] Organizations like the Center for Evidence-based Management (CEBMa)[4] and the Campbell Collaboration[5] have championed the application of systematic knowledge synthesis methods to inform business and management decision-making. CEBMa has developed methods for critically appraised topics (or CATs) to rapidly gather and assess research evidence. The Campbell Collaboration, an international organization that produces systematic reviews in the

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social sciences, formed a Business and Management coordinating group in 2018 to develop and disseminate systematic reviews on topics in this domain as well as guidance and methods for knowledge synthesis.[6] With the growth of knowledge synthesis research in business and management and new organizations devoted to spreading this methodology, it is important to examine the participation and roles of business librarians in these research efforts.

FIGURE 1

The number of business and management publications with "systematic review," "systematic literature review," or "meta-analysis" appearing in the title from 2000 to 2019. Data obtained from a search of the Web of Science Core Collection. The Web of Science Categories "Business" and "Management" were applied to the search.[7]
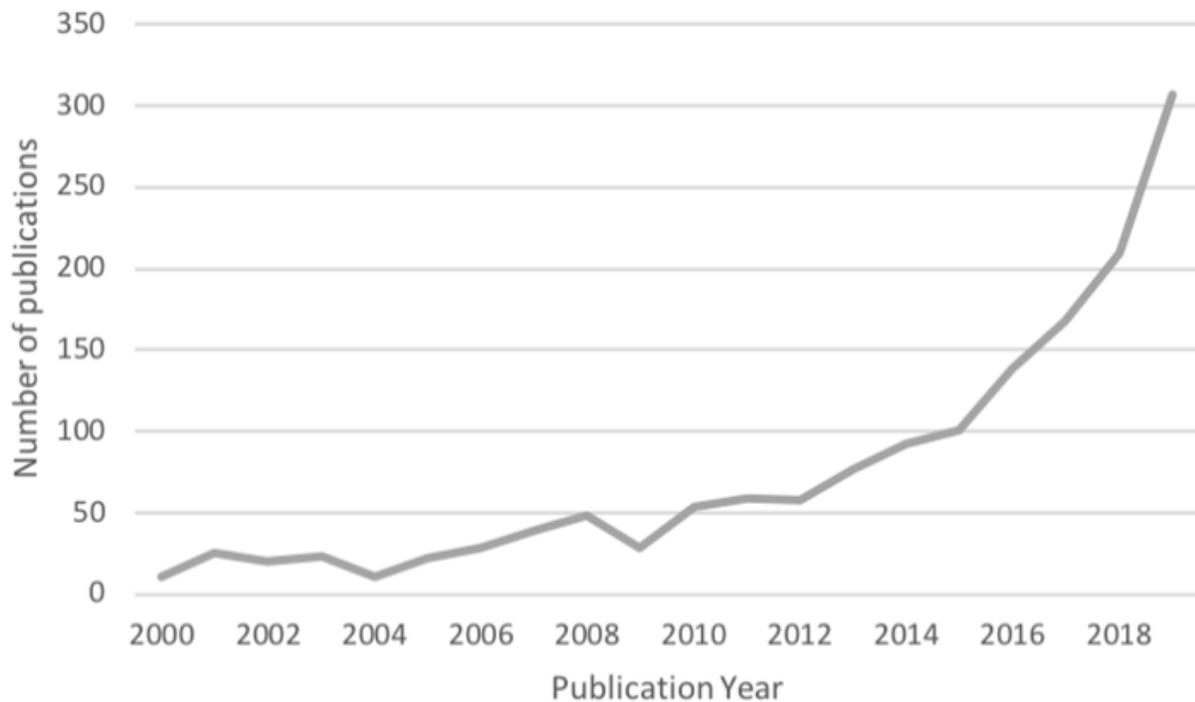
Literature Review

Despite the diversification of knowledge synthesis methods in recent years, a common element across these methods is a systematic approach to finding relevant studies. This often involves comprehensive searches of bibliographic databases and other sources of information. Moreover, published standards for reporting in systematic reviews and meta-analyses require the transparent and reproducible documentation of searches.[8] Studies have shown that librarian or information specialist co-authors improve the quality and reproducibility of searches in systematic reviews.[9] Librarians possess deep knowledge of the information landscape and expertise in database searching and information management. They also assist research teams with question formulation and play key roles in search strategy development.[10] Increasingly, librarians are also involved as methodological peer reviewers for systematic reviews in disciplines like medicine and the health sciences.[11] In medicine, where systematic reviews are well established, libraries often provide formalized systematic review services and librarians serve as members of research teams and co-authors on published reviews. These librarians typically have specialized training on systematic review methods, either through formal librarian-focused training programs or through on-the-job mentorship and experience.

With the increase in knowledge synthesis research outside of medicine, nonmedical librarians may be increasingly called upon to support the development of systematic reviews, scoping reviews, and related types of reviews. Thus, libraries may need to consider building capacity and expertise in these areas, and some nonmedical libraries have already established formal systematic review services.[12] Some work has been done to benchmark the involvement of librarians in health sciences and veterinary medicine in supporting knowledge synthesis,[13] but, to date, little research exists on the state of knowledge synthesis in business and management librarianship.

There is some evidence that business librarians are involved in knowledge synthesis research, but there remains uncertainty around the extent of their involvement, to what degree they receive authorship or acknowledgment credit for their contribution, and the level of demand for knowledge synthesis support in business and management libraries. For instance, one study that examined 152 systematic reviews in the areas of organizational psychology, counseling psychology, and management showed that librarian involvement was reported in only one of those systematic reviews (0.66%).[14] Another study sought to determine the level of librarian involvement in business- and management-related topics and found that only three out of 100 (3%) systematic reviews examined mentioned business librarian involvement.[15] Some evidence of business librarian involvement in systematic reviews at the individual level has been reported,[16] but a broader assessment of business librarian involvement in knowledge synthesis is necessary to inform capacity building and service models for business libraries moving forward.

The aim of this study is to fill this gap by establishing a baseline for business librarian involvement in knowledge synthesis. The study's objectives were to assess the following areas: 1) the current knowledge synthesis awareness among business librarians; 2) their involvement in various types of knowledge synthesis; 3) the level of training and training formats used to develop competencies; and 4) barriers to participation among librarians supporting academic programs of business and management. This baseline will be valuable for assessing growth in this service area in the future.

Methods

An online survey (see appendix) was created using Qualtrics software and distributed on April 2, 2020, via the following email lists:

- BUSLIB-L, an unmoderated email discussion list for those interested in business librarianship and information services
- BRASS-L, the email list for the Business Reference and Services Section of the Reference and User Services Association, which is part of the American Library Association
- ABLD-L, the email list for the Academic Business Library Directors group
- Email list for the Special Libraries Association, Business and Finance Division

These were selected as they are four email lists with broad participation among business librarians across the globe.

Business librarians currently working in an academic setting providing services to business-related subject areas were eligible to participate. Academic business librarians who resided in countries subject to the General Data Protection Regulation (GDPR) were not eligible to participate, and this was specifically stated in the recruitment email; this exclusion was a requirement of the institutional review board at the institution of two of the investigators.

The survey contained 24 questions and included single-answer multiple-choice and multiple-answer multiple-choice, as well as open-text questions. The survey began with an electronic consent form, followed by a question to confirm eligibility to participate in the study. This was followed by six demographic questions including the country of work, years of experience as an academic business librarian, graduate-level degrees held by the respondent, type of institution and level of students served in their current position. A definition of knowledge synthesis from the Canadian Institutes of Health Research was provided to participants at the beginning of the next section of the survey to ensure that participants understood how knowledge synthesis reviews differ from traditional literature reviews. Furthermore, it was explicitly noted that participation in traditional or narrative literature reviews was not under consideration in this study.

The next section of the survey addressed familiarity and participation in knowledge synthesis reviews. This included questions such as the types of reviews in which participants had been involved, their specific role in these reviews, the steps of the review in which they were involved, and how long they had been providing support for knowledge synthesis reviews. This was followed by questions on training and barriers to participation. The question on barriers to participation (question 21 in our survey) was adapted from question 4 of the survey developed by Toews for benchmarking librarians' involvement in systematic reviews in veterinary medicine.[17] The final three questions were open-text questions to address the challenges, benefits, and successes of review involvement, as well as allowing for additional comments. The survey questions were chosen based on the authors' experiences as well as from the literature review, which included the two benchmarking studies previously mentioned. The survey instrument used split paths, or skip logic, to show only questions that were relevant to the respondent based on responses to previous questions. For example, if a respondent selected "no" to the question on involvement in knowledge synthesis reviews, then they did not see the questions about the review steps in which they had been involved. The survey tool was piloted by two librarians and the feedback was incorporated prior to survey deployment.

The electronic consent form at the beginning of the survey provided participants with information regarding the purpose of the research and the ways in which the data would be shared and disseminated. No incentives were provided for completion of the survey. Data captured from incomplete surveys were not included in the results. No personal identifiable information was collected as part of the survey. The survey was open for six weeks from April 2 to May 15, 2020.

The survey data were exported into a Microsoft Excel file. Data from respondents who completed the survey but were not eligible (for example, those who responded No to question 2) or data from incomplete surveys were removed before analysis. Cross-analysis between various pairs of questions was done in Qualtrics. The text responses were qualitatively analyzed for common themes. Analysis of the text responses was done manually by each of the authors, first independently and then as a group, to identify recurring comments. The dataset containing all eligible survey responses is available and can be downloaded from Dataverse (https://doi.org/10.5683/SP2/JGJXUP).

This research project received ethics approval from the University of Calgary Conjoint Faculties Research Ethics Board and Carnegie Mellon University's Institutional Review Board.

Results

A total of 80 responses were collected. After removing the nine ineligible and/or incomplete responses, 71 complete responses were obtained and have been included.

The demographics of the 71 respondents to our survey are shown in table 1. Almost all respondents were from North America, with one response from China. Respondents were dispersed across years of experience; however, more than 50 percent were mid- to late-career librarians with more than 10 years of experience. More than half of the respondents hold advanced degrees in addition to their MLIS degrees, and the vast majority support both undergraduate and graduate programs.

## *Familiarity and Participation in Knowledge Synthesis*

Before determining the level of business librarians' involvement in knowledge syntheses, it was first necessary to establish how familiar business librarians are with knowledge synthesis methodology. The majority of respondents were at least somewhat familiar with knowledge synthesis methods (n = 53, 75%), with eight, or 11 percent, indicating deep familiarity with these methods (see figure 2). These data suggest that there is some knowledge synthesis activity in the business and management discipline and that business librarians may be working with their constituents to assist with these efforts. On the other end of the spectrum, 10 respondents (14%) indicated a lack of familiarity with this methodology. This is not surprising since systematic reviews, and other types of knowledge synthesis, are still a relatively new concept in the business and management discipline and in business librarianship.

TABLE 1 Demographics of the Survey Respondents			
Characteristic (N = 71)		**N**	**%**
Country of Work			
	United States of America	60	84.5
	Canada	10	14.1
	China	1	1.4
Years of Experience as an Academic Business Librarian			
	0–2 years	11	15.5
	3–5 years	11	15.5
	6–10 years	11	15.5
	More than 10 years	38	53.5
Degrees Held by Respondents			
A. Accredited MLIS	MLIS	68	95.8
	No MLIS	3	4.2
B. Other graduate degrees	PhD	2	2.8
	Other Masters	38	53.5
	None	31	43.7
Degree Programs Served by the Librarian			
Undergraduate only		2	2.8
Graduate only		6	8.5
Both undergraduate and graduate		63	88.7

FIGURE 2
Familiarity with Systematic Reviews, Meta-analysis, and Other Knowledge Synthesis Reviews (N = 71)
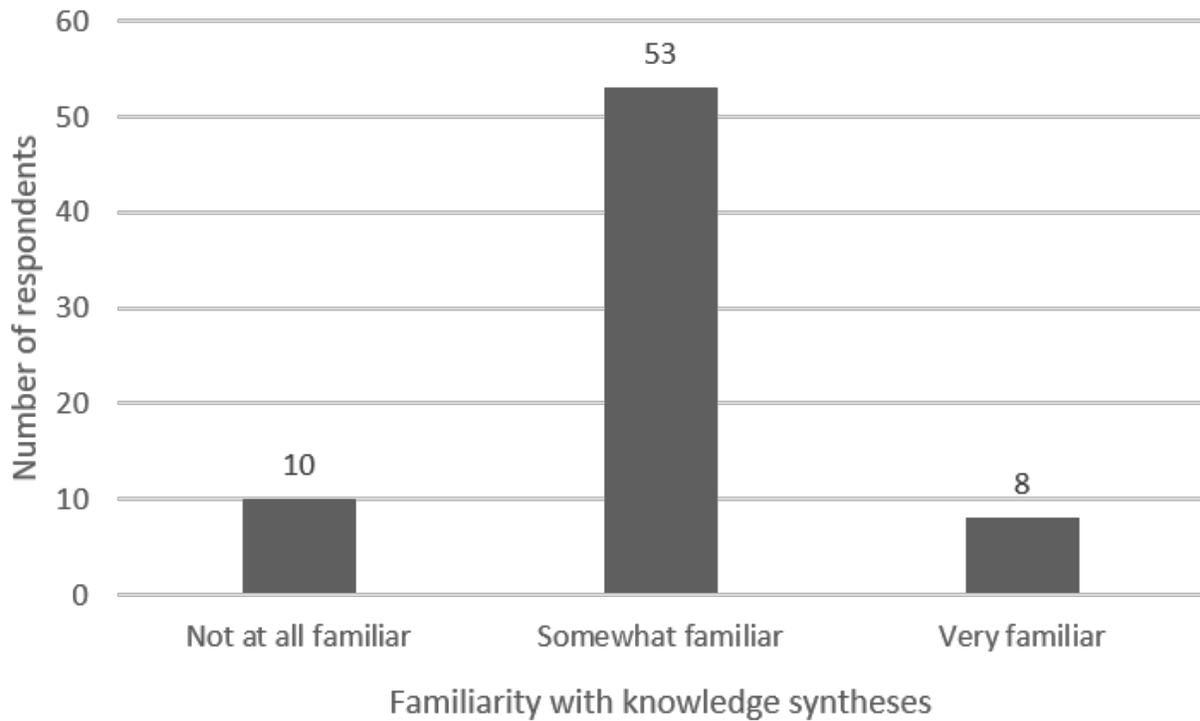
FIGURE 3
Business and Management Librarian Involvement in Systematic Reviews, Meta-analysis, and Other Knowledge Synthesis Reviews (N = 71)
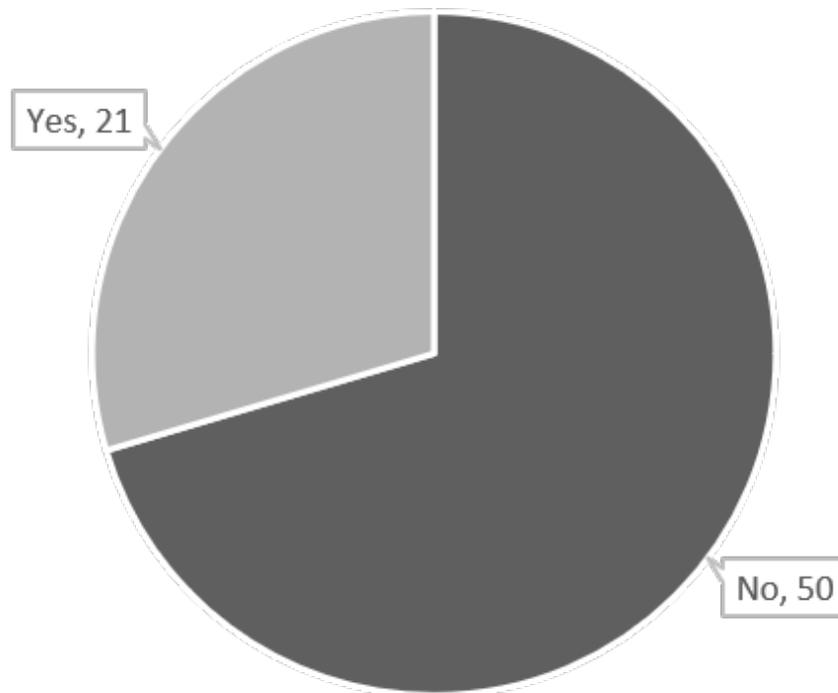
The next step was to determine if business librarians have been or are currently involved in supporting systematic reviews, meta-analyses, or other knowledge synthesis reviews in business and management.
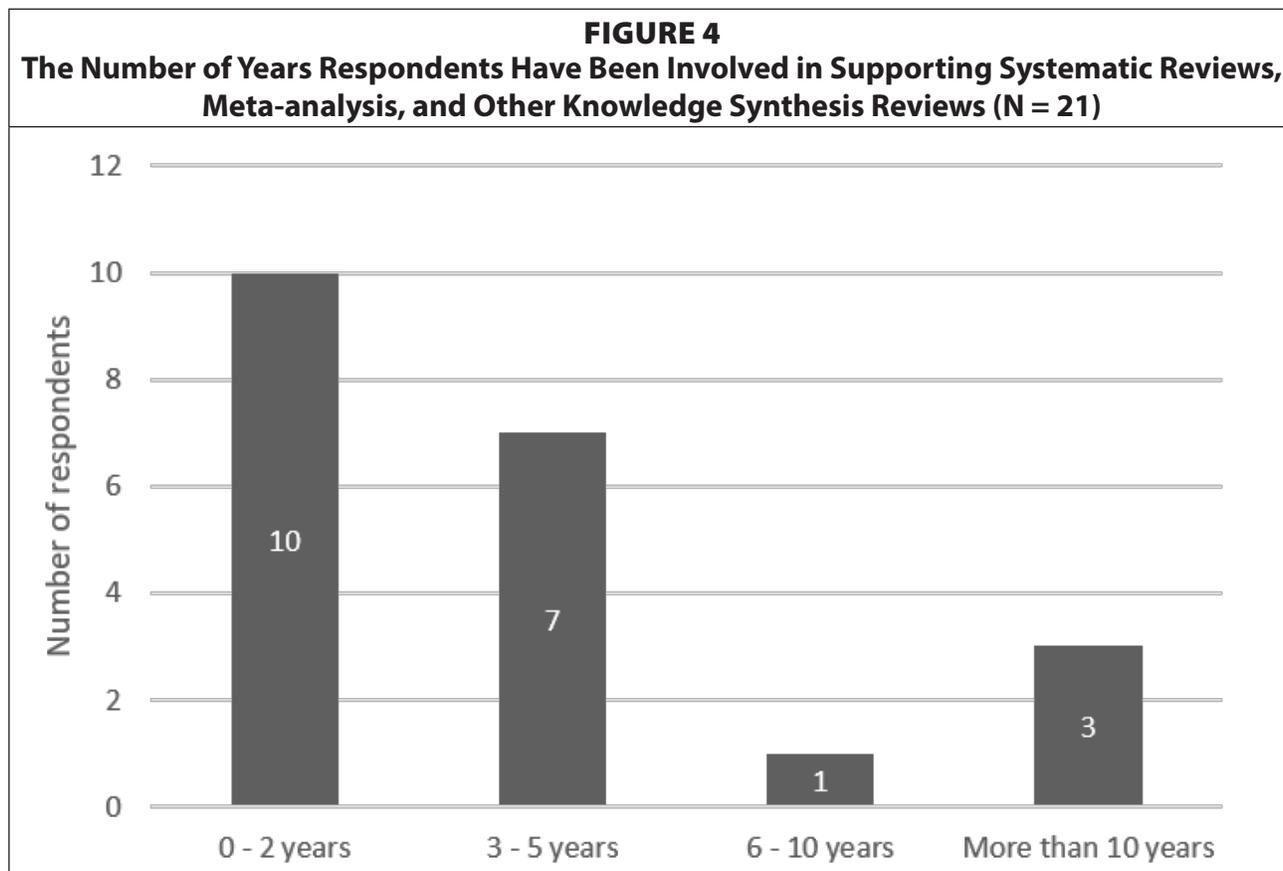
Figure 3 shows that the majority of respondents (n = 50, 70%) have not been involved in supporting these efforts.

For those respondents indicating some experience with knowledge synthesis, we were interested in determining how long they had been involved in this activity to understand the evolution of this service area.

Seventeen of 21 respondents (81%) have been supporting knowledge synthesis reviews for five years or less, and 10 of 21 respondents (48%) have been supporting knowledge synthesis reviews for two years or less (see figure 4). These data suggest that this remains a novel service area in business librarianship, but that it is not a completely new concept within the field. Like many other nonmedical disciplines, knowledge synthesis methodology is starting to gain traction in business and management, but the data clearly suggest that it is in its nascent stages with potential for growth, and thus a need for training opportunities, for business librarians.

Librarian Roles in Knowledge Synthesis

Of the respondents who indicated that they provided some knowledge synthesis support (N = 21), the majority (n = 16, 76%) indicated involvement in systematic reviews specifically. Eleven respondents (52%) also provided support for meta-analyses, and seven respondents (33%) provided support for other types of knowledge synthesis reviews (for example, scoping reviews, realist reviews, and others). Like library services for knowledge synthesis in many

FIGURE 4
The Number of Years Respondents Have Been Involved in Supporting Systematic Reviews, Meta-analysis, and Other Knowledge Synthesis Reviews (N = 21)

other nonmedical disciplines, services for business and management are starting to gain traction, and the data show that there is some movement in business librarianship toward supporting or collaborating on this type of research. Given that knowledge synthesis tends to be a more advanced research method, it is important to note the populations that business librarians support in these efforts. Of the 20 respondents who answered this question, the vast majority support knowledge synthesis research at the faculty (n = 16, 80%) and graduate levels (n = 13, 65%). Knowledge synthesis support for postdoctoral researchers (n = 4, 20%) and undergraduates (n = 3, 15%) is much less common, with the least commonly supported group being external or professional organizations (n = 2, 10%). Nevertheless, many librarians work with multiple academic user groups.

Of the respondents that indicated experience with supporting knowledge synthesis, most do so in a consulting role. We were interested in understanding those steps in the knowledge synthesis process in which business librarians have been involved. Of the 19 respondents who stated they were involved in knowledge synthesis reviews in a consulting role, the vast majority of them provide support in the earlier stages of the knowledge synthesis process. These include choosing information sources (N = 19, 100%), designing the search (n = 14, 74%), and question formulation (n = 12, 63%) (see figure 5). This comes as no surprise as these are the steps most commonly supported by librarians.[18]

It is interesting to note that some respondents provide support in the later stages of knowledge synthesis. Most notably, two business librarians (11% of all respondents) provided support at the study selection (screening), critical appraisal, and reporting (PRISMA) or manuscript preparation stages. This again suggests that, although at a very small percentage, there is advanced systematic review work being done by business librarians in the business and management discipline, and this is indeed not a new practice or concept within the field. For those who are interested in promoting and expanding this methodology in the field, these data come as welcome news.

One area for improvement for business librarians is recognition as a co-author on the final published knowledge synthesis. Only three of the 21 respondents (14%) indicated

FIGURE 5
The Steps of the Knowledge Synthesis Review Process in Which Librarians Have Been Involved, in a Consulting Role(N = 21)
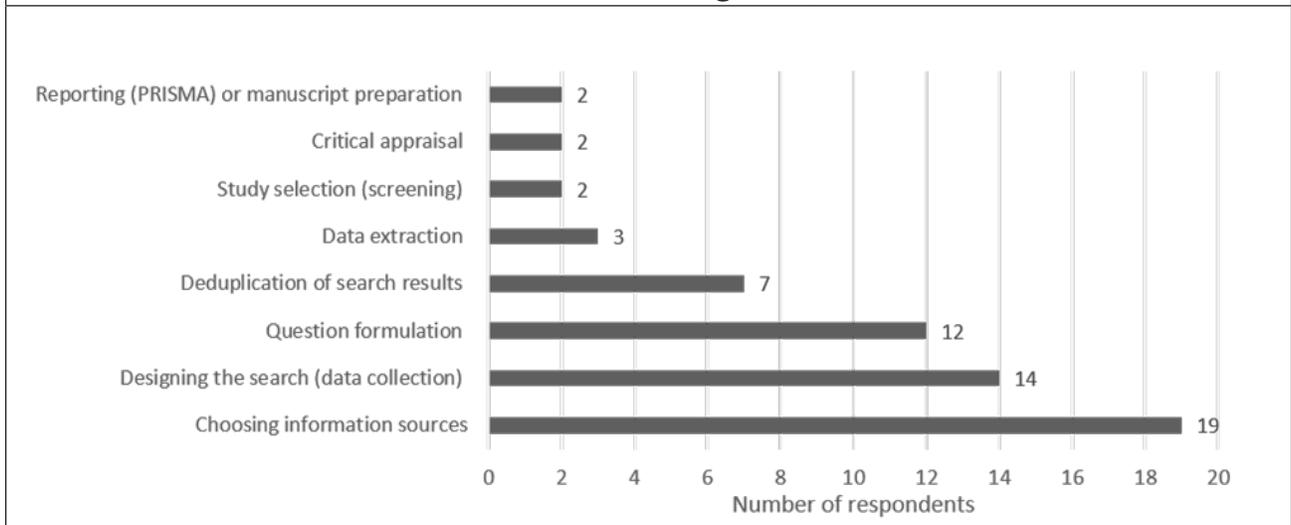
that they have received co-author status, of which one indicated they were a co-author on a systematic review, one was a co-author on a meta-analysis, and one was a co-author on another type of knowledge synthesis project. Furthermore, we asked the respondents if they had been formally acknowledged in the final knowledge synthesis manuscripts. Only three of the 20 respondents (15%) indicated that they were sometimes acknowledged in the final manuscript. Eleven respondents (55%) did not know if they had been acknowledged and six respondents (30%) indicated that they were never acknowledged. Much like the argument for advocating for co-author status, it is also reasonable for business librarians to push for acknowledgment in final manuscripts when their involvement is time consuming, makes a significant intellectual contribution, and requires a significant level of expertise.

Of the three respondents who had co-authored knowledge syntheses, two provided support in every step of the process [question formation, choosing information sources, designing the search (data collection), deduplication of search results, study selection (screening), data extraction, critical appraisal, and reporting (PRISMA) or manuscript preparation]. All three of the respondents provided support in the following steps: choosing information sources, designing the search (data collection), deduplication of search results, study selection (screening), and data extraction. It is interesting that all three respondents provided support in the majority of the steps of the knowledge synthesis process, thus indicating a level of involvement worthy of co-authorship credit.

Training and Development

Training is an important aspect of supporting knowledge synthesis reviews. Training can take the form of formal courses; these occur both in person (such as the training courses offered by evidence synthesis organizations or credit-bearing courses offered at higher education institutions) as well as online (such as MOOCs or learning modules offered by evidence synthesis organizations). They can also take the form of in-person workshops (single or multisession), such as those offered by many academic libraries, webinars, and other online training options such as webinars hosted by academic librarians, library associations, or evidence synthesis organizations such as Cochrane and the Campbell Collaboration. Additional formats of training could include self-directed reading, engaging in a community of practice, or on-the-job training such as shadowing or mentorship by an experienced librarian or academic. We also wanted to assess whether additional benefits exist from formalized modes of training versus the more informal formats of training. Thus, for the purpose of the analysis, we grouped the question choices into two categories: formal (F) and informal (I) training formats. Formal training can be considered training occurring in a classroom setting (teacher and student) be it physically or virtually. Based on this definition, we grouped the systematic review course, in-person workshops, and webinars together as formal training formats and considered the remaining options (self-directed reading, community of practice, and on-the-job training by other librarians) as informal formats of training.

We asked respondents whether they had participated in training on knowledge synthesis methods. Nineteen respondents (of the 71) had training. For those who responded "yes" to having had training, we asked about the type of training and what had prompted their training. The responses to these questions can be found in table 2.

TABLE 2		
Participation in Training, Formats of Training, and Motivations for Training		
Characteristic	**N**	**%**
Participated in Knowledge Synthesis Training (N = 71)		
Yes	19	26.7
No	52	73.2
Training Format (I = Informal, F = Formal) (N = 19)		
Self-directed reading (I)	12	63.2
On-the-job training by other librarians (I)	10	52.6
Workshops (in-person) (F)	7	36.8
Webinars or online training (F)	4	21.1
Systematic review course (F)	4	21.1
Community of practice (1)	2	10.5
Number of Different Training Formats Selected by Respondents (N = 19)		
1	6	31.6
2	7	36.8
3	5	26.3
5	1	5.3
What Prompted Your Training		
Required for current job/role	1	
Required for previous job/role	1	
Interest in developing this as a service/role	14	
Personal or professional interest (but not a requirement of my job)	13	
Other	3	
Formal Versus Informal Training (grouped) (N = 19)		
At least one formal training type	11	57.0
At least one informal training type	19	100

The two most common reasons for participating in training were: interest in developing this as a service (N = 14) and personal or professional interest, but not a requirement of my job (N = 13). Surprisingly, only one respondent said that the training was prompted by either a current job or previous job, respectively. This highlights business librarians' interest in developing further in this area and potentially offering related services in the future.

It is interesting to note that every respondent who had training reported at least one informal training format (N = 19), but only 11 respondents reported at least one of the formal training formats. This means that eight of the respondents have only had informal formats of training.

When selecting the format of training, many respondents chose more than one option. Of the 19 respondents who reported that they participated in training, six engaged in only one type, and that training was informal. Seven respondents engaged in two types, five in three types and one respondent engaged in five types. Respondents seemed to recognize the need for training. We asked respondents about what had limited their ability to participate in knowledge synthesis reviews. Thirty respondents selected "I don't have sufficient train-
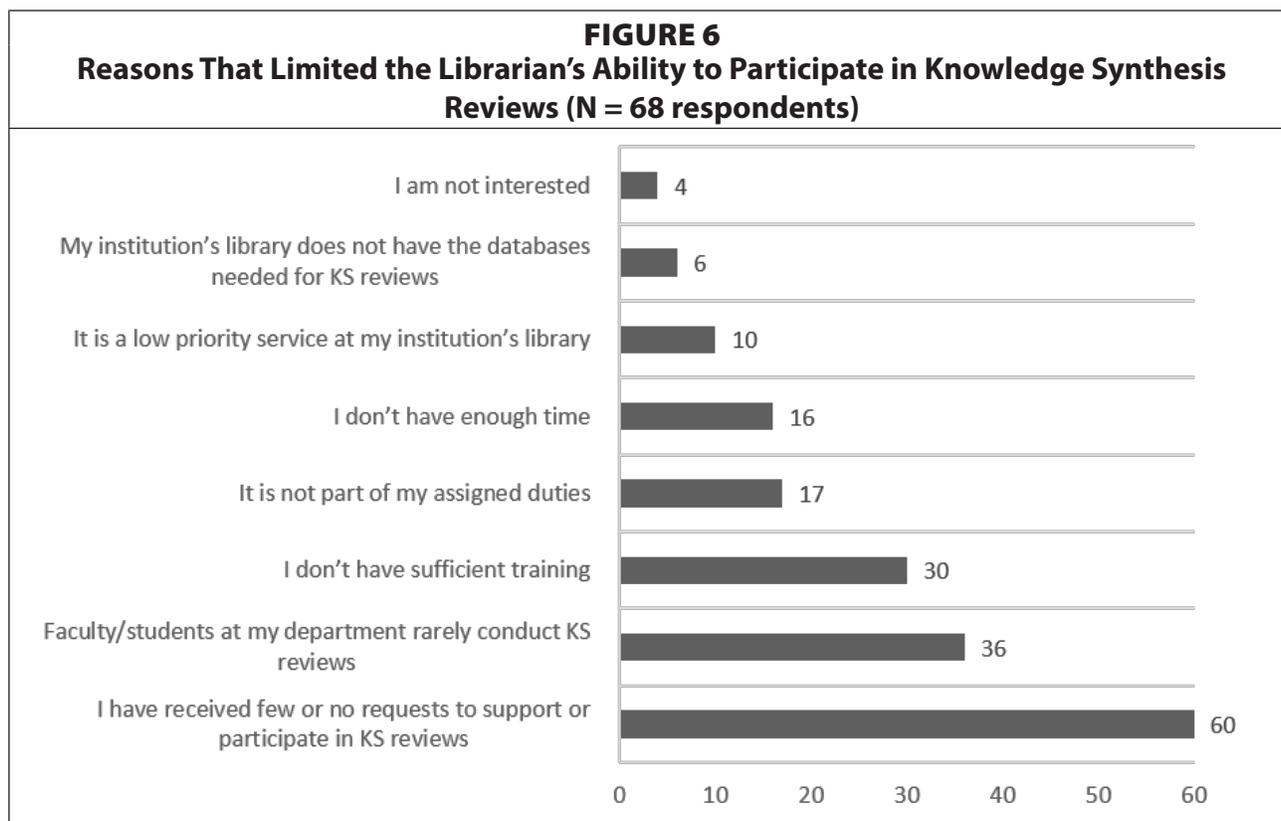
ing" as an option. Of the 30 respondents who chose this option, five respondents currently participate in supporting reviews and 25 respondents do not currently participate in supporting knowledge synthesis reviews. Further evidence was found in the free-text responses. Respondents mentioned they would like advanced training, that they lacked advanced-level knowledge and skills or training and support or would like additional training applicable to business librarianship.

Barriers, Benefits, and Challenges

Respondents indicated a variety of reasons for a lack of involvement in knowledge synthesis (see figure 6). However, overwhelmingly respondents noted that they had received few requests (N = 60, 88%) and that faculty and students at their institution rarely conduct systematic or knowledge synthesis reviews (N = 36, 53%). Of the six respondents (N = 6, 9%) who did not note a lack of interest or need among their constituents, three reported a lack of training and three reported a lack of time, with one respondent reporting both a lack of training and a lack of time as the main barriers to involvement in knowledge syntheses. One respondent reported that knowledge synthesis was not part of their assigned duties as the only reason (N = 1).

The apparent lack of need experienced by many of the respondents was also indicated in their answers to the free-text questions. Here are a few key observations:

- "I've received no request for these types of reviews from our School of Business, which, by the way, has AACSB accreditation."
- "This has not caught on yet in the business college at my university, but I am monitoring the situation to see if it does."
- "Systematic reviews are geared towards health sciences; business research rarely needs SRs except health management research."

FIGURE 6
Reasons That Limited the Librarian's Ability to Participate in Knowledge Synthesis Reviews (N = 68 respondents)

When asked about the benefits of getting involved in knowledge synthesis reviews, responses included the following: Deeper, meaningful engagement with faculty and students; Strengthen relationships; Opportunity to learn more about the research and resources; Informs graduate and faculty consultations; Ability to provide services demonstrates value; Exciting or interesting; and Getting to use in-depth searching skills (librarian skills). Of particular note, one respondent indicated, "The dean of our College of Business has expressed a desire for the libraries to potentially help with this service."

Discussion

Librarians are known to play a critical role in the production of high-quality knowledge synthesis. Several studies in various domains have been carried out to assess librarian awareness and involvement in knowledge synthesis reviews. For example, similar cross-sectional studies on the participation of health sciences librarians[19] and veterinary librarians[20] in systematic reviews have been reported. To assess the different roles of librarians in knowledge synthesis, these two studies used a list of roles derived from Beverley, Booth, and Bath,[21] and we used a somewhat modified version of this list to assess the role of business librarians. In the study on health sciences librarians, the three roles most common for librarians in the capacity of an advisor were search strategy developer, database selector, and research question formulator.[22] Toews' study on veterinary librarians showed the same three roles as the most common when providing research assistance (similar to a consulting role in our survey), but the most common role was database selector, followed by search strategy developer and question formulator.[23] A study by Bullers et al.[24] also found that one of the primary roles of librarians are as expert searchers. Expert searching includes tasks such as formulating research questions, selecting appropriate databases, and developing search strategies. Our data show that business librarians, like their veterinary and health sciences counterparts, are involved most commonly in choosing information sources, designing the search, and question formulation, when in a consulting role.

The systematic review methodology is a very long and complex process. Several of the steps in which librarians are traditionally involved are crucial to the success of the project. These steps also take a substantial amount of time, effort, and expertise to complete in a comprehensive and transparent manner.[25] Most evidence-based organizations like the Cochrane Organization and the Campbell Collaboration heavily encourage the participation and inclusion of librarians on systematic review teams.[26] In terms of participation as a co-author or team member, Murphy and Boden's study showed that more than 75 percent of librarians reported participating in the top three roles as a team member.[27] Toews[28] reported that only half of the veterinary librarians who completed the survey reported participating in the most common roles as a review team member. In contrast, only three of 21 business librarians (14%) who reported participating in knowledge synthesis reviews participated as a team member. Librarian co-authors on business/management knowledge synthesis reviews are still rare; however, this may change going forward as researchers become more aware of the information retrieval and methodological expertise business librarians can contribute, and as more business librarians attend training sessions and begin outreach activities as part of developing a service in this area.

Our survey indicated that the majority of business librarians (11 out of 20, 55%) did not know if they had received an acknowledgement for their efforts. A study that reviewed 100

business-related systematic reviews showed that librarians were mentioned, either in the methods section or the acknowledgments section, in only three of the 100 reviews.[29] These data suggest that business librarians may not be having this conversation with the researchers they assist, and this is an opportunity to do so. It is certainly reasonable for business librarians to advocate for co-authorship or acknowledgment on the final published reviews to receive credit for their role in the success of the project. This is rare at present, but increased efforts to participate in this methodology by business librarians and the recognition and understanding by researchers that business librarians have a lot to contribute in these efforts could lead to an increase in acknowledgments on final knowledge synthesis reviews. This question was included in our survey but was not asked in either Toews or Murphy and Boden's surveys; therefore, a direct comparison to these other population groups do not exist. However, a survey of library directors[30] of health sciences libraries showed that librarians were acknowledged or listed as co-authors some of the time (14%), most of the time (50%), or all of the time (36%). As previously discussed, the role of health sciences librarians in knowledge synthesis is much more established. Further, these results include both roles, as a co-author and a consultant; therefore, it is not surprising that these results are significantly higher than what our survey reported.

Business librarians creating their own policies related to librarian involvement in knowledge syntheses can look to academic health sciences libraries, which often define what levels of involvement should translate to acknowledgment or co-authorship. An example of this is Cornell University Library's Evidence Synthesis Service breakdown between librarians as consultants and co-authors when collaborating on an evidence synthesis project.[31]

Systematic reviews and other knowledge synthesis reviews have complex methodologies, and therefore training is a critical component to ensure that librarians have the competencies necessary to adequately support these types of projects.[32] Our survey data showed that librarians participated in multiple different formats of training, showing that a multipronged training approach seems necessary to develop comfort and competency. There is a role for both formal and informal types of training when developing knowledge of these types of methodologies. One can argue that a mix of both would be ideal. Formalized forms of training can provide a foundation of knowledge and help in gaining an understanding of the intricacies and conceptual underpinnings of the method. Informal training such as on-the-job training, self-directed reading and communities of practice can build upon the foundational knowledge and provide training on the more practical aspects as well as experiential learning opportunities. Furthermore, as databases change, and standards and guidelines surrounding the different knowledge synthesis methods evolve, librarians will need to continue training to remain current. This matches the approaches that some libraries are taking; for example, University of Minnesota, when developing their capacity to support systematic reviews beyond the health sciences, incorporated a two-day training workshop, five expert search camp sessions, as well as ongoing peer support for those librarians who were new to systematic reviews in the form of an apprentice model.[33]

Formal modes of librarian training for knowledge synthesis methods outside of the medical sciences is rare. However, a recent joint effort among knowledge synthesis librarians at Cornell University, the University of Minnesota, and Carnegie Mellon University has produced a workshop series entitled "Systematic Reviews and Evidence Synthesis beyond the Health Sciences: A Training for Librarians." This team was recently awarded a grant from

the Institute of Museum and Library Services to carry out this training twice yearly during the next three years.[34]

Our survey did not attempt to discover the specific roles/steps of the review for which librarians had sought training. Murphy and Boden[35] and Toews[36] asked respondents to self-report the roles for which they had received training or where they felt they had adequate training (roles previously mentioned include question formulation, database selection, search strategy development, reference management, article selection, data extraction, appraisal of studies, synthesis of results, writing/reviewing of report, and project management). Our survey focused on the formats of training taken by business librarians as part of their overall training in this area. It is interesting to note that business-specific training is rare or nonexistent since the field is relatively new in business librarianship. Therefore, it was anticipated that the informal types of training were likely to be more common. Business librarians, when attempting to determine training needs, might consider consulting an appropriate competency framework geared toward librarians involved in knowledge synthesis reviews.[37] This is because supporting systematic reviews and other types of knowledge synthesis reviews requires more than just knowledge of information systems and advanced searching. It also requires competencies in the areas of data management, reporting, process or project management, and so on.

Business librarians reported similar barriers to participation in knowledge synthesis as veterinary librarians,[38] with "few or no requests to conduct or support knowledge synthesis reviews" being the most common barrier, followed by "faculty at my institution rarely conduct knowledge synthesis reviews," which was the second-greatest barrier in our survey and the third in Toews' survey.[39] However, despite this apparent lack of demand, we know that the number of knowledge syntheses in business and management has seen a dramatic rise in recent years (see figure 1), which is likely to continue. If librarians are well-trained in these methods and poised to support this growing trend, they could help to mitigate the publishing of poor-quality and redundant knowledge syntheses, a problem well noted by Ioannidis[40] in the field of health and medicine.

The next most common barrier in our survey as well as in Toews' survey was lack of training. The health sciences librarians survey reported a lack of time as the most frequent barrier, followed by a lack of training as the second most common barrier to participation. This lack of training could indicate a lack of training availability or a lack of support or resources available to engage in training opportunities. Finally, the second most common barrier in Toews' survey, which was "library has no policy for librarian role in SRs," was not included as an option in our survey.

There are a lot of similarities between what was reported in Toews and our findings. Because systematic reviews are growing in popularity in veterinary medicine and in business and related disciplines, librarian involvement in these reviews in both subjects is also growing. Furthermore, unlike the health sciences, which have evidence synthesis organizations that publish guidelines and best practices for conducting knowledge synthesis reviews and recommend the involvement of librarians,[41] veterinary medicine and business as disciplines are still developing in terms of disciplinary guidelines published by relevant evidence synthesis organizations working in these disciplinary areas. With the creation of the Business and Management coordinating group of The Campbell Collaboration in 2018, it is possible that updated guidance that is specific to knowledge synthesis in business may be forthcoming in the future; this may stimulate interest from faculty in conducting knowledge synthesis

reviews. If this guidance recommends the involvement of business librarians on these projects, then the demand for librarian involvement will also see a rise.

Like many other disciplines where knowledge synthesis reviews are growing in popularity, business is seeing a surge in the number of reviews published. Similarly, involvement from business librarians in systematic reviews and other types of knowledge synthesis reviews is being reported.[42] Nearly half of the respondents who do participate in knowledge synthesis reviews have only done so for two years or less. Additionally, the most common reason for participating in training related to knowledge synthesis methods was interest in developing this as a service. Business librarians, in keeping up with current trends, are anticipating an increased interest in services related to knowledge synthesis from business researchers. With an increased focus on transparency, reproducibility, and completeness of reporting, librarians are well positioned to take on the role of either consultant (advisor) or team member (co-author), if sufficiently trained in knowledge synthesis methods.

Limitations and Recommendations

Limitations

We recognize that there are a number of limitations to our findings. First, GDPR countries were excluded from participation in this study, and 70 of 71 respondents were from North America. Thus, the data represents the North American landscape. In addition, cross-sectional studies suffer from low participation rates. The number of business librarians across North America was not determined; therefore, it is not possible to determine a true response rate for our survey. Because the surveys were distributed via email lists, which are voluntary to join, we cannot claim to have reached all eligible librarians. It is possible that our survey included a positive bias; librarians familiar with knowledge synthesis may have been more likely to respond to this survey. Finally, given that knowledge synthesis is still an emerging area in business and among business librarians, it is possible that respondents may interpret the concept of knowledge synthesis inconsistently when reporting involvement or lack thereof.

Recommendations

Business librarians recognized the need for training in methods for library support of knowledge synthesis, in anticipation of offering a future service. Business-specific formal training is rare or nonexistent. Nevertheless, opportunities for librarian training in knowledge synthesis for social sciences are becoming available (for example, see the Evidence Synthesis Institute for librarians outside of the health sciences, recently funded by the Institute for Library and Museum Sciences[43]). We therefore recommend that business librarians attend training, whether formal or informal, even if they are taught from a different disciplinary perspective. There are commonalities among knowledge synthesis methods across all disciplines; therefore, these training opportunities still have value. Furthermore, knowledge synthesis reviews can cross disciplinary lines. Thus, having an understanding of knowledge synthesis methodologies and how implementation differs across disciplines can be valuable for supporting multidisciplinary knowledge synthesis reviews. Informal training such as communities of practice, peer mentoring, or on-the-job training can be more discipline-specific; we encourage business librarians who are very familiar or have experience with knowledge synthesis support in business to take the lead or contribute to peer-led initiatives to build competencies and capacity in this area. We would also urge associations and special interest groups relevant to business

librarianship or business reference (such as RUSA's Business Reference and Services Section, and Academic Business Library Directors group) to organize and initiate training, especially business-specific knowledge synthesis training.

While the findings of this survey are limited to business librarians, other social sciences librarians may be in similar stages of growth and developing services and capacity to support knowledge synthesis reviews as they emerge or grow within their respective disciplines. Despite disciplinary nuances, social sciences librarians, life/health sciences librarians new to knowledge synthesis, and business librarians can come together to create communities of practice or peer mentorship programs to support the mutual growth of librarian competencies in this area, as well as to evolve their knowledge of how knowledge synthesis methodology is implemented in other disciplines.

Involvement in knowledge synthesis has already been demonstrated to be of value in the health sciences disciplines and in evidence-based medicine. It is possible that involvement of business librarians in knowledge synthesis may return similar benefits and value propositions for evidence-based management. Business librarians may want to look at peers in the health sciences to identify how they have demonstrated the value of their contributions and to consider similar approaches. This could include formalizing a service model, developing clear policies on the types of support librarians can provide, and creating policies for receiving credit (in terms of acknowledgments or co-authorship) for their contributions. Additionally, librarians should consider a needs assessment to uncover local, contextual needs; this may provide an idea of the initial interest level or demand and can also serve to market the role of the librarians in supporting evidence synthesis to researchers. Business librarians could also consider undertaking research on the current state of methodological rigor and adherence to published guidelines and standards of published knowledge synthesis reviews in business and related disciplines.

Conclusions

With the growth of systematic reviews and other knowledge synthesis reviews in the area of business and management and the spread of this methodology in various subdisciplines of librarianship, we were interested in examining the current state of business librarians' involvement in this area, which will help to establish a baseline. Our results indicate that there is some business librarian involvement in this methodology, but there is room for additional growth. Likewise, our results indicate that there is a need for additional formal and informal training in this methodology and a more vocal push for either acknowledgment or co-author status in the final manuscript depending on the level of support/collaboration. The overarching benefit for business librarians (and librarians in general) in participating and offering support in knowledge synthesis methodology is an increase in partnerships and collaborations with faculty, students, and researchers. This allows business librarians to partner with their constituents in a different way and can produce deeper and stronger relationships with their faculty and students that also helps raise the profile of the library on campus.

Acknowledgments

APPENDIX
Survey Instrument

Q1 Electronic Consent form
Thank you for taking the time to complete this survey. The data collected in this survey is part of a research project on benchmarking the participation of academic business librarians in supporting or conducting knowledge synthesis research. This study is being conducted by librarians at the University of Calgary and Carnegie Mellon University. This survey should take approximately 7–10 minutes to complete.

Who is eligible to participate?
You are eligible to participate in this study if you are an academic librarian with liaison responsibilities to a business-related program at any level. You must be at least 18 years of age to participate. If you reside in a country subject to the General Data Protection Regulation (GDPR), you cannot participate in this study.

What type of personal information will be collected?
No personal identifying information will be collected in this study. We will be collecting some general demographic data including: country, type of institution, years of experience, level of education, and types of students.

What are the risks and benefits of participation?
Participation in this study is voluntary. As participation is anonymous, there is no way to withdraw from the study once you have submitted your data. You can, however, discontinue the survey at any time before submitting the survey and no data will be retained. There are no known risks of participating in this survey. There are also no direct benefits to any individual from participation in this research.

Compensation
You will not be compensated for your participation in this study.

What happens to the information in the survey?
The results of this survey will be published in a conference presentation and/or a journal article. The anonymous data collected will be stored in a data repository and accessible to other researchers.

Questions/Concerns: If you have any questions about this research, please contact any of the investigators, Zahra Premji (email: zahra.premji@ucalgary.ca), Ryan Splenda (email: rsplenda@andrew.cmu.edu), or Sarah Young (email: sarahy@andrew.cmu.edu).

For any questions related to the ethics for this study, please contact either the University of Calgary Conjoint Faculties Research Ethics Board (CFREB) at cfreb@ucalgary.ca or the Carnegie Mellon University Institutional Review Board at irb-review@andrew.cmu.edu.

If you consent to participate in this study, please select the first option below

☐   By selecting this option, I confirm that I am at least 18, that I have read the information provided above, and that I wish to participate in the research and begin the survey.
☐   I do not consent to participating in this survey.

Q2 Are you currently working as an academic librarian in a business-related subject area?
☐   Yes
☐   No

Q3 What country do you work in?
_____

Q4 Your institution offers business/management programs at the following levels: (Select all that apply)
☐   Undergraduate
☐   Master's
☐   Doctoral
☐   Other, please specify _____

Q5 How many years of experience do you have as an academic business librarian?
☐   0–2 years
☐   3–5 years
☐   6–10 years
☐   More than 10 years

Q6 Do you have an accredited master's degree in library or information science?
☐   Yes
☐   No

Q7 Do you have any additional graduate-level degrees in addition to your MLS/MLIS/MIS? (Select all that apply)
☐   Master's-level degree
☐   Doctoral-level degree
☐   Other, please specify _____

Q8 What level of students do you work with? (Select all that apply)
☐   Undergraduate students
☐   Master's students
☐   Doctoral students

Q9 Knowledge synthesis (KS) is defined as, "the contextualization and integration of research findings of individual research studies within the larger body of knowledge on the topic. A synthesis must be reproducible and transparent in its methods, using quantitative and/or qualitative methods. It could take the form of a systematic review" (CIHR, n.d.). Forms of knowledge synthesis that are common in business research are systematic reviews (also called systematic literature review) and meta-analyses. For the purposes of this survey, we

are **excluding traditional or narrative literature reviews** as they do not typically follow any particular methodology, whereas knowledge synthesis reviews are expected to follow methodological guidelines. Therefore, when responding to the questions in the rest of the survey, please disregard any support/involvement you have with traditional or narrative literature reviews.

Q10 How familiar are you with systematic reviews, meta-analysis, or other knowledge synthesis reviews?
- □ Not at all familiar
- □ Somewhat familiar
- □ Very familiar

Q11 In your role as a Business Librarian, have you been involved in supporting systematic reviews/meta-analyses/other knowledge synthesis reviews in business/management?
- □ Yes
- □ No

Q12 In what capacity were you involved in each of these types of knowledge synthesis reviews? (Select all that apply)

	Consulted or provided support	Involved as a co-author	Not involved
Systematic reviews			
Meta-analyses			
Other knowledge synthesis reviews such as scoping reviews, realist reviews, and the like			

Q13 In a **consulting/support role**, for which steps of the knowledge synthesis project were you involved in providing support?
- □ Question formulation
- □ Choosing information sources
- □ Designing the search (data collection)
- □ Deduplication of search results
- □ Study selection (screening)
- □ Data extraction
- □ Critical appraisal
- □ Reporting (PRISMA) or manuscript preparation
- □ Other, please elaborate _____

Q14 In a **co-author role**, which steps of the knowledge synthesis project were you directly involved in or responsible for?
- □ Question formulation
- □ Choosing information sources
- □ Designing the search (data collection)
- □ Deduplication of search results
- □ Study selection (screening)

□ Data extraction
□ Critical appraisal
□ Reporting (PRISMA) or manuscript preparation
□ Other, please elaborate _____

Q15 How long have you been involved in supporting/co-authoring business/management systematic reviews/meta-analyses/knowledge synthesis reviews?
□ 0–2 years
□ 3–5 years
□ 6–10 years
□ More than 10 years

Q16 For whom were you providing support? (Select all that apply)
□ Undergraduate students
□ Graduate students
□ Postdocs
□ Faculty
□ External/professional organizations

Q17 When involved in a consulting/support role on systematic reviews/meta-analyses, have you been acknowledged in the final manuscript?
□ Always
□ Sometimes
□ Never
□ Not sure

Q18 Have you ever received training (formal, informal, or self-directed) on knowledge synthesis methods such as systematic reviews, meta-analysis, or other review types?
□ Yes
□ No

Q19 In what format was your training on knowledge synthesis methodology? (Select all that apply)
□ Systematic review course
□ Workshops (in-person)
□ Webinars or online training
□ Self-directed reading
□ Community of practice
□ On-the-job training by other librarians
□ Other, please elaborate _____

Q20 What prompted your training? (Select all that apply)
□ Required for current job/role
□ Required for previous job/role
□ Interest in developing this as a service/role

    ☐ Personal or professional interest (but not a requirement of my job)
    ☐ Other, please elaborate _____

Q21 Which, if any, of the following have limited your ability to participate in any role in systematic reviews, meta-analysis, or other knowledge synthesis reviews? (Please select all that apply).
    ☐ I have received few or no requests to support or participate in systematic/knowledge synthesis reviews
    ☐ Faculty/students at my department rarely conduct systematic/KS reviews
    ☐ I don't have sufficient training
    ☐ It is not part of my assigned duties
    ☐ I don't have enough time
    ☐ It is a low-priority service at my institution's library
    ☐ My institution's library does not have the databases needed for systematic/KS reviews
    ☐ I am not interested
    ☐ Other. Please elaborate _____

Q22 What challenges have you encountered during your participation in any role on a systematic review, meta-analysis, or other knowledge synthesis review?

_____

Q23 What benefits or successes have you experienced from your participation in any role on a systematic review, meta-analysis, or other knowledge synthesis review?

_____

Q24 Please use this space to provide any additional comments or thoughts that you have regarding the role of business librarians in supporting knowledge synthesis.

_____

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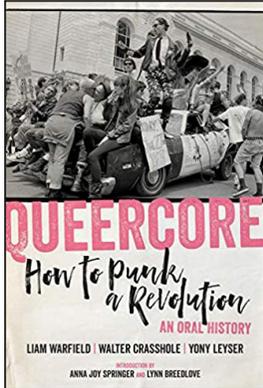
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Book Reviews

Queercore: How to Punk a Revolution: An Oral History. Liam Warfield, Walter Crasshole, and Yony Leyser, eds. Oakland, CA: PM Press, 2021. 224p. Paper, $18.00 (ISBN 9781629637969).

Queercore: How to Punk a Revolution: An Oral History tells the stories of queer punk, primarily in North America from 1969 to 1999, by constructing a narrative from the movement's media (zines, records, and films), personalities, politics, and activism. The book is a snapshot of voices from many perspectives across this period of queer punk, and the imagery and voices are as graphic, explicit, and colorful as you might expect. *Queercore* springs from hours of interviews that were conducted originally for a film by the same name created by Leyser. The book's editors used the remaining footage and dialogue to put together this work. The messy nature of history and punk are embodied by the oral history's chorus of diverging voices. They come together in this volume to form a cohesive narrative covering several key themes: 1) defining queercore; 2) the history of queercore from 1969 to 1999; and 3) the media that made the movement. This book is of value to LIS workers on multiple fronts, particularly in the context it provides for archivists and librarians who specialize in alternative information resources and subcultures. Additionally, the book lays out a variety of activist and antifascist strategies for creating space for marginalized voices, something library workers at all levels ought to prioritize.

Throughout the book, movers and shakers from queercore comment on a key question: "What is queercore?" The term represents a shift from "homocore," the title of a Toronto zine. The change in terminology is recognized by some members of the scene more readily than by others. The transition was meant to expand inclusivity in the movement, representing a shift away from the image of the gay white male punk. As with any subculture, queercore is not a monolith. No clearcut definition emerges in the book, though a broad consensus is that the movement was created by and for punks who were too queer for other punk scenes and queer folks who were too punk for their queer communities.

Warfield recognizes that this book is not a comprehensive history of queercore. In fact, the dates that the book covers are relatively arbitrary. The reality is that queer and punk individuals and subcultures have existed together prior to 1969 and are alive and well in the present day. The oral history focuses on the key creators in these decades from queercore hotspots, especially San Francisco and Toronto. Each scene developed differently, but each was fabricated in some sense. And each had to fight to exist, creating new narratives and pushing the boundaries of accepted language and imagery inside and outside the mainstream. This history proceeds from the inception of these scenes to their development through punk shows, zine creation, and activism throughout the 1980s and 1990s. Topics covered include the AIDS crisis and ACT UP, antifascist and political tactics, punk machismo and the development of Riot Grrrl, co-optation and assimilation, clashes between the scene's larger-than-life personalities, and the diverse media of the movement.

Fundamental to the narrative is the influence that alternative media had on these scenes. Chapters focus on queercore music, performance, films, and zines. The creators of two key zines, *Homocore* and *J.D.'s*, are heavily featured in this book. Following the establishment of these zines and the proliferation of many others, queercore zinesters came together at conventions where members of different scenes met and collaborated. The main queercore conventions highlighted in this book are SPEW and Homocore Chicago. Among many others, key voices included in these pages are Bruce LaBruce, Vaginal Davis, Tom Jennings, Brontez Purnell, Milo Miller, Jayne County, John Waters, Martin Sorrondeguy, and many others.

Some of the content in these pages feels contradictory and frustrating. One disturbing theme throughout the book is a general distrust of younger generations, including a distrust of present-day transgender youth and queer punk communities using the internet. This reviewer was disappointed that there was often little enthusiasm for the direction that contemporary queer punk scenes are moving and the ways they are organizing for change. In addition, some readers may find the use of uncensored graphic language and imagery to be disturbing.

Overall, the book is a valuable source for any librarian or academic interested in the development of alternative subcultures, specifically in queer culture, punk culture, and the intersection of the two. For LIS professionals, the book provides vital context for archivists, instruction librarians, and zine librarians who work closely with queer or punk zines. This is bolstered by a set of annotated bibliographies for queercore zines, films, and records. A theme throughout *Queercore* is the struggle to survive and create space. To do this, queercore developed and deployed specific strategies that can inform librarians in the important work of creating similar antioppressive and antiracist spaces.—*Kevin Adams, Alfred University*

Ask, Listen, Empower: Grounding Your Library Work in Community Engagement. Mary Davis Fournier and Sarah Ostman, eds. Chicago, IL: ALA Editions, 2020. 176p. Paperback, $44.99 (ISBN: 978-0-8389-4740-1).
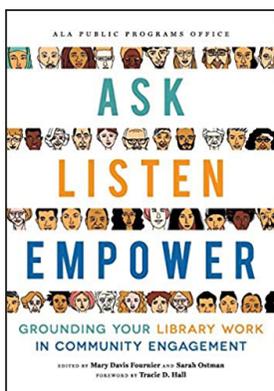
In *Ask, Listen, Empower: Grounding Your Library Work in Community Engagement*, editors Mary Davis Fournier and Sarah Ostman provide an effective guidebook for libraries seeking to develop a "community engagement librarian" position and expand or reimagine their approach to community programming. The book provides both theoretical foundations and practical steps for implementing an intentional and socially conscious community engagement practice.

The editors—both members of the American Library Association's Public Programs Office—begin by outlining why this book needed to be written:

> Some in the library field remain dubious about the need for a new understanding of the phrase [community engagement]. Ask a career librarian and that person may reason that the library is, by definition, engaged with its community; for a library to exist, it must provide something that the individuals in its community use and want and need. Some library workers marvel at new job titles like 'community engagement librarian' and wonder, 'Isn't that what we've been doing all along?' (xxiii)

The anthology of 12 contributed essays proceeds to answer the question posed, explaining the difference between community engagement as a discrete concept and the sorts of positive community relations that a library should always already pursue. While library practice is often concerned with playing a positive role in community members' lives, sustaining and nurturing the formation of healthy social bonds and promoting information literacy and knowledge creation, community engagement is a discrete concept that denotes giving community members a more active voice in determining what those library processes look like. The book aims to expand the breadth and diversity of community members who come to the programming planning table. It is also focuses on magnifying the depth, substance, and power of library-community relationships once they are formed.

Several essays in the collection reference and interpret the International Association for Public Participation (IAP2) "Spectrum of Public Participation" schematic. This schematic identifies a continuum of five possible levels of layperson involvement in institutional decision-making. At the lowest level, "inform," the layperson is a passive recipient of information from the institution. The institution makes programmatic choices, and the layperson consumes the notifications and announcements that the institution makes. At the next level, "consult," the institution invites the layperson to share feedback and other opinions about the decisions the institution has made. Decision-making power still rests squarely in the hands of the institution at this level, but the layperson plays a role in contributing their voice to potential revisions and edits of the programmatic decisions.

At the next level, "involve," the institution receives the layperson's feedback during the decision-making process rather than after the fact. The institution gives the layperson opportunities to voice concerns and other feedback during the creative process and to thereby influence the outcome of programmatic planning. With "collaborate," the institution takes the sentiments of the "involve" stage and amplifies them to the maximum level. The layperson receives a more substantial seat at the table and plays an active role in determining the outcomes of every stage of the programmatic planning process. This "collaborate" level is the second-highest level of layperson participation in the IAP2 continuum. The highest level of participation is "empower." Here, the layperson has full final decision-making power. The institution's function, when the IAP2 continuum logic reaches its final conclusion, is literally to "ask, listen, and empower," as the book's title indicates. The institution must learn what the layperson wants and make it an institutional priority to translate those desires into results.

Although only two of the book's 10 essays directly mention the IAP2 Spectrum of Public Participation—essay #1 by Nancy Kranich and essay #7 by Ellen Knutson and Quanetta Batts—this schematic stands out as a choice motif by which to understand the whole anthology. Every essay in the collection empowers the reader with either a theoretical framework or practical behavioral advice for increasing the extent of public participation at their library.

Different readers will come to this book with different levels of confidence and experience in the social skills and design processes necessary to put community engagement programming into action. There's something for everyone in this book, from those who are chomping at the bit to produce results at the "empower" level of engagement to those who are just starting to realize—or still need convincing—that their institution only performs at the "inform" level of layperson participation.

Some essays in the collection give historical and theoretical context, explaining why community engagement is necessary for the proper functioning of libraries within a democracy

and for the fulfillment of the ALA Core Values of Librarianship. Other essays give practical case study examples of libraries around the country whose community engagement efforts are a model for others. Still other essays speak directly to the reader, offering practical guidance on how to speak to community members, practice the emotional intelligence necessary to manage the relationship, and how to follow through on the promise to give these community members a greater say in how the library runs and what the library is used for. The collection includes advice not just for the planning and implementation stages of community involvement but also for the task of assessment and determining whether community outreach efforts are having their desired effect.

In this well-written, conversational handbook, editors Fournier and Ostman deliver on their promise to "examine the context, implications, and applications of community engagement today" (xv). Written primarily with a public library audience in mind, the volume has much to contribute to academic libraries interested in working more closely with their communities both on and off campus.—*Alasdair Ekpenyong, Syracuse University*

Catherine Murray-Rust. *Library Next: Seven Action Steps for Reinvention.* Chicago, IL: ALA Editions, 2021. 110p. Paper, $54.99 (ISBN: 978-0-8389-4839-2). https://www.alastore.ala.org/librarynext
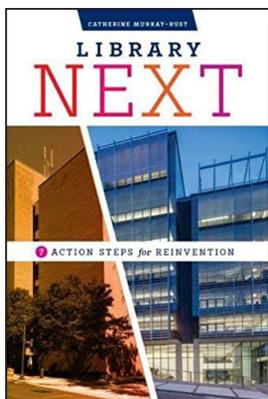
Libraries are in a continual state of identity crisis, transforming and reinventing new services and initiatives in an effort to remain relevant. Catherine Murray-Rust argues in *Library Next: Seven Action Steps for Reinvention* that our institutions need reinvention for "our uncertain future" (viii). Whether libraries need to be reinvented remains to be decided, but Murray-Rust makes her case. She provides advice on how libraries can successfully navigate and implement large-scale change. As the recently retired Dean of Libraries at the Georgia Institute of Technology, Murray-Rust gives seven actionable directions for libraries seeking to transform themselves.

In each of the seven chapters, Murray-Rust outlines one of these steps alongside a story from one of her different academic library positions over the years. These steps form an overall strategy library decision-makers can use to make change. In several chapters, Murray-Rust applies the chapter's action step to a hypothetical scenario to illustrate lessons learned. Murray-Rust makes a point to include scenarios that feature rank-and-file librarians. However, the focus is on her personal experience as a library administrator and has most relevance to this type of work.

There is a strong human touch in *Library Next* as Murray-Rust shares personal stories gathered from her many years of experience as an academic library leader. Murray-Rust walks readers through the seven steps, giving examples from her academic library positions: Dean of Libraries at Georgia Tech, Dean of Libraries at Colorado State University, Associate University Librarian at Oregon State University, and several positions at Cornell University. Her personal stories work well to illustrate the value of her steps. You can see how she developed her action-step strategy and how it led to success throughout her career, teaching her valuable lessons in the process.

Murray-Rust's action steps involve looking outside the profession for inspiration, being curious about the future, making public plans, collaborating with others, creating successful

change, ensuring you have a framework, and focusing on impact. Murray-Rust is inventive herself, finding unique sources of inspiration. Her first action step is to draw inspiration from outside the profession; she describes how she visited art galleries, museums, and even a Toyota automotive assembly plant to learn about digital displays, architecture, and employee engagement.

Some steps will be more useful to individual readers than others. For example, those with ready ideas for reinvention may be tempted to skip the first few steps, going straight to step 4, "Cultivate Relationships with Allies and Champions," for takeaways on finding collaborators. Other chapters offer examples of innovative solutions. In step 6, "Implement a Framework for Action and Innovation," Murray-Rust describes implementing portfolio management to link technological resources to library services. She was among the first to bring this type of project management method to libraries. Others give practical advice born out of personal experience and shown to be successful. For example, in the third step, "Make Bold, Public Plans," she describes her "dripping water method" of asking for funding: continually asking and not stopping until the demand is met.

Murray-Rust describes an approachable style of leadership. She balances "courage with kindness," surely a welcome leadership approach for library workers (5). For Murray-Rust, "libraries are first and foremost human organizations" (8). As an early-career librarian and someone who highly values people-focused perspectives, I found this approach very welcome. She is also honest throughout her writing. For step 5, "Create Successful Change," Murray-Rust describes challenges in implementing supply-chain models in libraries at Georgia Tech. She admits she was not successful and could have done things differently. It is always refreshing to hear leaders humbly and honestly admit when things did not go as planned.

Murray-Rust's approachable leadership and refreshing honesty make *Library Next* of great interest to academic library administrators. However, many types of library administrators can benefit from reading Murray-Rust's book: academic, public, and special. This is perhaps less useful to library workers outside of management positions, though its brevity (just 110 pages) may be an incentive to take a look.

One of Murray-Rust's main premises is that libraries need to be reinvented. Do they? This reviewer remains unconvinced that libraries need to constantly change. Murray-Rust is a "self-described library disrupter," and this label may lead her to reinvent things that do not need to be changed (93). Academic libraries, the scene of many of Murray-Rust's stories, need to be cognizant of remaining relevant, but they are also embedded in the academic landscape of postsecondary institutions that may see change as less urgent than she describes.

It is also arguable whether libraries must cater so directly to their contemporary users. Murray-Rust's call to "turn toward the community" has value, but perhaps users should not have undue say in decisions that affect the library, library workers, and well-established services (3). Users who are not aware of the full range of services that an academic library provides may not be those toward whom we turn for large-scale input. There is a contradiction here: Murray-Rust pushes us to look to our users; but those same users, in Murray-Rust's mind, decided that libraries are not relevant in the first place.

Despite some shortcomings, Murray-Rust succeeds in *Library Next* by delivering seven actionable steps that library administrators can use when undergoing transition and transformation. The steps are worth trying, and the book is short enough that it is not a heavy commitment to learn Murray-Rust's strategy. Whether these steps aid in the reinvention of

libraries remains to be seen. Readers responsible for guiding the direction of a library will have the chance to try them out for themselves.—*Justin Fuhr, University of Manitoba*

Chelsea Heinbach, Rosan Mitola, and Erin Rinto. *Dismantling Deficit Thinking in Academic Libraries: Theory, Reflection, and Action.* Sacramento, CA: Library Juice Press, 2021. 160p. Paper, $28.00 (ISBN 978-1634000956).
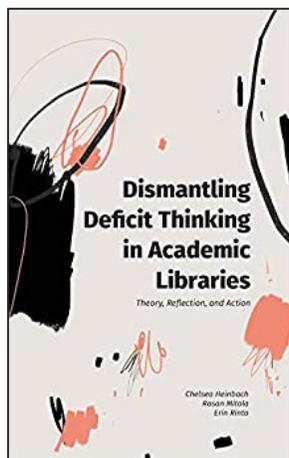
Dismantling Deficit Thinking in Academic Libraries is designed to—in a brief 160 pages—give the reader an introduction to how pedagogical literature that critiques or challenges deficit thinking and its racist consequences can be applied to teaching in academic libraries. More practical than exhaustive, the book is broken into three main sections. Each section includes "reflections from the field" (short quotations from library workers who are applying these concepts to their work) and reflection questions for the reader. The first of these sections reviews the literature on the detriments of deficit thinking in higher education and academic libraries; the second details five pedagogical approaches that the authors identify as addressing issues of deficit thinking; and the third outlines strategies that academic librarians can use in their own teaching to dismantle deficit thinking.

The authors make a particularly useful move in section 2, outlining the characteristics common to several or all of the strengths-based pedagogical approaches they selected for review. By "putting these strengths-based pedagogies in conversation with one another" (54), the authors provide the reader a sense of why these common practices are shared between pedagogies that can otherwise seem disparate in approach or goal. The authors accomplish this conversation practically by creating a chart outlining five principles shared between constructivism, funds of knowledge, open pedagogy, critical pedagogy, asset-based pedagogy, and culturally relevant pedagogy. For each principle, the authors provide an accompanying mindset and set of practices that will assist the practitioner to employ the principle in their own work. A good example is seen in the description of the criteria, "Center Social Interaction and Community Knowledge." The authors begin with constructivism's claim that students learn well when they must resolve the conflicting ideas inherent in a diverse learning environment (82). They complement constructivism's approach to social interaction with open pedagogy's use of sharing within and outside of the classroom as a motivating factor for student learning (83). This is generous intellectual work by the authors and makes it easy to understand how and when each principle might work in one's own teaching.

Because the focus of the book is specifically on dismantling deficit thinking in academic libraries, it does not go into depth on any of five pedagogical approaches that it discusses. For this reason, the richness of these theories—their potent social and cultural histories, and even some of their foundational authors—are not fully explored. For readers who are new to educational theories that challenge racism, this will be an approachable introduction. Readers who are more deeply versed in these theories may find themselves wanting to dig back into the foundational texts that are referenced within this work for more detail.

The conclusion of the text is a call to action that describes the authors' own approaches to pursuing this work as well as suggestions and imperatives for how the reader can proceed with their own personal and professional work to dismantle deficit thinking. The authors offer

considerable further reading in addition to their works cited in each chapter; after finishing the book, it was my inclination to return to some of the source texts for the pedagogies that were tantalizingly introduced here.—*Althea Lazzaro, Seattle Central College*

Information: A Historical Companion. Ann Blair, Paul Duguid, Anja-Silvia Goeing, and Anthony Grafton, eds. Princeton, NJ: Princeton University Press, 2021. 904p. Hardcover, $65.00 (ISBN 978-0-6911-7954-4).
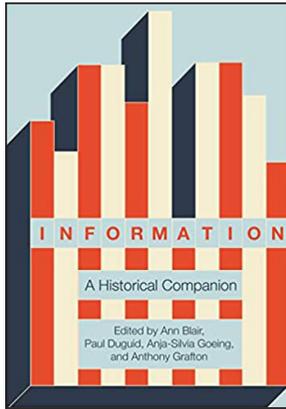
At nearly 900 pages, *Information* offers a wide-ranging treatment of its subject. Thirteen opening chapters, followed by more than 100 topic entries, trace the "emergence across history of new information practices, technologies, and institutions" focusing particularly on "moments of confrontation and transition."

Several themes run through the opening section. The centrality of geography to information is established in the opening chapter as Anthony Grafton revisits the Silk Road, a pre-modern information highway, multilingual in its cultural sweep. In Grafton's concise words, "Information made the Silk Road." Along the route, "cultural practices and styles moved as far—and as erratically—as words, transmitted by the artisans who made them, by the products that embodied them, and, above all, by missionaries and other migrants." Such erratic transmission of information may be found in any of the book's chapters, and most of the topical entries that follow them.

Yet people have always felt the need to organize and control information. Such impulses lead to bureaucracy, another of the book's themes. The often clunky but always imposing machinery of archival control lurks beneath nearly all of modern information. The volume's commentary on official recordkeeping includes everything from ancient Rome's *acta diurnal* (chapter 1) to the rise of the European information state (chapter 6) to "managerial capitalism" (chapter 8).

The first section of *Information* fittingly ends with a chapter entitled "Search," which foregoes the chronological scheme of the prior 12 chapters to conclude theoretically with issues of discoverability. What good is all the voluminous information now freely available to much of the world if one cannot locate it? This coda, authored by Daniel Rosenberg, reminds us that information is still not free despite the promise of the latest "information age." Proprietary platforms such as Google quickly seized the best search engine models, ensuring that, despite its initial promise, our access to information now depends upon a few corporatized networks.

Human anecdotes punctuate the otherwise technological narratives, making each chapter a highly readable treatment of its topic. The chronological progression lends an overall arc to the first section that is impressive for any edited work running 13 chapters and covering millennia in the process. Chapters are enriched with thematic elements that layer the temporal with accompanying issues of the time. "Documents, Empire, and Capitalism in the Nineteenth Century" is a typical example of such interpretation of a period in information development. Such combinations help the various authors advance political points of view that subtly echo much of today's accepted thinking; there are few controversial claims in these opening essays. In fact, the reader could be excused for concluding that even in today's world the encroachment of information into our everyday lives has few consequential implications. This sterility is to be expected of such a broad project, and few of the work's likely readers may anticipate

a diatribe. Still, the sense of unease occasioned by today's information creep becomes a sort of elephant in the room where such a hefty volume resides.

Reading *Information*, it is easy to forget that the current moment is so heavily burdened by doubts about the veracity of anything or anyone purporting to be informative. The recent swell of divisive politics and a pandemic have stripped information of nearly all its remaining neutrality. Though this atmosphere of doubt is hardly a 21st-century phenomenon, the text, with a few exceptions, elides the issue of veracity in its historical survey. The chapters that do deal with these issues are some of the most intriguing and prescient. Richard R. John and Heidi J.S. Tworek deal most directly with the subject in chapter 11, entitled "Publicity, Propaganda, and Public Opinion." Aside from covering the requisite "yellow journalism," the authors delve into more nuanced topics such as the 1920s debate over propaganda. In the wake of WWI, John and Tworek tell us, even two progressives like John Dewey and Walter Lippmann split over the role of the press in eliciting "civic engagement." While each man championed objectivity in public information, Dewey believed "journalists were high-profile players in an ongoing contest to interest the public in the public interest. For Lippmann, in contrast, journalists should remain discreetly on the sidelines and patiently counsel elites."

In many ways, the real treasure of the volume are the entries comprising a glossary of information-related topics. There are even several delightful surprises ("Photocopiers" and "Landscapes and Cities"). Some topics ("Lists" and "Journals") are given comparatively short shrift, and librarians will be surprised to find no entry at all for "Information Literacy."

More than 700 pages into the volume, the entry entitled "Reading Against the Grain" provides a blueprint for interrogating history. With *Information* as a guide, any historian, archivist, or close examiner of the world will have the training and means to "read against the grain" of the past, recognizing that the book's subject, and its context, must always be vigorously questioned. As good archival thinkers, *Information*'s readers "should ask questions about how our archives, as collections and institutions with their own histories and realities, shape the pasts we study and the stories we tell."

Information is destined to become a standard reference for every serious historian of the subject and a myriad of related ones.—*Ron McColl, West Chester University of Pennsylvania*

Preserving the Past & Engaging the Future: Theology & Religion in American Special Collections. M. Patrick Graham, ed. Chicago, IL: American Theological Library Association, Atla Open Press, 2021. 270p. Paper, $35.00 (ISBN 978-1949800166). doi:10.31046/atlaopenpress.43.
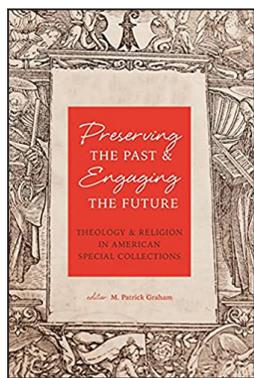
Preserving the Past & Engaging the Future: Theology & Religion in American Special Collections is a fine collection of essays that demonstrates the practical work and value of special collections in libraries for religion scholarship and cultural heritage.

Editor M. Patrick Graham is a giant in the field of religious studies libraries and special collections, having retired in 2017 from the Pitts Theological Library at Emory University after a long and successful career. His subject expertise, as well as his genial nature and knack for building community, makes him the perfect person to have gathered these collected essays.

The 10 chapters are divided into three sections: "Special Collections Retrospective," "Special Collections at Work in Teaching and Research," and "Collection

Development and the Future of Special Collections." Many of them provide practical explanations of projects and programming as well as give insight into the possibilities for future special collections work.

The volume highlights not only the importance of religious/theological special collections for religious studies, but also for a more deeply contextual understanding of the history of Western culture as a whole. It's clear that the religious and theological special collections have broader interest and implications for the field of special collections more generally, given the outsized (though not unproblematic) role of the Christian Church in the history of literature, publishing, and the academy. Caroline Duroselle-Melish's chapter on the Folger Library's German Reformation collection demonstrates this integration of religious background to the "secular" world of Shakespeare, for example. The collections are marked by the historical and material realities through which they have lived—the French Revolution, the Napoleonic wars, travel and trade and time.

As a librarian who does not work in Special Collections myself, I was educated and edified by reading about different modes of creating and developing collections, illustrated by the processes of Phillips and Stickelberger and their respective collections now held by the Folger Library. The discussion of selective collecting versus collecting "en bloc," for example, was an interesting dichotomy. Considering the advantages and difficulties of each gives a fuller picture of some of the concerns related to collecting rare and historically significant materials. Learning about the process and value of each was beneficial for thinking about my own library's collections.

The second part of the volume focuses on teaching students how to use and analyze collections and archives as scholars in their own right. Matthew Baker emphasizes the Burke Library's desire for "materials to be experienced safely, with appropriate care and also without undue intimidation." As Ranganathan asserted, books are for use, and the same goes for items in special collections. The goal is for active participation of students, scholars, and, as Brian Shetler and Jesse D. Mann's chapter describes, alumni donors. Images of notable objects, book pages, and illustrations in several of the chapters lend credence to the theme that threads throughout the volume of the value of experiencing the collections, even as surrogates.

The essays overlap in so many ways, illustrating the real collegiality and interconnectedness of theological special collections. It's a small world, and the collaboration and conversation between collections, such as the Pitts and Folger Reformation collections, makes for a robust field and a fulsome compilation of essays. The connections between libraries and librarians are as apparent here as they are integral.

The volume perhaps would have benefited from some more critical perspectives and a more diverse authorship. Anthony Elia's essay addresses some concerns around environmental issues and the prospects of special collections and libraries facing a climate-changed future, and there are passing references to the gaps in the historical record or the "silence of archives" throughout. I wish there had been some treatment of the complicated relationship of, say, provenance and marginalized histories.

Additionally, I was pleased to see some discussion of COVID-19 in these pages, without it turning into a piece of explicit or exclusive pandemic reflection. The pandemic has changed our work and our lives, and acknowledgment of this fact is crucial even if tangential.

The volume as a whole strikes a balance between appreciation for the wonderment of Special Collections—old stuff is cool, after all!—without falling into the nostalgia or voca-

tional awe that can hamper much library work. A passion for the field shines through each of the essays, from the authors' care for the history of the work to their excitement about the future. Overall, the collection is an excellent snapshot of contemporary special collections in theology and religion, the work the field is doing with and for scholars and students, and the possibilities in the years to come.—*Keegan Osinski, Vanderbilt Divinity Library*

Sofia Y. Leung and Jorge R. López-McKnight. *Knowledge Justice: Disrupting Library and Information Studies through Critical Race Theory*. Cambridge, MA: The MIT Press, 2021. 358p. Paper, $35.00 (ISBN 978-0262043502).
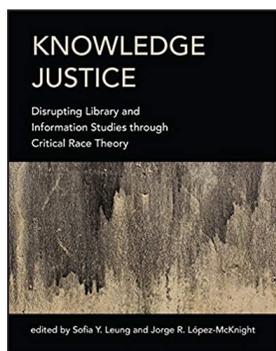
Throughout library history, the lived experiences of Black, Indigenous, and People of Color (BIPOC) have not been centered, thoroughly documented, or affirmed. *Marginalized* and *underrepresented*. Those have been the adjectives used to describe people of color in the library field. Over the last couple of decades, library and information science (LIS) scholars and practitioners have begun to fill out the LIS literature by writing their own ideas, experiences, and histories. *Knowledge Justice: Disrupting Library and Information Studies through Critical Race Theory*, edited by Sofia Y. Leung and Jorge R. López-McKnight, is a groundbreaking text that is the first book that introduces and explicitly applies critical race theory (CRT) to the LIS field. *Knowledge Justice* is composed of three sections, each with an introduction by foundational CRT/LIS scholars and 13 chapters. Every word is edited and written by BIPOC scholars and practitioners. The book defines and weaves major tenets of critical race theory throughout the text: race as a social construct; racism as normal; experiences and knowledge of BIPOC; intersectionality; interdisciplinarity; whiteness as property; critique of dominant ideologies; focus on historical contexts; counterstorytelling and voice; and interest convergence. Critical race theory is deployed in *Knowledge Justice* to facilitate the understanding and dismantling of white supremacist structures that make the profession inhospitable and toxic to BIPOC library workers. Leung and López-McKnight powerfully quote bell hooks, stating that "we searched for theory because we were hurting and trying to understand in new ways what this world was trying to do to us and our communities" (27), connecting the importance of theory to praxis and their potential for healing. The book opens with a powerful dedication to BIPOC library workers who left the profession. While reading, it's hard not to notice the other names of people of color who no longer work in this field. Our white-dominated profession wonders why this is, and why can't we retain BIPOC library workers. *Knowledge Justice* explores and interrogates these questions and also finds answers and ways forward.

The first section of the book, "Destroy White Supremacy," opens with an introduction from Todd Honma. He unpacks the CRT tenet, "Racism Is Ordinary," describing how the chapters in this section illuminate the ways that racism and whiteness permeate our profession. Chiu, Ettarh, and Ferretti problematize ideas of neutrality, applying the framework of "Vocational Awe" to explore how White Supremacy in librarianship upholds these values in terms of access to facilities, public services, collections, and discovery. Morales and Williams analyze the ways in which information is not neutral. They use CRT to examine scholarly communication and epistemology, coining the term "epistemic supremacy." Epistemic supremacy describes how systems of knowledge production and discovery can uphold the

conditions that keep BIPOC communities oppressed. Further, Morales and Williams explore how librarian methodologies uphold these ideologies and encourage librarians to recognize and challenge epistemic supremacy. Brown, Cline (Coharie), and Méndez-Brady discuss the lived experiences of BIPOC library workers, particularly the labor and diversity work they often perform in libraries. This chapter offers a deep analysis of institutional documents related to diversity initiatives at academic libraries in North America, exploring labor inequities around diversity work within an institutional setting. Belarde-Lewis (Zuni/Tlingit) and Kostelecky (Zuni Pueblo) engage with Tribal Critical Race Theory as they evaluate three projects that share Zuni cultural information and knowledge. They preface their chapter by acknowledging the harm done by outsiders who have exploited the Zuni Pueblo community through their research. Their chapter is both a reclamation of the knowledge practices of the Zuni Pueblo people and an example of what scholarship looks like with a Tribal CRT lens.

The second section of the book, "Illuminate Erasure," makes visible the nuanced, sometimes invisible, and insidious nature of racism and white supremacy in LIS through both personal narrative and historical lenses. Anthony W. Dunbar, among the first scholars to use CRT in LIS, introduces this section through his own journey as a CRT scholar and articulates what the authors in this section contribute to the LIS scholarship. In "Counterstoried Spaces and Unknowns," Natarajan asks how we can use CRT as praxis to center the "experiences, lives, and futures of queer, trans, people of color in libraries?" (141) and uses counterstorytelling to recount their experiences as a queer, femme, nonbinary person navigating library spaces as a student and then as a librarian. Shaundra Walker's chapter details the life and amazing work of Black activist-librarian Ann Allen Shockley, using CRT to appreciate the lived experiences of Black activist-librarians and trace the histories of how Black special collections came to be. Lugo Vazquez's chapter provides an important historical perspective of children's librarianship in the United States that centers both the experiences of Indigenous, Black, and People of Color (IBPOC) library workers who have contributed so much to children's librarianship. Inefuku's chapter explores knowledge production and inequities in academic publishing, using CRT to make visible the ordinary nature of racism as it informs the structures of scholarly communication. The chapters in this section recenter library history around the experiences and contributions of BIPOC library workers, making the structures of white supremacy in LIS more visible.

The final section of the book, "Radical Collective Imaginations Toward Liberation," starts with an introduction by Tonia Sutherland that frames the chapters in this section through storytelling and counternarrative. Authors in this section write their own stories using the framework of counterstorytelling to reimagine what LIS could be. In "Dewhitening Librarianship: A Policy Proposal for Libraries," Espinal, Hathcock, and Rios apply counterstory telling to illustrate the "story of diversity." They introduce their term "dewhitening" as language that can push the field to take action and create policy changes. Cong-Huyen and Patel examine structural and systemic inequities in digital humanities librarianship, especially as they apply to BIPOC library workers. Through their exploration of labor, race, and the work of digital humanities scholarship, they posit radical self-care and community praxis as a way forward. In "Praxis for the People," Winston offers an autobiographical lens as a way of applying counternarrative in archival work and then exploring how critical race praxis methods can be used in archival work. In the last chapter, "Getting Inflomation," Kumasi uses creative writing to illustrate the use of CRT in a school library context. Using the perspective of a Black high

school student, this chapter effortlessly applies CRT frames to real-life situations, written in a way that will be relatable to most readers. In their conclusion, Leung and López-McKnight let us know that they will not be pacing themselves on behalf of white privilege; they and the authors in this book are moving ahead to create the profession that they want: actively dismantling white supremacy and radically imagining the future where BIPOC in LIS thrive.

At the root of the human experience, the significance of feeling seen and heard, and being treated with humanity, cannot be understated. The legacy of white supremacy and racism in libraries has historically dehumanized BIPOC and continues to do so. In this collection, Leung and López-McKnight make space for BIPOC in LIS to tell their own stories and create their own profession on their own terms. This book is a tool for liberation, a salve for community healing, a sightglass for being seen, and an exercise in futuristic envisioning for what the library profession could be for BIPOC. Through the use of theory and scholarship, *Knowledge Justice* provides community and refuge for BIPOC library practitioners and scholars, presenting LIS with a slew of emerging frameworks and ideas to build upon for decades to come.—*Annie Pho, University of San Francisco*

Richard Jean So. *Redlining Culture: A Data History of Racial Inequality and Postwar Fiction.* New York, NY: Columbia University Press, 2020. 240p. Paper, $20.00 (ISBN 978-0231197731).
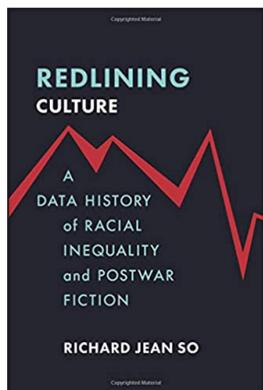
In the past few years, we've seen more conversation around the lack of diversity in publishing. Even before the civil rights protests of 2020, we had regular news and opinion articles from industry publication *Publishers Weekly*, the Lee and Low Diversity Baseline survey, the State of Racial Diversity in Romance Publishing Report, diversity statistics from the Cooperative Children's Book Center (CCBC), and the VIDA Count, among other smaller-scale efforts to highlight the problem.

Richard Jean So's *Redlining Culture: A Data History of Racial Inequality and Postwar Fiction* adds to this conversation through big data analysis of literary fiction from 1950 to 2000. The book is a slim and focused monograph in six parts addressing different aspects of the literary cycle, from publication to reception and recognition to scholarly study. Professor So, who teaches at McGill University, is a clear and thoughtful writer, and this is particularly helpful to those new to big data and machine learning. Each chapter focuses on a different data set, and plain language is used to explain the decisions around each query. The outputs and conclusions are accompanied by tables and charts that at times are difficult to see (because they are a little small) but are nonetheless valuable in visualizing the trends and outliers. It is important that we dig into the numbers, he insists, because in the words of Toni Morrison's character Denver in *Beloved*, "If you can't count, they can cheat you."

In his compelling introduction and first chapter, So describes how he identified Random House because, among the big publishers, it has a reputation for diversity and is notable because of its association with Toni Morrison. He counts the percentage of novelists by racial identity, the number of black versus white characters in these books, and the kind of language used to describe these characters. We learn through an endnote that his data set is acquired by looking through WorldCat entries for novels published by Random House. In this brief endnote, So acknowledges that selecting from WorldCat is an imperfect process but that, "the judgements of Librarians who create the WorldCat standard represent a coherent baseline"

that is adequate to determining a corpus. We can apply this same logic, in that case, to Web of Science and JSTOR, which he also uses to form his data sets in later chapters. For those of us familiar with bias in library discovery systems, this is distressing, but I don't know if So is aware of the issues thoroughly explored in Matthew Reidsma's *Masked by Trust: Bias in Library Discovery* (2019).

So starts with the "count" that 97 percent of books published by Random House in this time period are by white authors. This is a statistic that we see repeated throughout this book, as though So wants us to remember and incorporate this fact about a publisher that purportedly supports diversity in literature. We also learn that white authors are represented in 90 percent of book reviews, 98 percent of best sellers, and 91 percent of book prizes. None of this is a surprise, but what I did find shocking is that white characters are described with more semantic variance while black characters are stereotyped and stagnant across the five decades. In brief, white characters are allowed growth and change, while black characters are not. For example, in the 1950s, white characters are described as "Christian" or "clergy." By the 1970s, white characters are more likely to be "lady" or "gentlemen." Black characters, on the other hand, are described throughout the decades as "boy," "gentleman," and "fellow" (51–53) and are frequently treated as props. In this and other in-depth text analysis that compares books by white authors, black authors, and POC authors in (first) literary reviews and (second) recognition through commercial and critical success, So puts to rest some of the enduring myths of book publishing—that authors are vetted for the quality of their work; that there are a lot of diverse books being published; that we have reached volume and success with African American literature. It is all whiteness; whiteness is the defining feature of American publishing.[1]

This conclusion is apparently at odds with the prevailing sense in academic scholarship that literature is doing very well in its quest for more diverse voices. In the penultimate chapter, entitled "Consecration: The Canon and Racial Inequality," the reader is left to ask who or what, exactly, is being made sacred? Is it the study of literature, and its perception of itself as a field that espouses diversity and critical thought? Or is it the canonization of Toni Morrison, who looms large throughout So's analysis, and her ilk by scholars like Houston Baker and Henry Louis Gates, Jr., in their efforts to establish Black studies? In his text analysis of academic literary articles, So identifies a distinctive shift in how race is discussed before and after 1995, as "the ascent of cultural studies offered the discipline an opportunity to begin focusing on the contemporary field of literature as a material site of inequality" (167). However, in that same text analysis, So also finds the word "inequality" missing from the academic conversation, and his conclusion is that, by not discussing inequality specifically, the field is missing a big picture understanding of racism in literature. I am inclined to argue that the more commonly used "whiteness" can be seen as a stand-in for "inequality," but I take his point that literary studies, and academia writ large, has little real perception of the large-scale inequities in publishing.

The book is, at its heart, a text analysis rather than a sociological one, and So addresses questions of *what is* rather than *why*, leaving aside questions like who profits from a white-centered industry. I would be curious to see his analysis on publishing from the last two decades. We have seen a shift in representation and recognition that has led to more choices for readers, as shown by the lists compiled by We Reads and We Need Diverse Books (WNDB). If, as So implies, Octavia Butler's time is now (134), then what does now look like in terms of

publishing's diversity numbers? This question supports So's argument that these numbers are important; and, since his numbers are based on library and research databases, I think library workers should be thinking carefully about how their work has impact on such large-scale digital humanities scholarship.—*Charlotte Roh, California State University San Marcos*

Notes

1. As an aside, in So's analysis, he found that one of the defining features of white-authored literature is the heavy use of adverbs, so lots of qualifiers (121). I found this hilarious, but also it aligns with what we've learned about how the CIA defined good literature in its funding of the Iowa Writers Workshop and MFA programs across the country. For more on this, see Eric Bennett's *Workshops of Empire: Stegner, Engle, and American Creative Writing during the Cold War* (2015, University of Iowa Press)

Supporting Neurodiverse College Student Success: A Guide for Librarians, Student Support Services, and Academic Learning Environments. Elizabeth M.H. Coghill and Jeffrey G. Coghill, eds. Lanham, MD: Rowman & Littlefield, 2020. 312p. Hardback, $95.00 (ISBN 978-1-5381-3736-9).
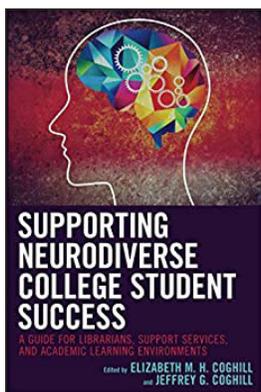
Supporting Neurodiverse College Student Success, edited by Elizabeth Coghill and Jeffrey Coghill, aims to inspire higher education institutions to create more inclusive and welcoming environments for neurodiverse students. The authors achieve that goal by defining neurodiversity and providing concrete examples of how postsecondary learning environments can be adapted to meet the needs of college students with learning differences. Understanding neurodiversity means acknowledging that there is no "normal" brain function; differences are part of expected variations in the human brain. Further, neurodiversity recognizes that differences are not deficits.

The 12 chapters of the book are broken into different topics including academic advising, welcoming spaces for learning, and library services. Throughout, the authors stress the need to create a welcoming environment for neurodiverse students based on the understanding that all students belong. The authors connect the different topics by emphasizing overarching themes of inclusiveness and acceptance of differences. The book is well structured, with a concluding section in each chapter that offers campus essentials for high impact. These sections provide excellent recommendations that librarians and other campus professionals can put into immediate action. Each chapter also includes a campus spotlight that provides real-world examples of programs and initiatives instituted at a range of colleges and universities.

A chapter on library services spotlights the partnership between the Joyner Library at East Carolina University (ECU) and the Supporting Transition and Education through Planning and Partnerships (STEPP) Program. STEPP is a support program that serves students with documented learning disabilities at ECU. The STEPP program is housed in the Joyner Library, and a natural collaboration grew out of this physical proximity. The library participates by providing a library boot camp and one-on-one consultations to students in the STEPP Program. The importance of campus partnerships like this one is another theme that runs through the book.

This chapter also advocates for presenting the library as a "home base" or "escape place" for neurodiverse students, outlining the steps academic librarians can take to trans-

form libraries into more neurodivergent-friendly places. One way to make this happen is by implementing the principles of Universal Design for Learning (UDL). UDL is a framework for the design of instructional goals, materials, methods, and assessments that are adjusted to accommodate learning differences.[1] Librarians can use UDL to modify library spaces to make them more inviting for neurodiverse students. Some aspects of academic libraries like fluorescent lighting and the noise and activity associated with the modern information commons can lead to sensory overload for neurodiverse users, especially autistic students. The authors suggest replacing fluorescent lighting with LED lighting when possible and clearly denoting quiet spaces where students can be protected from overstimulation. The authors also advocate using library instruction methods based on UDL. UDL also features in a chapter on best practices for tutoring sessions, strategies that can be applied equally by librarians during research consultations. Many of these are displayed in a useful table that readers can use to apply some of these best practices to their work with students.

Another useful chapter addresses designing welcoming spaces for learners. The authors discuss how both the effective and ineffective use of space impacts students. They emphasize that educators should focus on changing the space, not the learner. This philosophy is a natural outgrowth of the UDL approach. The authors examine how space designers and educators might consider neurodiverse students when planning learning spaces. They recommend using the Autism ASPECTSS Design Index to help create spaces that are welcoming for neurodiverse students. The principles of ASPECTSS leads to spaces that are organized so that sensory stimuli are limited. These sensory limits offer a respite from the overstimulation often found in campus environments. ASPECTSS was created to help autistic students who are often more affected by sensory stimuli. However, like UDL, spaces that improve the learning experience of autistic students will benefit all students. One simple example is the use of mobile furniture in libraries or information commons areas. Neurodiverse users can take this mobile furniture and create private, quiet spaces without calling attention to themselves.

The book provides many helpful tables and figures with concrete examples. For example, a chapter on academic mentoring and coaching services includes a table of sample learning strategies with accompanying tangible examples. A chapter on self-advocacy uses case studies taken from real-world events to highlight campus adaptations that enable neurodiverse student success. Additionally, each chapter provides a comprehensive reference list that will allow readers to augment their knowledge of each topic. Throughout the book, authors give practical solutions to support and welcome neurodiverse students to college campuses. This support and inclusiveness are imperative because, as Elizabeth Coghill points out in the introduction, 11 percent of college students are neurodivergent.[2] As more neurodiverse students enter college, librarians, faculty, and staff will need to create an environment where these students can learn and thrive. This book is one resource that can help with that goal.—*Gerard Shea, Seton Hall University*

Notes

1. D. Sweeney and R. Zellner, "Universal Design," in *Encyclopedia of Special Education: A Reference for the Education of Children, Adolescents, and Adults with Disabilities and Other Exceptional Individuals*, 4th ed., eds. C.R. Reynolds, K.J. Vannest, and E. Fletcher-Janzen (Hoboken, NJ: John Wiley & Sons, 2013), https://go.openathens. net/redirector/shu.edu?url=https%3A%2F%2Fsearch.credoreference.com%2Fcontent%2Fentry%2Fwileyse%2Funiversal_design%2F0%3FinstitutionId%3D441.

2. A.R. Fleming et al., "Treatment-seeking College Students with Disabilities: Presenting Concerns, Protective Factors, and Academic Distress," *Rehabilitation Psychology* 63, no. 1 (2018): 55.

Daniel Greene. *The Promise of Access: Technology, Inequality, and the Political Economy of Hope*. Cambridge, MA: MIT Press, 2021. 260p. Paper, $30.00 (ISBN 978-0-262-54233-3).
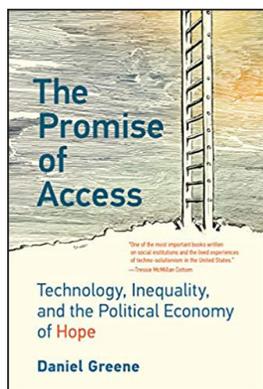
In *The Promise of Access: Technology, Inequality, and the Political Economy of Hope,* Daniel Greene sets out to examine "how the problem of poverty is transformed into a problem of technology" and the larger effect this has on public service-oriented institutions like schools and libraries. Drawing on ethnographic fieldwork conducted between 2012 and 2015 at three organizations—a tech start-up, a public library, and a charter school—he tells a story of public institutions adapting to dwindling state investment by embracing simplistic technological solutions to inequality, even when those who staff them seemingly know better. Why do we look to tech start-ups as models of success for public institutions when they operate under vastly different conditions? The allure of access and the promise of technology makes an intractable problem like poverty into something that is actionable and legible to funders but sets these institutions on a path that may well end in their own undoing.

The book begins with a political history that undergirds the stories of the three organizations that follow. Recounting the policy discourse from the early 1990s, when the internet represented the promise of the Clinton administration's New Economy, Greene examines the political use of ideas like the digital divide amid diminishing state spending and policies advancing the commercialization of the internet. The decline of the welfare state and the rise of skills training as a substitute for direct aid to the poor are key factors in how and why access to technology becomes the solution to poverty through *the access doctrine*: the understanding that those on the wrong side of the digital divide have been left out of the information economy; and, if given the right access to technology, they can be brought in and thereby lifted from poverty. This, then, brings the *hope* referenced in the title. With the right skills and training, individuals can overcome the structural problem of inequality and thrive in the global information economy. Conversely, those who cannot (or will not) be molded as competitors in the new economy are faced with an increasingly punitive and carceral state.

Using this theoretical framework, Greene takes us through three organizational settings: a local tech start-up, the MLK branch of the DC Public Library, and an entrepreneurial charter school. The backdrop for all three is Washington, DC, though the specific location is not a core concern. This is a broader story of a neoliberal urban development playbook that persists across locales: cities recruit largely white tech start-ups through tax incentives, real estate developers advancing gentrification create spaces that appeal to those workers, and—finally—public service institutions are recast in tech's image, charged with remaking the city's populace into entrepreneurs fit to compete in the information economy. It is this last piece of the puzzle that Greene investigates, and he largely succeeds in identifying the way that institutional transformations are enacted within individual organizations, often by the very "helping professionals" that staff them.

The book employs participant observation supplemented with interviews to form an institutional ethnography that is "less about the stories of individual people and more about the social relations within and between those different places." Greene is a skilled storyteller, and, despite the work's emphasis on institutions, we are introduced to a cast of characters

that are both immediately recognizable and refreshingly multidimensional. From the CEO of a start-up tech firm ("I don't even know what government does. I just stay far from it."), to the unhoused patrons in the library's computer lab who've figured out how to game the reservation system, to the charter school teachers who model white-collar work for their students—these are the people navigating economies of scarcity on the ground, through which we learn the intricacies of how the access doctrine takes hold.

For Greene, the workplace philosophy of tech start-up firms coheres around the ability to thrive in an "environment of extreme uncertainty" through the proverbial *pivot*. Public institutions cannot pivot like tech firms do because they are bound to longstanding societal roles and lack the same control over choosing their clientele. That doesn't stop schools and libraries from undertaking a process that Greene calls *bootstrapping*: when organizations remake their identities and operations to align with the access doctrine to secure funding, even if doing so calls the very purpose of the organization into question. When the tech-forward charter school is faced with a lower-than-expected graduation rate, teachers see the school's core values compromised as they realign their work to meet the expectations of outside funders.

Librarians will of course be interested in the chapter on the MLK branch of the DCPL, and Greene offers a fair representation of professional debates as articulated by the library staff in his interviews and observations. It's here that we see how libraries fit into a larger socioeconomic project; Greene's analysis does not explain the entirety of libraries and their transformation in this crucial moment, nor should we expect it to. It does, however, help us better understand how the choices we make in determining whose support to garner and what new services to offer—and which values get left behind in the process—fit into this larger framework of placing the weight of structural problems on the shoulders of individuals.

The Promise of Access is an important contribution to our understanding of technosolutionism's impact on public institutions and has much to offer library workers. Yet the most remarkable aspect of the work is how much it resonates with our current pandemic condition of extreme uncertainty, now that we have all been asked to "pivot" on a daily basis. As we move toward a postpandemic future, the lessons of Greene's work should remain front and center while we reimagine, rethink, and reframe our institutional missions and professional priorities.—*Roxanne Shirazi, The Graduate Center, City University of New York*

Michelle Caswell. *Urgent Archives: Enacting Liberatory Memory Work.* Milton Park, Oxfordshire, UK: Routledge, 2021. 142p. Hardcover, $160.00 (ISBN 978-0367427276).

Michelle Caswell's *Urgent Archives* is a powerfully persuasive book, challenging some of the most fundamental principles of Western archival tradition through a deep exploration of the theory and practice of community archives. Caswell is an archival studies scholar and a co-founder with Samip Mallick of the South Asian American Digital Archive (SAADA). These dual perspectives shape the book's running themes as Caswell draws on her work with graduate students, her own evolving scholarly work, and her relationships with community archivists and archives users to develop her challenge to the Western archival tradition. The deep theoretical work of *Urgent Archives* is grounded throughout by descriptions of actual and potential ways that community archives constitute profoundly important sites of liberation.

Community archives, particularly those "in which the history held in common coalesces around a shared history of oppression" (16), challenge the Western archival tradition. Caswell has explored the concept of "representational belonging" in her previous work, and in *Urgent Archives* she argues that representation is not all that these collections can do; community archives have significant potential to trouble concepts of time and authority. Thus, the records held by community archives can be activated for political resistance.

Urgent Archives is structured in four chapters. Chapter 1 examines concepts of temporality, the relationship of temporality to narratives of progress, and the ways Western archival tradition reinforces linear thinking. Chapter 2 reviews research from community archives focus groups conducted by Caswell and her graduate students shortly after the 2016 US Presidential election. Chapter 3 uses examples from SAADA's work to demonstrate how archives can be activated for the political urgency of *now* (as opposed to a distant future). Chapter 4 concludes with an exploration of the temporal, affective, and material liberatory potential of archives and the role archivists can play in realizing this potential.

Chapter 1 introduces the most provocative argument at the center of *Urgent Archives*: challenging the dominance of linear time and progress narratives that promise a better future via clean breaks from the unfortunate past. Caswell links linear temporality with a white Christian heteropatriarchy that views time as a singular progression from a backward past to an ahistorical present to a future in which past and present challenges have been neatly resolved. In contrast to linear temporality, many cultures and communities conceive of time in very different ways. Caswell uses examples from Hindu, Indigenous, critical race, Afrofuturist, and queer temporalities.

Caswell convincingly argues that Western archival tradition is inextricably linked to linear temporality and its assumptions about the certainty of progressive futurity. She argues that one of the most common tropes of archival work and archivists' collective identity—that we preserve the past for the future—embeds the idea of linear time into our work. Caswell argues that this conception of linear time and progress lulls archivists into a sense of complacency:

Not only does this construction assume a straight line between past, present, and future, it also assumes that the real issue society faces is ignorance and not maldistribution of power; if only we learned from the mistakes of the past by engaging with our history, our future society would be (magically, somehow) more just, the logic asserts. As such, the societal role of the archivist is to preserve traces of the past and encourage educational use of those traces; it is not to fundamentally shift power structures. (38)

Caswell invokes the term *chronoviolence* to describe the ways in which linear temporality can harm communities. A sense of time that imagines things are always getting better denies the documented and lived realities of those who experience cyclical forms of violence and erasure. Caswell writes, "[C]hronoviolence gaslights members of oppressed communities who insist that what has been constructed as oppression of the past is indeed not past, but ongoing." (40)

In chapter 2, Caswell recounts findings from community archives focus groups in southern California (the Lambda Archives, La Historia Society, the Southeastern Asian Archive at UC-Irvine, and the Little Tokyo Historical Society). This work was conducted shortly after the 2016 Presidential election, deeply shaping the discussions among participants. Caswell describes how focus group participants frequently discussed the cyclical nature of oppression and how this is reflected in archival records cared for by community archives. The chapter ends

with a challenging insight into the limits of empathy and education to effect political change.

Chapter 3 focuses on SAADA's efforts to activate archival records on behalf of political resistance through three recent projects. The first project asked users to write letters in the early part of the COVID-19 pandemic and then sent the letters back to their writers a year later. The second project explored the complex history of the South Asian community with the Black community. A third project activated South Asian political experiences and memory for 2020 election voter mobilization. Caswell explores the limits of representation as the raison d'être for community archives, arguing that, while the role of representation and affect is deeply important, archives also have to be activated to realize their liberatory potential in the present. An emphasis solely on representation can easily veer into assimilationism or respectability politics.

Chapter 4 weaves together the themes of the previous chapters as Caswell envisions what archives could be and how archivists might activate archival records to resist the many injustices that exist today. Caswell outlines three avenues of liberatory memory work: temporal, affective, and material. Enacting temporal liberatory memory work envisions a shift from chronoviolence to chronoautonomy. Affective work recognizes the importance of representational belonging. Material liberatory memory work calls on archivists to mobilize records to counteract the violent white supremacist foundations of the United States, using records to support Indigenous land sovereignty and reclamation and reparations for the descendants of enslaved Africans.

Urgent Archives falters when Caswell describes the role of mainstream archives in relation to community archives. Caswell's argument that archivists working at mainstream archives should leave community archives alone and/or learn from community archives practices in rethinking their own institutional work is well taken. However, Caswell tends to conflate mainstream archives with those that have significant financial resources or political capital. There is only a brief acknowledgment of the precarity of the many mainstream archives located in local governments with diverse constituencies or in poorly resourced public universities that serve large numbers of first-generation and BIPOC students. These archives often steward very different records and serve very different audiences than elite white-centric, well-endowed research institutions. These archives have often faced crisis-level funding and staffing situations that were bad prior to the COVID-19 pandemic and have accelerated to even more severe material working conditions in its wake. Archivists who work in these nonelite yet mainstream institutions are often in a constant crisis management mode. Working conditions prevent these archivists from doing the methodical work that liberatory archival practice calls for due to understaffing, underresourcing, and/or threats of managerial retaliation.

As I have been contemplating this conundrum, I find myself returning to Caswell's term *chronoviolence* and its far-reaching applicability. Perhaps a version of chronoviolence might also include the experience of working conditions under austerity regimes in place at most mainstream archives, where workplace temporalities are measured with fast-paced metrics and "deliverables," as opposed to the slow and considerate work of revolutionizing archival practice to mitigate further harm associated with Western archival traditions. *Urgent Archives* is a timely book in every sense of the word, with its emphasis on rethinking temporalities and the use of archives for today's urgent issues of political resistance. Archivists and all those who care about archives will gain much from Michelle Caswell's landmark contribution to archival theory.—*Eira Tansey, University of Cincinnati*