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Guest Editorial

Seeking More Rigorous Author Guidelines at *C&RL*

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In August 2025, we submitted a letter to the editor calling on *College & Research Libraries* (*C&RL*) to adopt more rigorous policies for the articles it publishes, particularly literature review articles and theoretical/critical articles; we were then asked to submit it as a guest editorial. The letter was prompted by conversations with our colleagues concerning *C&RL*'s lack of policies on the types of reviews it will publish and requirements for conducting or reporting guideline use. As evidence synthesis librarians and leaders of the Evidence Synthesis Institute, we have some expertise in standards for rigorous and transparent conducting and reporting methods (Evidence Synthesis Institute, 2025). Rigorous reviews should be comprehensive and assess the totality of what is known within research questions so that reviews can be used to inform evidence-based practices and policies. A lack of guidelines enables authors to cherry pick citations and skew the evidence to meet claims. As one of the most respected journals in academic librarianship, *C&RL* has a responsibility to publish high quality research and reviews, and it is currently falling behind in this regard. Academic librarians work with research teams in a broad array of disciplines to produce rigorous evidence syntheses (e.g., scoping reviews, systematic reviews, meta-analyses), and we should apply the same standards to our own field. We call on *C&RL* to be a part of that.

We acknowledge that outgoing *C&RL* Editor, Kristen Totleben (2025), wrote in a recent letter that the editor and editorial board are working on changes to make "editorial processes such as peer review more transparent, equitable, and efficient." While this is a step in the right direction, we are concerned that this does not do enough to address the quality and rigor of research published in the journal. The ACRL Plan for Excellence (2022) envisioned "academic and research libraries and librarians as catalysts in exceptional research and learning." We argue that "exceptional" research requires rigorous methods and that the leading journal in our discipline should be an exemplar in this area.

Status Quo

We believe that guideline ambiguity regarding methods, results, and discussion has potential to cause harm. Not having policies about secondary research methods gives authors carte blanche

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to cherry pick included studies and callously cite problematic literature without context or consequence. The current *C&RL* author guidelines contain no such requirements for literature selection, evaluation, or addressing manuscript limitations and/or weaknesses. The current guidelines do not contain the word *rigor* (nor any synonyms) whereas many other journal guidelines do. The guidelines also do not indicate any reference to transparency regarding research design and analysis (Sayre & Riegelman, 2018; Sayre & Riegelman, 2019).

Regarding selection of included literature in manuscripts, authors could be expected to include a rationale for inclusion criteria or methods used to identify such literature. For the most rigorous types of reviews (e.g., systematic reviews, meta-analyses), there are established conducting and reporting guidelines (Aloe et al., 2024; Higgins et al., 2023; Page et al., 2021).We are not suggesting that *C&RL* only publish these types of reviews as they are not appropriate for all types of reviews in this field, but that they provide an example of how transparency and rigor can be achieved. Presently at *C&RL*, authors are not required to transparently report how they acquired included studies, nor the methods used to select their final citations. Providing information on how sources were selected, and why, is not a practice that is limited to a specific discipline or review type. Failure to transparently report makes it impossible to reproduce or replicate others' work (Sayre & Riegelman, 2018; Sayre & Riegelman, 2019).

C&RL articles have the potential to influence (ideally) evidence-based policy and practice, and therefore, it is crucial that our peer reviewed literature contains rigorous methods. As the flagship journal of ACRL, this should be an expectation. At the very least, *C&RL* should be following ACRL's *Framework for Information Literacy for Higher Education* (2015). The author guidelines as currently written do not require or even inspire authors to be in accordance with the organization's own information literacy standards. As an example, we believe that a recently published article (Antelman, 2025) fell short on many of the information literacy concepts, thus leading to allegations of biased cherry-picking of sources and failure to evaluate sources (Academic librarians of #CripLib, 2025). In the Authority is Constructed and Contextual threshold concept, even novice learners are expected to "critically examine all evidence … and to ask relevant questions about origins, context, and suitability for the current information need" *(Framework,* 2015). Moreover, in the Information Creation as a Process threshold concept, one knowledge practice is to synthesize multiple sources and "monitor gathered information and assess for gaps or weaknesses" (*Framework*, 2015).

Regarding the potential for cherry-picking and skewing evidence to meet claims, the only mention of bias in *C&RL's* current guidelines is the following: "Clear, simple prose enhances the presentation of ideas and opinions. The editor encourages writing in the active voice and adhering to APA's guide for Bias-Free Language." The American Psychological Association's (APA) (2020) text on Bias-Free Language is featured in chapter 5 of the APA Manual, and *C&RL* links to APA's Bias-Free Language web page (American Psychological Association, 2025). On that web page, APA states that the Bias-Free Language guidelines and recommendations "should be used in conjunction with APA's Inclusive Language Guide and the Journal Article Reporting Standards for Race, Ethnicity, and Culture (JARS-REC)." JARS-REC's purpose was "to design a comprehensive set of standards to promote research transparency and methodological rigor in how we analyze race, ethnicity, and culture in behavioral science research." Authors are asked to "[c]onsider whether the research findings could be misinterpreted or misused to cause harm to members of historically excluded groups. Address how the authors can mitigate these risks." Further, JARS-REC has a section on *Citation*

Bias and Equitable Citation Praxis. For *C&RL* to say that they require adherence to APA's guide to Bias-Free Language (which leans on JARS-REC) feels disingenuous, or at least out of step with their current requirements.

Currently *C&RL* does not require authors to include a limitations section, which is a common expectation of many journals. The ACRL threshold concept Research as Inquiry has a disposition that we think is aligned with the value of requiring a limitations section in future *C&RL* manuscripts. The relevant Research as Inquiry disposition states that, "[l]earners who are developing their information literate abilities" should "demonstrate intellectual humility (i.e., recognize their own intellectual or experiential limitations)." We feel strongly that future published articles should include a limitations section wherein authors are asked to confront their own intellectual and experimental limitations. As to how this relates to review and theoretical/critical articles, authors should state when they did not synthesize the totality of the evidence (e.g., engaged in cherry-picking) or if they did not evaluate or contextualize the included literature, etc.

As for peer reviewer obligations, *C&RL* guidelines currently state that peer reviewers are presented with basic questions about perspective and building on existing work but are not directed to consider the rigorousness with which supporting citations were gathered and evaluated. We know that *C&RL* is currently re-examining the peer review process, and we encourage them to insert language about rigor.

Benefits

Implementing policies for review articles would have numerous benefits for *C&RL*, notably:

- They would result in an increased quality of submitted and published review articles.
- Through setting standards for transparency and reproducibility, they would make the journal less prone to accusations of bias, such as those recently brought by the academic librarians of #CripLib (2025) in response to an article that narrowly selected and misrepresented evidence.
- They would support the practice of evidence-based librarianship and information literate practices.

These improvements would have an overall positive impact on the entire field of librarianship, thus making us, as librarians, producers of the same high-quality evidence that we seek to procure for our patrons.

Examples

The types of policies for review/critical articles we are asking *C&RL* to implement are common across other journals in LIS and other social sciences. We have gathered several examples to demonstrate what this looks like in their policies/instructions to authors.

portal: Libraries and the Academy provides explicit guidance for evidence synthesis submissions, recommending that, "*authors adhere to a pre-existing guideline* for conducting systematic reviews, such as the Cochrane Handbook, the Campbell Collaboration, or another established, discipline-relevant guideline. The format of the paper submitted to *portal* should conform to *reporting guidelines such as PRISMA* or one of its extensions" (2025, emphasis added).

Evidence Based Library and Information Practice states in its instructions to authors that, "Review articles aim to establish new and authoritative findings based on an analysis of existing evidence *using an established review framework and objective, reliable, and reproducible*

research methods. Reviews may take several different forms, including systematic reviews, scoping reviews, narrative reviews, meta-analyses, or state-of-the-art reviews, among others" (n.d., emphasis added). The journal further provides a structure and headings to use in the reporting of review articles and refers authors to Grant & Booth (2009) for an explanation of review types and expectations.

Psychology of Music requires rigor and transparent reporting for theoretical critical papers, stating for its authors that, "Theoretical critical papers which stimulate intellectual discourse and further research through engagement with existing concepts, models, or frameworks. This format broadly encompasses papers of various types, such as critical, methodological, and conceptual contributions to music psychology research, and systematic reviews. *All such papers must constitute a rigorous, structured approach to evaluating and advancing theoretical knowledge*" (Psychology of Music, 2025, emphasis added). It allows for flexibility in which reporting standards are applied, stating that, "Authors of theoretical critical papers should choose an effective and transparent reporting structure appropriate to their work," and that, "Our journal's editorial policy prioritizes methodological integrity over standardized reporting" (Psychology of Music, 2025).

Environmental Evidence Journal specializes in publishing evidence syntheses and, as such, provides extensive guidelines for multiple types of reviews (Collaboration for Environmental Evidence, 2025). Further, this journal's managing body, the Collaboration for Environmental Evidence, calls out the importance of these guidelines in their "Aims and Scope," stating "The need for rigour, objectivity and transparency in reaching conclusions from a body of scientific information is evident in many areas of policy and practice, from clinical medicine to social justice. Our environment and the way we manage it are no exceptions and there are many urgent problems for which we need a reliable source of evidence on which to base actions. Many of these actions will be controversial and/or expensive and *it is vital that they are informed by the best available evidence and not simply by the assertions or beliefs of vested interest groups … For evidence synthesis to be credible, legitimate and reliable, standards regarding its conduct need to be clearly defined*. Such standards include examining possible sources of bias both in the evidence and in the way the review and synthesis are conducted. In so doing, *the goal is to provide an explicit level of trust and confidence in the findings to the end-user*" (Collaboration for Environmental Evidence, 2021, emphasis added).

Conclusion

C&RL plays a prominent role in academic library scholarly literature and with that power comes responsibility. It is time for revisions to *C&RL*'s author guidelines to reflect rigorous expectations regarding synthesizing the existing literature, evaluating literature, and addressing limitations and weaknesses. Examples we have provided from other journals demonstrate a variety of ways this can be accomplished to suit the needs of the journal and its authors to provide the best evidence to readers, practitioners, and policy makers.

References

Academic librarians of #CripLib. (2025). Open letter to CRL from the academic wing of #CripLib. *ACRLog*. https://acrlog.org/2025/05/27/open-letter-to-crl-from-the-academic-wing-of-criplib/comment-page-1/#comment-3712283

Aloe, A. M., Dewidar, O., Hennessy, E. A., Pigott, T., Stewart, G., Welch, V., … & Campbell MECCIR Working Group. (2024). Campbell Standards: Modernizing Campbell's Methodologic Expectations for Campbell Col-

laboration Intervention Reviews (MECCIR). *Campbell Systematic Reviews*, *20*(4), e1445. https://doi.org/10.1002/cl2.1445

American Library Association. (2022). ACRL plan for excellence. https://www.ala.org/acrl/aboutacrl/strategicplan/stratplan

American Psychological Association. (2025). Bias-free language. https://apastyle.apa.org/style-grammar-guidelines/bias-free-language

American Psychological Association. (2020). Publication manual of the American Psychological Association: The official guide to APA style. (Seventh edition). American Psychological Association.

Antelman, K. (2025). Respecting privacy of thought in DEI training. *College & Research Libraries*, *86*(3), 430. https://doi.org/10.5860/crl.86.3.430

ASHA. (2025). *Author Resource Center.* ASHA.org. https://academy.pubs.asha.org/asha-journals-author-resource-center/selecting-a-journal/jslhr/

College & Research Libraries. (2025). *Author guidelines.* https://crl.acrl.org/index.php/crl/about/submissions#authorGuidelines.

Collaboration for Environmental Evidence. (2021). *Aims and scope.* Environmental Evidence. https://environmentalevidence.org/information-for-authors/aims-and-scope-2/

Collaboration for Environmental Evidence. (2025). *Submission guidelines.* Environmental Evidence. https://environmentalevidencejournal.biomedcentral.com/submission-guidelines/preparing-your-manuscript

Evidence Based Library and Information Practice (n.d.). *Instructions for authors*. https://journals.library.ualberta.ca/eblip/index.php/EBLIP/guidelines

Evidence Synthesis Institute. (2025). University libraries. https://z.umn.edu/esinstitute

Framework for Information Literacy for Higher Education. (February 2, 2015). Association of College and Research Libraries. https://www.ala.org/acrl/standards/ilframework

Grant, M. J., & Booth, A. (2009). A typology of reviews: an analysis of 14 review types and associated methodologies. *Health Information & Libraries Journal*, *26*(2), 91-108. https://doi.org/10.1111/j.1471-1842.2009.00848.x

Higgins J. P. T., Lasserson T., Thomas J., Flemyng E., Churchill R. (2023). Methodological expectations of Cochrane intervention reviews. Cochrane. https://www.cochrane.org/authors/handbooks-and-manuals/mecir-manual

Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., … & Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *bmj*, 372. https://doi.org/10.1136/bmj.n71

portal: Libraries and the Academy. (2025). https://www.press.jhu.edu/journals/portal-libraries-and-academy

Psychology of Music. (2025). *Submission guidelines*. Sage Journals. https://journals.sagepub.com/author-instructions/POM

Sayre, F., & Riegelman, A. (2018). The reproducibility crisis and the role of academic libraries. *College & Research Libraries*, *79*(1), 2. https://dx.doi.org/10.5860/crl.79.1.2

Sayre, F. & Riegelman, A. (2019). Replicable services for reproducible research: A model for academic Libraries. *College & Research Libraries*, *80*(2), 260–272. https://dx.doi.org/10.5860/crl.80.2.260

Totleben, K. (2025). Letter from the editor. *College & Research Libraries*, *86*(4), 530. https://doi.org/10.5860/crl.86.4.530

Guest Editorial

Improving Peer Reviewer Guidelines at *C&RL*

Teresa Schultz and Sarah Rose Fitzgerald

This editorial outlines considerations for the *College & Research Libraries* peer review and editorial processes prompted by the publication of an article by Kristen Antelman (2025) in the May issue of *C&RL*. In response to this article, #CripLib published a post (Anonymous, 2025) which questioned the editorial decisions and quality of peer review at *College & Research Libraries*. Smith's (2025) letter to the editor also noted some issues with the use of sources in the article. In 2024, before the publication of the Antelman article and the responses to it, the previous and current *C&RL* editors had already identified peer reviewer guidance as a need to address and put together a working group, including one of the authors of this editorial, to create better guidelines and documentation for peer reviewers. This work is continuing, but we want to offer a variety of ways in which *C&RL* can better ensure rigorous publications. We wish to address the role that peer review plays within scholarship, based on our experience as authors, peer reviewers, and members of the *C&RL* editorial board. One author, Teresa Schultz, is in her second year on the *C&RL* editorial board, and the other, Sarah Fitzgerald, is in her seventh year. Although our views do not reflect the views of the whole board, the conversations the board has held reflect an agreement of the assertion that the journal needs updated guidelines for peer reviewers.

Many scholars have identified that peer review is fallible and that problems exist within peer review systems. For instance, one study found that women are underrepresented among journal editors and peer reviewers (Murray et al., 2019). Likewise, male-authored manuscripts were more likely to be accepted for publication compared to female-authored manuscripts, an effect that was even greater when all reviewers were men. Scholars from non-Western countries who identify as LGTBQ+ report that peer reviewers often demonstrate Western biases, dismissing what they label as niche research or focusing on less-than-perfect grammar (Nopas, 2025).

Need for More Training and Clarification in Peer Review

Scholars often do not receive peer review training (Mulligan et al., 2012). For instance, one of the authors of this editorial learned by doing, relying on the journal's guidelines for peer reviewers. This resulted in feelings of imposter syndrome in her first few years of peer reviewing. Various groups have crafted training aimed at how to peer review, such as guidance from publishers and not-for-profit groups. One leading organization is the Committee on Publication Ethics (COPE, 2017), which offers guidance for peer reviewers and editors. However, the resources COPE developed do not always make their way to peer reviewers, particularly if reviewers

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do not actively seek them out, or if someone does not direct them to the resources. Instead, it's likely that the most guidance or training that any new peer reviewer will receive will come from the journal they are volunteering with, which places the responsibility of guidance on the journal. Indeed, as peer review works differently from scholarly journal to scholarly journal, it's important for each journal to clearly and publicly state its peer review policies and rules.

Reviewers and editors need a clear, shared understanding of the process of review and recommendations before participating in a review. Without explicit guidance regarding what is expected of peer reviewers and clear explanations about the impact of their recommendations, miscommunication and problems can happen. The creation of this documentation for *C&RL*, which will be shared publicly once complete, will hopefully improve peer reviews and communication between reviewers and editors, as well as editors and authors. We also hope these changes will empower others in the field to contribute their expertise as peer reviewers. This documentation is a start to what will be an iterative process to improve *C&RL*'s peer review guidance.

Other Possible Ways to Support Peer Review

Once *C&RL* shares its updated peer reviewer guidelines, we encourage our fellow editorial board members to join us in exploring additional ways to improve the process for reviewers and authors to ensure rigorous research is published. An apprenticeship model for training new peer reviewers could be one way to develop shared understandings of review standards for *College & Research Libraries*. In such a model, experienced reviewers would be encouraged to conduct a review in tandem with a new reviewer to experience and discuss the process. This model could also help expand the pool of experienced reviewers.

Another potential option for *C&RL* to explore is open peer review, which works to make peer review more transparent. Various forms of open peer review exist. For instance, some types include what is known as open identities, which is when reviewers are identified to the authors and/or readers. However, as mentioned previously, peer review is fallible and even this more open approach has received some criticism by scholars for potentially creating room for reciprocity bias (Ross-Hellauer & Horbach, 2024). *C&RL* has previously experimented with open peer review (Becker & Goek, 2020; Ford, 2017) and opted to not adopt it extensively. One reason the version *C&RL* tested may not have moved forward was because it involved open identities, which can lead to retaliation against reviewers who provide negative feedback. Another form of open peer review focuses on open reports, wherein the reviews are published (Ross-Hellauer & Horbach, 2024). Open reports do not have to be paired with open identities. Publishing anonymous open reports can help protect peer reviewers from retaliation while serving as a mechanism for transparency to readers. We recognize such a step would not happen immediately; however, a more open process could help address reader concerns in future articles by using a more transparent peer review process. The ability to view the reviews would both show readers the suggestions for improvement that were offered by reviewers and would make revisions public.

Peer Reviewing Conceptual Works

There are several broad types of scholarly research, including empirical articles that can take the form of qualitative, quantitative, or mixed methods articles, and conceptual or theoretical articles (Mora et al., 2008). Conceptual research explores questions critical to a field,

synthesizes multiple bodies of literature, or advances a new theoretical framework. As most social science research is empirical, reviewers may be less familiar with reviewing conceptual articles. Antelman's (2025) article falls into this type of research. Although conceptual manuscripts might not have an explicit mention of methods, reviewers should encourage authors of conceptual articles to describe their research process, including what bodies of literature the authors draw upon. Like empirical articles, conceptual articles should also describe the objective of their paper, note the theoretical framework, engage with the literature on the topic—both supporting and opposing the author's conclusions—and detail the implications of the argument. When literature is the primary source of data, it is particularly important to discuss the quality and relevance of literature that is introduced.

Reviewing DEI-Related Research

We do not know if changes to the peer review process for *C&RL* would have changed the outcome of the disputed article, and problems could persist in the future. Some reviewers might be tempted to accept or reject an article they agree or disagree with rather than evaluating it on its methodological and logical rigor. We wish to recognize that academic and intellectual freedom protect the free exchange of ideas. Expert educators and scholars, including librarians, need the freedom to determine what constitutes appropriate professional values in their fields. It is important to have scholarly conversations that consider how diversity, equity, and inclusion values relate to our fields and the academic and intellectual freedom that serve as the foundation for education and the advancement of knowledge. The American Association of University Professors (2024) has engaged in these conversations recently and made a case for the compatibility—and even necessity—of pursuing equity in the pursuit of scholarly truth and learning. The American Library Association (2024) has identified equity of access to information as one of its core values. These scholarly conversations are best served by rigorous scholarship competing for acceptance based on its merit and strength of argument. Quality peer review and research that considers the full range of ideas on a topic are the best methods for achieving rigorous scholarship.

The coming changes to *C&RL*'s peer review procedures will hopefully bring better clarity and guidance to those involved. However, the journal should always consider ways it can continue to improve peer review and uphold the values of academic freedom and integrity.

References

American Association of University Professors. (2024). New statement on DEI criteria and faculty evaluation. https://www.aaup.org/news/new-statement-dei-criteria-and-faculty-evaluation

American Library Association. (2024). Core values of librarianship. https://www.ala.org/advocacy/advocacy/intfreedom/corevalues

Anonymous. (2025, May 27). Open letter to CRL from the academic wing of #CripLib. *ACRLog*. https://acrlog.org/2025/05/27/open-letter-to-crl-from-the-academic-wing-of-criplib/

Antelman, K. (2025). Respecting privacy of thought in DEI training. *College & Research Libraries, 86*(3), 430. https://doi.org/10.5860/crl.86.3.430

Becker, J., & Goek, S. (2020). Special issue editors' introduction. *College & Research Libraries, 81*(3), 326. https://doi.org/10.5860/crl.81.3.326

COPE. (2017). Ethical guidelines for peer reviewers. https://doi.org/10.24318/cope.2019.1.9

Ford, E. (2017). Advancing an open ethos with open peer review. *College & Research Libraries, 78*(4), 406–412. https://doi.org/10.5860/crl.78.4.406

Mora, M., Gelman, O., Paradice, D., & Cervantes, F. (2008, May). The case for conceptual research in information systems. In *CONF-IRM 2008 Proceedings* (p. 52).

Mulligan, A., Hall, L., & Raphael, E. (2012). Peer review in a changing world: An international study measuring the attitudes of researchers. *Journal of the American Society for Information Science & Technology, 64*(1), 132–161. https://doi.org/10.1002/asi.22798

Murray, D., Siler, K., Larivière, V., Chan, W. M., Collings, A. M., Raymond, J., & Sugimoto, C. R. (2018). Author-reviewer homophily in peer review. *BioRxiv*, 400515. https://doi.org/10.1101/400515

Nopas, D. S. (2025). Decolonizing peer review: addressing systemic bias and inclusivity for LGBTQ+ scholars in Southeast Asia. *Qualitative Research Journal*. https://doi.org/10.1108/QRJ-12-2024-0307

Ross-Hellauer, T., & Horbach, S. (2024). Additional experiments required: A scoping review of recent evidence on key aspects of open peer review. *Research Evaluation, 33*. 1–16. https://doi.org/10.1093/reseval/rvae004

Smith, E. (2025). Letter to the editor. *College & Research Libraries, 86*(4), 532. https://crl.acrl.org/index.php/crl/article/view/26854/34792

Defining Engagement for Academic Librarians

Erin L. Ellis and Jill K. Becker

The purpose of this article is to establish a distinct definition of engagement for academic librarians and describe how a definition supports a clearer understanding of what is expected of librarians with engagement responsibilities. In observing a growing use of the term "engagement" over the last two decades, the authors noted how the term is frequently conflated with "outreach" and is rarely used in any discernibly distinct manner. This article traces the development and use of the term engagement in academic libraries, proposes a definition to disambiguate the term from outreach, and articulates the work of engagement for academic librarians.

Introduction

For over two decades, the term "engagement" has proliferated across academic library literature, job descriptions, and librarian position titles. This term is also observed in library department and division names. It is difficult to discern, however, whether the use of the term engagement is intentional and if it is being used deliberately to indicate something unique and distinct from the frequently used term, "outreach," which also lacks a clear definition (Diaz, 2019). The increased use and application of engagement, as well as its formal and casual appearances in the academic library literature over the last two decades, prompted the authors' interest in discovering whether this term is well-defined, clearly understood, and distinguishable. After reviewing dozens of key articles and reports related to evolving roles and responsibilities within academic libraries, as well as monitoring years of job ads, it is clear that the use of the term engagement is often applied broadly as an interchangeable term with outreach, *not* distinct from it. Though the term has persisted and grown in use, it has remained largely undefined and indistinct from outreach as it applies to those who are tasked with engagement work; however, this was not the initial intent when engagement—as a concept in academic libraries—first started to appear in the literature.

Inspired by an article by Barker (2004) and a paper by Gibson and Dixon (2011), the authors contend that engagement is a term in academic libraries that needs to be defined and distinguishable from outreach, and that the intent in early uses of this term was, in fact, to establish such a distinction. Though there are many references to engagement across the professional literature, the way the term is used varies and is frequently indistinguishable from what most understand as outreach. There's been a modest attempt at defining engagement for

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academic libraries and what the work of engagement is, but such literature is limited. The authors strive to establish a clear, distinct definition of engagement for academic librarians and to describe how a clear definition supports a shared understanding of what is expected of librarians with engagement responsibilities. The authors do not undertake an examination of the term outreach, as such analysis and definition was completed by Diaz in 2019. With a distinct definition, those with engagement as a part of their job title or responsibilities will have a clearly articulated conception of what engagement is, how it differs from outreach, and what the expectations are for each. Additionally, a distinct definition will provide a more meaningful frame for engagement that will aid in assessing and communicating the value of engagement work. A conflation of engagement and outreach hinders a library's—and a librarian's—ability to demonstrate the considerable contribution and value that libraries provide to their campus communities.

Literature Review

Engagement in Higher Education

As a term and concept, engagement is not new to higher education. Engagement is rooted in various theories within higher education and is well-defined, assessed, measured, and studied in a variety of ways. Two applications of the term will be readily familiar to those in academic libraries: student engagement and community engagement. Most definitions credit Astin's Student Involvement Theory (1984; 2014), which refers to the amount of energy a student puts toward their academic pursuits, as the origin for student engagement in higher education. Perhaps the most well-known researcher in student engagement is Kuh who founded the National Survey of Student Engagement (NSSE) which measures student engagement and considers the interrelationship between time, effort, and resources invested in by both students and institutions that are linked to high impact practices (2001; 2009). Because student development theories have been firmly integrated in higher education, librarians with student engagement responsibilities have been able to rely on those theories' definitions to inform their practice. Thus, the authors consider student engagement to be an already well-defined concept, well-understood in its use and application, and distinct from other expressions of engagement within academic libraries.

Community engagement is another frequently found type of engagement within higher education. There are several definitions of community engagement that possess common elements across the higher education literature. The American Council on Education's Carnegie Classification of Institutions of Higher Education (n.d.) describes community engagement as "collaboration between institutions of higher education and their larger communities (local, regional/state, national, global) for the mutually beneficial exchange of knowledge and resources in a context of partnership and reciprocity." Jacob, et al. (2015), define community engagement as "sustainable networks, partnerships, communication media, and activities between HEIs [higher education institutes] and communities at local, national, regional, and international levels," (p. 1). The International Encyclopedia of Higher Education Systems and Institutions (2020) defines community engagement as a "way for institutions and communities to reconsider how they interact to address larger needs that transcend an individual institution or one community," (Teixeira & Shin, p. 206). Like student engagement librarians, librarians with responsibilities for community engagement have well-established definitions to apply to their practice.

Another application of the term engagement in higher education pertains to the essential functions of the professoriate. In 1990, Ernest Boyer introduced a model of four types of scholarship: Scholarship of Discovery (i.e., research, expanding human knowledge), Scholarship of Integration (i.e., place discoveries in larger context/interdisciplinary connections), Scholarship of Sharing Knowledge (i.e., teaching), and Scholarship of Application (i.e., moving from theory to practice). Boyer went on to expand his definition to include the Scholarship of Engagement (1996). The Scholarship of Engagement in the academy has come to be a way to describe reciprocity and collaboration in scholarship that is interdisciplinary and intersects with broader communities (Barker, 2004, p. 124).

Barker (2004) describes a distinct set of practices that are observable within the Scholarship of Engagement but also explains that the interpretation of engaged scholarship is "conflicting, confusing, or redundant," and that, as a phrase, it is "applied to overlapping concepts." Barker further advocates for a rational, practical taxonomy for engaged scholarship and notes that the "taxonomic inconsistency" makes it difficult for scholars to explain their work in clear terms (p. 123). Barker's article illustrates some of the problems related to the interpretation and application of the term engagement. As a similarly ambiguous interpretation and application of engagement has emerged for librarians, there is a similar need to define the term and develop a practical taxonomy. There are many other applications of the term engagement in higher education: user engagement, public engagement, civic engagement, social media engagement. Exploring these is beyond the scope of this article, but the many different uses further demonstrate the many different interpretations that exist across higher education and the value in having a clear definition in how it is applied in academic libraries.

Engagement in Academic Libraries

There are several resources in the academic library literature that are key to demonstrating the development, use, and proliferation of engagement and the intended or implied characteristics of the term. Engagement in academic libraries gained notice as an emergent concept more than 20 years ago. When perceptions of libraries as solely collections-centered support units and service providers started to shift, there was increasing interest—and arguably necessity—for libraries to be more active participants in the learning and research lifecycles. An early description of academic librarian engagement came in 2002 when Lougee described the evolving, emerging librarian role as "diffuse," and that librarians were increasingly acting as "a diffuse agent within the scholarly community" (p. 4). Though the term "diffuse" didn't stick, Lougee's report presaged a multitude of additional reports and publications that built out a vision of more engaged roles and a view of academic librarian engagement work that extended beyond traditional liaison and outreach responsibilities.

In 2009, two key works were published that increased interest in the concept of engagement in academic libraries. One of those reports, from the Association of Research Libraries (ARL) *SPEC Kit 312: Public Engagement*, surveyed ARL institutions to discover whether, and how, the traditional outreach model in academic libraries was evolving toward "public engagement." In this context, engagement was described as programming and services that were provided to communities beyond a campus primary constituencies and that took "the professional expertise of the library to members of the public" (Walter & Goetsch, 2009, p. 12). Also in 2009, ARL published *Research Library Issues (RLI) 265, a Special Issue on Liaison Librarian Roles* (Hahn, 2009). One notable example from the special issue was a description of the University

of Minnesota's Position Description Framework. Minnesota's Framework sought to reimagine traditional liaison work, build more capacity and responsibility for new and emerging areas of librarian work, and mark a shift from a collections-centered to an engagement-centered model (Williams, 2009). It described a liaison librarian as more than a departmental contact with subject expertise. The liaison librarian role was redefined with expectations to be engaged "fundamentally in the lives of students, scholars, and citizens" and to "get in the flow of users" (Williams, 2009, p. 4). Building momentum for engagement in academic libraries, ACRL released the *Value of Academic Libraries: A Comprehensive Research Review and Report* in 2010. The report was a call to action for librarians to actively engage with their campus communities in meaningful, measurable ways, to collect evidence and demonstrate what they enable, and to proactively and prominently take part in initiatives that are impactful. This report provided further evidence of the need for engaged librarians, but it did not attempt a clear and distinct definition of the term, nor did any of the other aforementioned works. Rather, these works used engagement as a concept to illustrate a necessary and distinct change in liaison and outreach activities, to emphasize greater expectations for campus collaborations, and to advocate for new types of positions that connect with constituencies in new ways.

In 2011, Gibson and Dixon contributed a paper to that year's ACRL Conference titled, *New Metrics of Engagement for Academic Libraries*. This paper posited that engagement in academic libraries should be measured, acknowledged that the term has "some fuzziness of meaning" in the literature, and proposed that "'engagement' transcends traditional 'outreach'" (p. 341). Gibson and Dixon's (2011) study attempted to identify emerging indicators of academic library engagement and possible means of measuring them. To do so, they drafted and tested a provisional definition of academic library engagement. What they discovered, and what we still see today, is that "[b]ecause of variable ideas about engagement, [and] its relation to traditional notions of outreach," there is little distinction between engagement and outreach and the expectations of engagement work are unclear (p. 344). Gibson and Dixon's study yielded a five-category metric construct intended to help academic libraries evaluate their degree of engagement (p. 345). For example, library administrators could look for indicators of engagement in their library's mission and strategic documents or determine whether resources are allocated and expended on efforts that increase the library's capacity to respond to "externally focused activities" and changing needs. In establishing indicators of academic library engagement, Gibson and Dixon suggested that these measures could be used to demonstrate a library's range of "collaborative, value-enhancing projects" (p. 347). Their paper concludes with a revised definition of academic library engagement that elaborates on the "how" and the "why" of what engagement is in this context:

> Sustained, strategic positioning of the academic library, through new or redirected resources, to create collaborative relationships with identified parties in order to advance institutional, community, and societal goals; through a progression of activities ranging from one-time initiatives, to longer-term projects, to enduring partnerships; to solve institutional- and community-level problems, or to support broad efforts to address long-range societal issues, through a range of engaged activities to create new knowledge, new products and services through these strategic choices; and to effect qualitatively different roles for academic libraries themselves through influential, reciprocal, and value enhancing relationships of

> mutual benefit to libraries and the varied constituents and publics with whom they collaborate (2011, p. 347).

A further, important addition to their revised definition is language that emphasizes the necessity of relationships that are reciprocal and mutually beneficial. The goal of their study, however, was to establish metrics, indicators, and characteristics by which an academic library could demonstrate their shift from a traditional, service mode to a partner-collaborator mode on their campuses. Their definition of engagement, therefore, was necessarily oriented toward the library organization as a whole, not toward a definition that describes the actions of engagement at the librarian or library worker level.

Gibson and Dixon's (2011) paper did, however, further prepare the way for distinguishing engagement from more traditional concepts of outreach at the individual-level and is the closest thing to a definition of librarian engagement that the authors found in the literature. Their paper noted the "varieties of engagement" referenced in the literature but explains that true engagement "creates a field of mutual energies … around common purposes" (p. 341). Drawing on Boyer's Scholarship of Engagement (1996) and Barker's (2004) taxonomy of engaged scholarship, both of which describe reciprocity as being crucial for true engagement, Gibson and Dixon explained that mutual energies and common purposes result in mutual benefits that enhance the value of each party's contributions and outcomes. They also asserted that reciprocity is a crucial element for engagement to transcend traditional outreach.

In 2013, Jaguszewski and Williams prepared a report for ARL, *New Roles for New Times: Transforming Liaison Roles in Research Libraries*. In their introduction, Jaguszewski and Williams explained that "research libraries are now compelled to understand and support all processes of instruction and scholarship, which calls for an engagement model. An engaged liaison seeks to enhance scholar productivity, to empower learners, and to participate in the entire lifecycle of the research, teaching, and learning process" (p. 4). They then described an engagement model whereby librarians build strong, collaborative relationships, understand how scholars communicate, and actively monitor learning programs and goals. The traditional liaison model is described in juxtaposition as an insufficient model for emerging needs and is described as "librarians [using] their subject knowledge to select books and journals and teach guest lectures" (p. 4). Driving the need for these new engaged librarian roles, Jaguszewski and Williams described six trends. Present across all these trends, but specifically identified in Trend 5, is the need for collaboration: collaborative initiatives, services, and programs both within the library but, more critically, through partnerships across campus. They make clear that an engaged liaison or a team of engaged librarians can possess essential experience and expertise that advances research and learning initiatives (e.g., copyright) in partnership with campus faculty (p. 13). What is missing from their description of an engagement model and engaged liaisonship is the concept of reciprocity. The authors described several ways that librarians and libraries can work with students and faculty to "provide," "offer," and "support," but they did not comment on how engaged partnerships and collaborations also benefit the libraries or librarians or that there is reciprocity to the relationships.

In 2014, Bidney referred to Gibson and Dixon's 2011 paper and their proposed engagement definition for academic libraries. In her chapter, Bidney emphasized that mutual benefit is essential to engagement and articulated a distinction between outreach and engagement. Though the chapter falls short of defining engagement, Bidney asserted that an "outreach

relationship is a one-way relationship," while the "engagement relationship is mutually beneficial: the library or librarian gains as much as the user who is being engaged" (p. 110). Also in 2014, Ithaka S+R released an issue brief, "Leveraging the Liaison Model: From Defining 21st Century Research Libraries to Implementing 21st Century Research Universities," which continued to explore the liaison model and how liaisons could transition to a more engagement-centered model. The brief's author, Kenney, explains that as an engagement model "raise[s] the bar about what we expect from liaisons, many are left feeling insufficiently equipped, wondering how to do it all, what to give up, and how best to achieve results. What seems most lacking is a sense of how to measure progress, how to use available time to the best advantage, how to develop priorities, and how to know we are on the right track," (p. 11). In 2015, ARL surveyed their member libraries to "gather data about the evolving role of the library liaison and the shifting goals and strategies of liaison programs" (Miller & Pressley, p. 11). Their report, *SPEC Kit 349, Evolution of Library Liaisons*, describes a variety of liaison programs and liaison responsibilities, many of which illustrate the challenges that Kenney (2014) described. Respondents indicated that "measuring success … is very challenging," and that time constraints, difficulties in understanding and undertaking new liaison expectations, and "inconsistency within liaison programs" made it difficult to transition to a more engaged model (Miller & Pressley, 2015, p. 16-17). The Ithaka S+R brief and *SPEC Kit 349* illustrate some of the growing pains that libraries were experiencing as they attempted to shift to more engaged models, as well as the challenges that were occurring as libraries worked to apply and interpret engagement as a new type of work.

Schlak (2019) recognized the "library profession's loose structuring of engagement" (p. 134) and explained that a clear definition of engagement would "assist library practitioners in conceiving of their work" (p. 133). He reviewed engagement frameworks from higher education literature and articles from library literature, but his analysis was confined to literature that directly or indirectly related to student engagement. Schlak was interested in a "more critical grounding in the compelling terms and discourses of engagement," but only insofar as it will help to strengthen and better articulate the value of student engagement (p. 133).

As liaison programs were evolving to various degrees, new job titles that featured engagement started to emerge. In 2017, Geckle and Nelson described a job ad analysis that revealed problems with the use of certain terminology and the actual conceptualization of positions. They considered the problematic nature of a term that was proliferating in librarian position titles at the time, "metadata," but their argument similarly applies to position titles that embed the term engagement. They described the inconsistency and confusion with job titles that used the term metadata as opposed to cataloging or cataloger. They asked, "Are cataloging librarians and metadata librarians the same, different, or just connected?" and advocated "for a precision in terms to clarify what a metadata librarian is expected to do" (Geckle & Nelson, 2019, p. 59). And though metadata was increasingly showing up in position titles, "the actual meaning of the term itself ha[d] remained elusive … and the continuing ambiguity surrounding the question of exactly what the person … is actually supposed to know for a particular job is clearly problematic" (Geckle & Nelson, 2019, p. 59). One can recognize similar questions and problems in considering the growing application of engagement and its interchangeability with outreach. Todorinova (2018) drew a related argument against the inclusion of words such as "experience" and "engagement" in position titles, determining that the use of such inconclusive terminology "means that these librarians are always having to explain their

role and even justify the need for its existence" (p. 213). This inability to describe the work of engagement can reasonably be linked to the lack of a clear and distinct definition of the term as it applies to academic librarians. Though the use of engagement was growing in position titles and descriptions, the uses were/are largely indistinguishable from the uses of the term outreach, applied more to be *de rigueur* rather than intentionally distinct.

The conflation of engagement and outreach continued to persist in the 2018 *ARL SPEC Kit 361: Outreach and Engagement*, a report of survey results from responding ARL institutions. Despite the inclusion of "engagement" in its title, the stated explanation for the survey was to "create a picture of library outreach" and "to paint a picture of how libraries are approaching outreach programs" (LeMire et al., 2018, p. 2). Engagement as a singular term, concept, or activity was not explored, either in its relation to or distinction from outreach, tacitly implying that outreach and engagement were indistinct. Interestingly, however, *SPEC Kit 361* survey respondents clearly struggled to define outreach and, given the wide variety of programs and services that they described, there was clearly uncertainty around what qualified as outreach, much less its potential distinction from engagement. The undefined concept of engagement gets swept up into equally undefined notions of outreach that are "broad, generic, and catch-all" (LeMire et al., 2018, p. 10). The report's authors explain that this has significant implications, "contribut[ing] to a lack of systematic and assessment-driven approach[es]," that "[i]nstitutions [and individuals] could be more effective … [with] a clear definition, meaningful and measurable," and that a clear definition is likely to lead to more "intentional, strategic, and impactful" work (LeMire, et al., 2018, p. 10). Though they were referring specifically to the lack of a clear definition of outreach, the same is true for engagement.

Perhaps what has hindered a distinction between outreach and engagement is that outreach as a term, concept, and activity itself has also defied definition within academic librarianship, though many have ventured to provide one. In her 2019 article, "Outreach in academic librarianship: A concept analysis and definition," Diaz describes the elusiveness of a clear definition of outreach. Through a concept analysis methodology, Diaz attempted to clarify the term outreach based on her broad synthesis of the outreach literature. Diaz did identify engagement, among other terms and phrases, as a concept related to outreach that was "often used interchangeably with the term" and she suggested that these should be examined further to ascertain their relationships to outreach (p. 190). Diaz proposed a working definition of outreach in academic librarianship applying the attributes she uncovered in her analysis, describing outreach as various methods of intervention that are targeted to an audience to advance library goals and often support institutional goals.

In 2020, Gibson returned to the topic of engagement and reflected on an effort launched in 2011 "to expand the conception of the liaison librarian role through the lens of 'engagement'" at Ohio State University (OSU) Libraries (p. 12). The result of that effort was the Engaged Librarian Framework, which was intended to position liaisons "more broadly within the workflows of faculty and researchers" (Gibson, 2020, p. 14). A definition of engagement was written for this Framework: "Engagement is a deepened level of sustained, high-quality, mutually beneficial interaction in the liaison role with academic programs" (Gibson, 2020, p. 14). The concept of a sustained, mutual benefit is a thread that connects to Gibson and Dixon's 2011 definition, but their concepts of collaboration, reciprocity, and strategy were not carried into the OSU Engaged Librarian Framework definition. The Framework definition is also narrowly scoped to apply only to subject librarians, which may explain why this definition

uses the somewhat ambiguous term "interaction" in lieu of terms like collaborations, partnerships, or relationships that imply a level of reciprocity. The Framework defined five activity clusters, including engagement/outreach; this clearly indicated OSU Libraries' interpretation of the terms and the work associated with them, and implied that they are the same or similar enough, despite the establishment of a specific framework of engagement and a distinct definition of engagement to accompany it.

Beginning with Lougee in 2002, there is evidence of a decades-long trend that strongly indicates that academic libraries recognized a need to shift away from certain types of traditional work and instead needed to intentionally focus on new roles and practices, "to understand and support the *processes* of scholarship, rather than the *products*" (Williams, 2009, p. 3). These new roles and practices centered on the need for librarians to actively participate in the research and learning cycles and to perform a new type of work: engagement. In more recent years, as the term has grown in use, it has become apparent that without a distinct definition, academic librarians struggle to describe, perform, and assess the work of engagement. Engagement, as a term applied directly to the work of academic librarians, has remained undefined and not understood as a concept that stands distinctly on its own. Despite its use in numerous position titles (e.g., Research and Engagement Librarian, Learning and Engagement Librarian, Academic Engagement Librarian) and descriptions, and appearing in numerous publications, the work of an engagement librarian remains unclear.

A Proposed Definition of Engagement

If engagement can be defined and disentangled from outreach, perhaps both terms will realize the benefits of distinction. A definition that provides clarity and differentiation between outreach and engagement, and a definition that situates the practices and activities of engagement for librarians at the individual-level, will provide critically valuable clarity for those responsible for engagement activity and will improve the ability to articulate and assess the intent and outcomes of engagement. Our proposed definition is a modification of Gibson and Dixon's (2011) organizational-level definition of academic library engagement: A *strategic*, formal *exchange* between committed parties that creates *reciprocal*, collaborative relationships and yields *mutual benefits* while *advancing* university, library, and department *goals*. This definition has five critical components that elucidates a clear differentiation from outreach and provides clarity on the expectations and actions of academic librarian engagement:

1. Strategic: that the action explicitly and intentionally aligns with a shared goal or goals; positions the librarian as a resource to meaningfully advance achievement of the goal or goals
2. Exchange: that each party contributes expertise and value beyond one's existing individual capacity
3. Reciprocal: that each party equitably shares in the responsibility and commitment to the action
4. Mutually beneficial: that the result of each party's contributions yields a beneficial individual or organizational outcome
5. Goal-advancing: that the action purposefully facilitates achievement of a shared goal or goals

Reciprocity and mutual benefit are especially distinct characteristics of engagement in our definition. These components are not intended to convey strict quid pro quo arrange-

ments. Our definition uses the concept of reciprocity to indicate that an engagement relationship is a shared effort that each party has a responsibility to; that is, no single party carries the exclusive, or the majority of, responsibility for the action(s). As Gibson and Dixon (2011) asserted, reciprocity is a crucial element for engagement to transcend traditional outreach. They also emphasized the importance of mutual benefits that can enhance the value of each party's contributions and outcomes. The concept of mutual benefit is used in our definition to indicate that, through each party's contributions, a helpful benefit is given or received by each party or is realized as a result of the parties' contributions. The authors acknowledge that these components of the definition may conflict with the typical service ethos in librarianship. We contend, though, that seeking and developing reciprocal and mutually beneficial relationships is not in opposition to, nor negates, the value and importance of serving, helping, and supporting campus constituencies. We do, however, assert that engagement is distinct from those traditional modes of serving, helping, and supporting.

Similar to Bidney's (2014) distinction between an outreach relationship and an engagement relationship, we consider engagement as a reciprocal conversation *with* a person or group, and in contrast, outreach is a one-direction communication *to* a person or group. Though outreach is often a means or a path that leads to engagement, outreach can be characterized as transactional, periodic or one-time interactions, or periodic or one-way communications with no expectation of a response, though the intent or goal may be to elicit one. In contrast, engagement is characterized by reciprocity and collaboration, yielding benefits to the parties involved. Returning to Diaz's 2019 article for the purposes of additional contrast, consider Diaz's working definition of outreach:

> Outreach is work carried out by library employees at institutions of higher education who design and implement a variety of methods of intervention to advance awareness, positive perceptions, and use of library services, spaces, collections, and issues (e.g. various literacies, scholarly communication, etc.). Implemented in and outside of the library, outreach efforts are typically implemented periodically throughout the year or as a single event. Methods are primarily targeted to current students and faculty, however, subsets of these groups, potential students, alumni, surrounding community members, and staff can be additional target audiences. In addition to library-centric goals, outreach methods are often designed to support shared institutional goals such as lifelong learning, cultural awareness, student engagement, and community engagement (2019, 191).

Here, outreach is described as interventions exclusively "carried out by library employees …periodically throughout the year or as a single event" (p. 191). In contrast, our proposed definition of engagement describes reciprocal exchanges between parties that occur when a shared goal has been identified. In Diaz's definition, the intent of outreach is to "advance awareness, positive perceptions, and use of library services, spaces, collections, and issues" through means that are "often designed to support shared institutional goals" (p. 191). In contrast, the intent of engagement in our proposed definition is to establish a strategic collaboration that directly advances institutional goals and leverages the expertise and contributions of others. Though shared goals are an attribute of both definitions, the proposed definition of engagement implies a strategic collaboration that directly *advances* goals rather than raising awareness of how a library or librarians *support* institutional goals.

Differentiating between outreach and engagement is not to suggest that one or the other should be ignored or privileged over the other, however. We contend that, while engagement is different from outreach, outreach can serve as a path to, and instigate, engagement. Outreach through an annual newsletter or a new student orientation fair, for example, can prompt an unexpected response and lead to a conversation that results in engagement. Outreach can also be more intentional when specific information is shared and an invitation to respond is extended. For example, a librarian might let an instructor know that an electronic version of a course textbook is available and invite the instructor to learn more about how the library can make other course materials more affordable for students. This kind of intentional outreach can prompt an opportunity for engagement, but it requires effort and knowledge beyond what is typical for information sharing events or other one-way and transactional interactions. Returning to the proposed definition of engagement, engagement goes further than outreach because it requires an articulation of goals, outcomes, and agreement on contributions.

An academic librarian charged with engagement responsibilities should be ready to leverage opportunities, whether those are self-initiated or presented unexpectedly. As previously described, outreach can often lead to an opportunity for engagement. This can occur when the outreach is received as an invitation to align efforts and expertise toward achieving common goals. It can also occur when an academic librarian realizes the potential for such alignment during an outreach activity and acts on it. Opportunities for engagement may also be presented through means outside of outreach activities, for example, when a librarian is attending a campus meeting or listening to a research talk. In all these instances, an engagement librarian is continually listening for possibilities to align efforts and expertise toward achieving common goals. Resources exist to help librarians prepare for these opportunities, including several audit exercises that can illuminate shared goals between libraries and their larger institutions (Oakleaf, 2017). Conducting such audits in preparation for a conversation with a campus stakeholder can help librarians identify engagement opportunities. However the opportunities arise, a librarian charged with engagement must maintain awareness of the goals and priorities on their campus and within academic departments, and they must also have a thorough understanding of their individual and organizational goals (i.e., to engage strategically, with mutual benefit, and to advance shared goals). They must also possess a full understanding of their expertise, value, capacity, and clarity in how they can contribute (i.e., to engage in a reciprocal exchange).

Once an opportunity is known, the possibility of engagement can be raised with the other party. An initial communication may be in the form of outreach with an invitation to talk more about collaborating. Or it may be in the form of a direct communication that outlines the value of a collaboration. In either case, the librarian is prepared to communicate how a strategic, reciprocal exchange between the parties could advance shared or respective goals and realize mutual benefits. However, this isn't engagement yet. Though these communications can often be an invitation to establish a collaborative relationship and are a frequent first step toward engagement, whether it becomes an engagement relationship depends on the response from the other party. These communications differ from a typical one-way, outreach communication because 1. it is a specific, intentional offer to collaborate and advance goals and 2. there is an expectation of a response. When the other party replies with interest in the offer, the two parties can begin to establish the details of their strategic exchange, how each will reciprocate in the collaboration, and determine the mutual benefits in working toward their goal.

The work of engagement for academic librarians is different and distinct from other types of services and support provided by libraries. Not every interaction, intervention, or event will or should result in engagement. For example, helping a student search a database is a discrete interaction that meets the student's need and supports the library and librarian's goal to support student research and creativity. Although this interaction wouldn't fit our proposed definition of engagement (it would fit student engagement theory definitions, however), it does achieve other professional and organizational objectives, as do a wide variety of additional librarian services and support.

Engagement in Action

An example of what engagement looks like in action might be beneficial. Consider an effort that many academic libraries allocate resources toward: the development of open educational resources (OER). Many academic libraries are working to reduce textbook costs by providing funding for instructors to develop and use OER. In this example, an engagement librarian would implement a communication strategy to build awareness of the high cost of textbooks and other course materials that create barriers to student success. Included in this communication strategy would be the announcement of a funding opportunity for instructors to create OER for their courses. Interested instructors would be invited to an information session to learn more. At this point, the librarian would be participating in outreach, not engagement. The information session would consist of a presentation by librarians to share details about the funding and support that is available to develop OER. Following the presentation, librarians would meet with interested instructors in small groups to discuss the specifics of their course needs. This would still be outreach; however, it is in these small group conversations that engagement can be instigated.

It is during this initial conversation that shared goals and the value of a collaboration would potentially be discovered. The librarian's goal would be clear—to encourage the development and use of OER to reduce barriers to student success—as shared in the information session. In conversation, an instructor may share their shock at the cost of their course materials and that they are interested in reducing the cost of course materials for students. At this point, engagement between the two parties would clearly be strategic in that the potential of OER aligns with a shared goal. The librarian is positioned to advance the shared goal. Further into the conversation, the librarian would introduce the instructor to the Open Textbook Library so they can begin to find existing resources in their subject area. This would be a formal exchange of expertise beyond the existing capacity of each individual, as the librarian is an expert in identifying existing, open resources and the instructor is an expert in their discipline and best positioned to make the decision as to whether the existing resources meet their needs, or if they should develop something new. The instructor could skim the textbook options and note the potential to adapt an existing OER. The librarian would be exchanging their knowledge of existing OER, open publishing platforms, and licensing with the instructor's subject area expertise and the knowledge needed to create or adapt existing resources. As a result of this conversation, the instructor could apply for funding to adapt an OER for their course.

After the instructor's application for OER funding was approved, the parties would enter a reciprocal engagement relationship. As Gibson and Dixon (2011) asserted—and as a critical component of our proposed definition—reciprocity is required for engagement to transcend outreach. Here, each party would determine how they would equitably share in

the responsibility and the action required to adapt and implement the OER. In this example, the parties could draft and sign a Memorandum of Understanding (MOU) that outlines the responsibilities of each party and begin their work. The instructor could begin to adapt an existing OER to meet their course needs and the librarian would provide guidance, training, and support. Upon completion, the OER would be implemented in the course. The outcome of this engagement relationship would be mutually beneficial as both parties would be meeting an institutional goal for student success, contributing to the educational mission of the university, and benefitting professionally from the experience.

Conclusion

This paper sought to define the term engagement and articulate the critical components of engagement work that clearly distinguish it from outreach. The proposed definition shifts Gibson and Dixon's (2011) definition to center the work of librarians as opposed to the library organization. The proposed definition also builds upon the engagement model described by Jaguszewski and Williams (2013) in terms such as collaboration, and the monitoring of programs and goals; however, the proposed definition strengthens their concept through the addition of reciprocity and the identification of outcomes that are mutually beneficial. Diaz (2019) identified engagement as a concept that was related to outreach and recommended it be examined more thoroughly to determine if it was in fact different from outreach. While Diaz (2019) applied a concept analysis methodology in her paper, we conducted a thorough examination of the literature to analyze the term engagement in academic libraries. Our analysis found that like outreach, the term engagement lacks a consistent definition in the library literature. The many attempts to articulate engagement in the responsibilities and roles of librarians and in organizational transitions to engagement models have led the authors to a new definition. Our proposed definition will clarify expectations for librarians with engagement responsibilities and urge librarians and libraries to draw clear distinctions between engagement and outreach. In addition, this proposed definition provides a framework for engagement that will aid in the assessment of engagement work and communicate the value of academic librarians' contributions to their campus communities.

With the establishment of a distinct definition of engagement for academic librarians, the authors envision several opportunities for advancing engagement work. As the proposed definition sets clear expectations for what engagement is (and what it is not), it can be applied to activities such as onboarding, annual reviews, and professional development. The proposed definition can help with the design of formal engagement plans that are distinctly different from outreach plans, and push librarians to intentionally align their work with stakeholders through the identification of shared goals. Finally, the products of engagement work are mutually beneficial, thus allowing academic libraries to clearly articulate their contributions to their larger institutions. We envision that librarians may use this definition in their future research endeavors through "engagement in action" case studies that describe and assess work that fits within the proposed definition.

References

American Council on Education's Carnegie Classification of Institutions of Higher Education. (n.d.). *The elective classification for community engagement*. https://carnegieclassifications.acenet.edu/elective-classifications/community-engagement/

Association of College and Research Libraries (ACRL). (2010). *Value of academic libraries: A comprehensive research review and report*. Researched by Megan Oakleaf. Association of College and Research Libraries.

Astin, A. W. (1984). Student involvement: A developmental theory for higher education. *Journal of College Student Personnel,* 297–308.

Astin, A. W. (2014). Student involvement: A developmental theory for higher education. In *College Student Development and Academic Life,* pp. 251–262. Routledge.

Barker, D. (2004). The scholarship of engagement: A taxonomy of five emerging practices. *Journal of Higher Education Outreach and Engagement, 9*(2), 123–137.

Bidney, M. (2014). The library as platform: Assessing outreach and engagement in the library of the future. In D. C. Mack & G. W. White (Eds.), *Assessing liaison librarians: Documenting impact for positive change*. Association of College and Research Libraries.

Boyer, E. L. (1990). *Scholarship reconsidered: Priorities of the professoriate.* Carnegie Foundation for the Advancement of Teaching.

Boyer, E. L. (1996). The scholarship of engagement. *Bulletin of the American Academy of Arts and Sciences, 49*(7), 18–33.

Boyer, E. L. (1996). The scholarship of engagement. *Journal of Public Service and Outreach, 1*(1), 11–20.

Diaz, S. A. (2019). Outreach in academic librarianship: A concept analysis and definition. *The Journal of Academic Librarianship, 45*(3), 184–194.

Geckle, B. J., & Nelson, D. N. (2017). Classifying librarians: Cataloger, taxonomist, metadatician? *The Serials Librarian*, *72*(1-4), 57–64.

Gibson, C. (2020). The engaged librarian framework at The Ohio State University Libraries. *Against the Grain, 32*(4), 12–16.

Gibson, C. & Dixon, C. (2011). New metrics for academic library engagement. In D. M. Mueller (Ed.), *In Declaration of Interdependence: Proceedings of the Association of College and Research Libraries.*

Hahn, K. (2009). Special issue on liaison librarian roles. *Research Library Issues: A Bimonthly Report from ARL, CNI, and SPARC,* no. 265.

Jacob, W. J., Sutin, S. E., Weidman, J. C., Yeager, J. I. (2015). Community engagement in higher education. In W. J. Jacob, S. E. Sutin, J. C. Weidman, & J. L. Yeager (Eds.), *Community Engagement in Higher Education. Pittsburgh Studies In Comparative and International Education*. SensePublishers. https://doi.org/10.1007/978-94-6300-007-9_1

Jaguszewski, J., & Williams, K. (2013). *New roles for new times: Transforming liaison roles in research libraries.* Association of Research Libraries. https://conservancy.umn.edu/handle/11299/169867

Kenney, A. R. (2014). Leveraging the liaison model: From defining 21st century research libraries to implementing 21st century research universities. *Ithaka S+ R, 11.*

Kuh G. D. (2001). Assessing what really matters to student learning inside the national survey of student engagement. *Change: The Magazine of Higher Learning, 33*(3), 10–17. https://doi.org/10.1080/00091380109601795

Kuh, G. D. (2001). The national survey of student engagement: Conceptual framework and overview of psychometric properties. https://scholarworks.iu.edu/iuswrrest/api/core/bitstreams/b18931f6-43cb-4f42-8fcb-feea6c76325f/content

Kuh, G.D. (2009). What student affairs professionals need to know about student engagement. *Journal of College Student Development 50*(6), 683–706. https://doi.org/10.1353/csd.0.0099.

LeMire, S., Graves, S. J., Farrell, S. L., Mastel, K. L. (2018). *SPEC kit 361: Outreach and engagement*. Association of Research Libraries. https://publications.arl.org/Outreach-Engagement-SPEC-Kit-361/

Lougee, W. P. (2002). *Diffuse libraries: Emergent roles for the research library in the digital age. Perspectives on the evolving library.* Council on Library and Information Resources.

Miller, R. K. & Pressley, L. (2015). *SPEC kit 349: Evolution of library liaisons.* Association of Research Libraries. https://publications.arl.org/Evolution-Library-Liaisons-SPEC-Kit-349/

Oakleaf, M. (2017). *Academic library value: The impact starter kit.* ALA Editions.

Schlak, T. (2018). Academic libraries and engagement: A critical contextualization of the library discourse on engagement. *Journal of Academic Librarianship, 44*, 133–139.

Teixeira, P. N. & Shin, J. C. (2020). *The international encyclopedia of higher education systems and institutions.* Springer Dordrecht. https://doi.org/10.1007/978-94-017-8905-9

Todorinova, L. (2018). A mixed-method study of undergraduate and first year librarian positions in academic libraries in the United States. *The Journal of Academic Librarianship*, *44*(2), 207–215.

Walter, S. & Goetsch, L. (2009). *SPEC kit 312: Public engagement.* Association of Research Libraries. https://publications.arl.org/Public-Engagement-SPEC-Kit-312/1

Williams, K. (2009). A framework for articulating new library roles. *Research Library Issues: A Bimonthly Report from ARL, CNI, and SPARC,* no. 265, 308.

Impact of Library Collections on Faculty Teaching, Research, and Retention: A Mixed-Methods Study

Sarah LeMire and Shanna Bodenhamer

In recent decades, college and university libraries have been called to demonstrate their impact on their institutions' teaching and research missions. One way that libraries can demonstrate their impact is by evaluating how library collections can influence faculty recruitment and retention decisions. This study builds upon an existing study aimed at evaluating this impact. The authors apply a mixed-methods approach to an existing data set to identify differences in impact based upon faculty discipline and rank. The authors found that tenured faculty, as well as faculty in the Arts and Humanities were significantly more likely to include the library as part of their recruitment and retention decision making.

Introduction

Librarianship, as a discipline, focuses on information discovery, access, and usage. For centuries, libraries have been recognized as foundational to the academic mission of the university. Frequently found at the heart of campus, libraries collect the books and periodicals upon which faculty and students relied to conduct their own research. However, the contributions of the university library extend far beyond managing research collections. Library faculty provide significant support during the research process, contribute to higher rates of student and faculty retention, and play a key role in building a university's reputation.

The advent of the internet age has, in some ways, undermined libraries' central role in their campus' academic mission. Because many resources can be accessed electronically, faculty and students conduct research without once setting foot into the library building. The advent of online access has led to misconceptions about the continued need for libraries. It is a common misconception that libraries are not needed because everything is available online. This misconception represents a significant misunderstanding of today's information landscape. While Google can provide access to enormous amounts of information, the type of high-quality information used in higher education is typically proprietary. Though it is possible to access scholarly sources without using library facilities or databases, often researchers will encounter a paywall when they try to access the full text of those sources. Libraries, however, provide faculty, staff, and students with immediate and equitable access to this proprietary information to support the university's teaching and research mission.

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The misconception about the continued relevance of libraries has left many libraries with a need to demonstrate their importance and impact. Indeed, the Association of College and Research Libraries' foundational *Value of Academic Libraries* report articulates that "Librarians are increasingly called upon to document and articulate the value of academic and research libraries and their contribution to institutional mission and goals" (Oakleaf, 2010, p. 6). This study is based upon previous research focused on establishing the impact of the University of Texas' (UT) library on faculty retention, research, and teaching. In 2020, librarians from the University of Texas published a Library Impact Practice Brief for the Association of Research Libraries' (ARL) Research Library Impact Framework initiative (Chiochios et al., 2020a). This report provided both qualitative and quantitative insights into UT faculty members' perceptions of the importance of the library to their employment decisions. This study builds upon the ARL Practice Brief by further analyzing the UT data set, which was published in the Texas Data Repository with a CC0 license (Chiochios et al., 2020b). This study extends the research by applying different statistical analysis within a mixed methods design that incorporates thematic analysis and examines variation among faculty recruitment and retention as it relates to university library collections.

Purpose of the Study

The purpose of this study was threefold. First, the study aimed to further explore university faculty perceptions of the library's collection on their research and which of the library resources faculty members consider vital to their research. Second, the researchers intended to examine the effect that library services have on the recruitment and retention of university faculty. Third, the study aimed to explore the relationship between university faculty perceptions of the library collection and faculty recruitment and retention.

Research Questions

1. Are there differences by discipline and rank on engagement with the library during faculty recruitment/retention?
2. Are there differences by discipline and rank in how faculty perceive the impact of library collections on their research?
3. Which library resources do faculty members perceive as most vital to their research and teaching?

Literature Review

Factors Affecting University Faculty Retention

The average university faculty attrition rate is estimated to be approximately 50% over the span of a 10-year period (Buller, 2021). For most colleges and universities this means that they will need to replace about half of their faculty every decade. In 2008, the financial costs associated with faculty turnover in higher education reached $68 million (Figueroa, 2015). Attrition is not only costly, but it can place additional strain on the remaining staff members, increasing the likelihood of burnout. Another negative consequence of attrition can be the impact to a university's reputation when it loses respected researchers. Understanding factors that contribute to retaining quality faculty can assist universities in minimizing the negative impacts associated with attrition. Some predictors leading to faculty turnover are stress, job satisfaction, research productivity, support, and overall job fit (Figueroa, 2015; Ryan et al., 2011).

Balancing job responsibilities contributes to overall job satisfaction. While not all are required at every institution, the typical job responsibilities for academic faculty in higher education are teaching, research, and administration/management. Survey research examining faculty satisfaction with these responsibilities revealed that 80% reported satisfaction in teaching, 65% reported satisfaction with research, and 40% reported satisfaction with administrative responsibilities (Metcalf et al., 2005). Stress associated with these job responsibilities negatively impacts life satisfaction, which leads to emotional burnout.

The "publish or perish" mentality is especially overwhelming for junior faculty members who feel high levels of pressure to establish an academic reputation through research publications. Regression analysis found that research stress felt by junior faculty is positively correlated with emotional burnout, which is negatively correlated with life satisfaction (Xu & Wang, 2023). Another study examining publication stress for both tenured and tenure track faculty members found that 92% of participants reported feeling pressure to publish in peer-reviewed journals (Miller et al., 2011). This pressure was found to be positively correlated with publication burnout and negatively correlated with satisfaction related to publishing.

Universities can promote job satisfaction by balancing job responsibilities for their faculty and providing support in areas that contribute to high levels of stress and burnout. Supporting faculty research can lead to lower levels of stress and burnout, increased job satisfaction and feelings of productivity, and offset the negative impact of the "publish or perish" mentality within academia. A university's library plays an important role in supporting its faculty's research endeavors.

Impact of University Library on Faculty Research

One way that libraries can contribute to faculty retention is through their support for faculty research. Libraries have developed services in areas such as research data management, author rights management, and scholarly reputation (Del Toro et al., 2011; Lee et al., 2023; Xu, 2022). Despite the many services libraries provide to support faculty research, faculty typically identify collections as the library's most important contribution to their research (Brown & Tucker, 2013; Hollister & Schroeder, 2015).

Librarians have been examining the impact of library collections on faculty research since the 1980s using metrics such as the number of publications, citations to those publications, and quality of publication venue (Rushton & Meltzer, 1981). At that time, library collections were almost exclusively in print format, meaning that faculty access to information was closely connected to their ready access to a substantial print collection. Indeed, researchers found that there was a positive relationship between the size of the library collection and faculty research productivity (Rushton & Meltzer, 1981).

In the 1990s, researchers began to reference the decreasing purchasing power of library collection budgets. The proliferation of publication venues combined with the rising costs of journals and monographs limited the comprehensiveness of library collections (Gardner, 1991). Despite these limitations, researchers found that faculty were still able to use library collections to access most of the journal and monograph sources they needed (Dykeman, 1994). In fact, research into faculty research productivity at this time indicated that "institutional expenditures for libraries were significantly related to departmental research productivity" (Dundar & Lewis, 1998, p. 624).

The advent of online journals and collections access in the late 1990s and early 2000s had a substantial impact on how faculty used library collections. Researchers found that, as access to online journals increased, usage of print journals decreased significantly (De Groote & Dorsch, 2001). However, the easy access to scholarly information afforded by electronic journals increased the number of articles that scholars cited in their research (De Groote et al., 2005). Researchers also found that, even as electronic journal articles became the norm, faculty overwhelmingly cited journal articles that could be found through their library's collections (Wilson & Tenopir, 2008).

Over time, researchers have found that faculty identified access to electronic resources as particularly key to their research productivity (Borrego & Anglada, 2015; Noh, 2012; Rawls, 2015). Qualitatively, researchers have found that faculty attribute online discoverability of research as having substantially increased their efficiency and productivity (Tenopir, 2010). In particular, faculty reported having accessed electronic resources in support of their research agendas (as opposed to teaching or other purposes) (Lupton & Davidson, 2013). Indeed, Tenopir quotes one of her faculty participants as asserting that they "could not do [their] research without the speedy and wide-ranging access to material provided through the electronic resources from the library" (2011, p. 11).

Some researchers have attempted to specifically measure the impact of library collections on faculty research through a return on investment calculation including additional metrics such as grant funding received. Scholars at the University of Illinois Urbana-Champaign calculated that the University's investment in the library paid dividends in terms of grant funding; they estimated that the University received "a return on investment of $4.38 for every dollar invested in the library" (Kaufman, 2008, p. 433). Similarly, Rawls (2015) and De Groote et al. (2020) found that faculty research productivity is positively correlated with "the level of investment [the institution] makes in its libraries" (Rawls, 2015, p. 35).

Theoretical/Conceptual Framework: Resource Dependence Theory

In their 1978 publication, *The External Control of Organizations: A Resource Dependence Perspective*, researchers Pfeffer and Salancik presented a framework for understanding the relationship between an organization and its environment, known as the resource dependence theory (RDT). RDT posits that an organization is dependent upon external contingencies within its environment, and these external factors influence how an organization behaves. For example, external factors like power and money influence an organization's behavior because they control resources that are central to the organization's functioning.

Within educational organizations like colleges and universities, the RDT framework can be used to explain the effects funding has on public institutions of higher education. Because public universities rely on external funding for survival, they must balance the desires of multiple stakeholders (e.g., state policy leaders, student organizations, federal policy). Decreased government investment in higher education has forced universities to depend on tuition as a primary funding source (Fowles, 2013). Increased reliance on tuition as a revenue stream has led many institutions to reallocate resources that expand their instructional capacities at the expense of resources that support research activities. Additionally, the political belief that universities should primarily focus on producing the economic workforce further shifts resources towards instructional activities and away from research activities. A research study that examined the relationship between state funding and the expansion of master's degree

programs found a strong correlation between decreased state funding of higher education in the 1990s and a dramatic increase in the number of awarded master's degrees (Jaquette, 2019). This suggests that universities expanded master's degree programs to replace the lost revenue from state funding. While universities have found alternate ways to increase funding through tuition, this funding source is less likely to go towards funding research activities. An analysis of public university expenditures revealed that outside funding, like grants, had a greater impact on research expenditures than did tuition (Leslie et al., 2011). Decreased funding of public universities has impacted the funding of libraries and research activities, forcing many libraries to seek funding from outside sources (Rader, 2000).

Methods

Mixed methods is a research design that combines qualitative and quantitative methods. Because both qualitative and quantitative methods have limitations, combining both into a single study overcomes the weaknesses of both designs and provides a deeper understanding of the research problem (Creamer, 2017; Creswell, 2020). This study builds upon a previous multimethod design study and further examines how library collections impact different disciplines. This study uses a concurrent equivalent mixed methods design, which combines quantitative and qualitative datasets that were collected at the same time and given equal priority (Creamer, 2017). Qualitative data was collected by the original researchers via participant interviews to explore the relationship between university faculty perceptions of library collections and faculty retention and recruitment. To identify and analyze patterns within participant interviews, we conducted a thematic analysis. Quantitative data was collected by the original researchers from university faculty surveys to examine the relationship between library collections and faculty recruitment. We examined quantitative and qualitative data strands for corroborating themes.

Participants and Data Collection

This study employed an existing data set deposited in the Texas Data Repository and dedicated to the public domain (Chiochios et al., 2020b). The data set included quantitative survey results as well as qualitative interview codes with selected representative quotations.

Quantitative Data

Quantitative data was collected by the original researchers from a population of UT faculty members. The instrument was a 23-question survey consisting of multiple choice and Likert-style questions. The survey was divided into five sections. The first section focused on faculty members' experience when they were hired at the university. The second asked faculty about experience with library collections after they were hired. The third segment focused on faculty members' potential for transitioning to another institution. The last two sections of the survey were focused on demographics: the first on academic demographics such as discipline and rank and the second on personal demographic characteristics including gender, race, and age. The survey instrument is available in Appendix A.

Faculty members received an email survey solicitation if they were either hired or promoted at the institution between the years of 2013 and 2018. The survey was distributed to 991 faculty members and the researchers received 284 responses for a 29% response rate (Chiochios et al., 2020a). The disciplinary breakdown of respondents is available in Table 1.

Quantitative data was deposited in the Texas Data Repository in Excel format. The authors imported the Excel data file into Stata and transformed the data in several days. First, the authors converted nominal data into dummy and factor variables. The authors also combined six dummy variables, all focused on faculty recruitment, into a single factor variable to facilitate analysis.

TABLE 1
Survey Respondents by Discipline

Discipline	Number of Survey Respondents
Arts & Humanities	75
Social Sciences	101
STEM	99
Other	8
No response	1

Qualitative Data

Qualitative data was collected by the original researchers via one-on-one, semi-structured interviews. They prepared 15 interview questions, which were grouped according to four themes: 1) academic demographics, 2) research methods, 3) perceptions of library collections, and 4) recruitment and retention. Interview questions are available in Appendix B.

The original researchers used a purposive sampling methodology that prioritized diversity in terms of academic rank and discipline. The data set includes themes from 13 interviews with faculty. Interviews were transcribed and the researchers took a grounded theory approach to coding the data (Chiochios et al., 2020a).

Qualitative data was deposited by the original researchers in Excel format. The authors downloaded the Excel file and transformed the data by eliminating the previous researchers' themes and aggregating the sample quotes into a single data set. The authors then performed a thematic analysis of the resulting qualitative data set.

Data Analysis

The data for this study were analyzed using a convergent approach that combined qualitative and quantitative results after analyzing the strands separately. This approach was selected to triangulate findings and confirm results.

Quantitative Data Analysis

Quantitative data were analyzed using an analysis of variance (ANOVA) (Howell, 2012; Scheffe, 1959). Data was imported into Stata and string variables were converted into factor variables for the purposes of analysis. Variables related to recruitment were combined into a single dependent variable, while disciplines and faculty rank were independent variables.

Qualitative Data Analysis

The qualitative data were coded using a thematic analysis approach. Thematic analysis was chosen due to its flexibility (Nowell et al., 2017). After initial review of the data, the researchers developed codes which were iteratively tested and refined. Both raters scored 15% of the data set, after which intercoder reliability was established using Cohen's Kappa (O'Connor & Joffe, 2020). The intercoder reliability assessment revealed agreement on 97% of codes ($\kappa = 0.87$). The raters then divided up the remaining data set, with one coder scoring the STEM data, the other scoring the Social Sciences data, and each scoring half of Fine Arts and Humanities data.

Mixed Methods Analysis

Following quantitative and qualitative analysis, we examined each strand's results for either convergence or divergence. In particular, the researchers examined whether findings for research questions one and two were consistent across the two strands. Corroboration between the qualitative and quantitative strands would increase the validity of the study's findings.

Results

Quantitative Results

In an investigation of faculty use of the UT library collections in relation to recruitment, the descriptive statistics for the 4 x 4 factorial ANOVA are provided in Table 2. The first main effect, faculty rank, had four values: 1) lecturer, 2) assistant professor, 3) associate professor, and 4) full professor. The second main effect, faculty discipline, also had four values: 1) arts and humanities, 2) STEM, 3) social sciences, and 4) other. Sample means vary across academic discipline and across faculty rank with full professors (M = 3.09, SD = 1.749) scoring higher than lower ranking faculty, and faculty in arts and humanities (M = 3.61, SD = 1.951) scoring higher than other disciplines. Skewness across groups appeared to be normally distributed (i.e., within +/- 1), except for lecturers in arts and humanities and assistant and associate professors in STEM, which appeared to be positively skewed. Kurtosis was somewhat normal for all groups with most values close to three.

TABLE 2
Descriptive Statistics by Group (N = 284)

	Group	N	M	SD	Sk	Ku
Arts and Humanities	Lecturers	11	1.91	1.81	1.09	3.35
	Assistant Professors	21	3.33	2.06	–0.21	1.74
	Associate Professors	24	4.04	1.73	–0.48	1.97
	Full Professors	19	4.37	1.61	–0.79	2.32
STEM	Lecturers	7	2.14	1.35	–0.27	2.12
	Assistant Professors	42	1.62	0.96	1.16	3.55
	Associate Professors	21	1.95	1.56	1.20	3.52
	Full Professors	28	2.61	1.64	0.50	1.87
	Other	1	1.00	—	—	—
Social Sciences	Lecturers	1	1.00	—	—	—
	Assistant Professors	44	2.14	1.27	0.57	2.31
	Associate Professors	28	2.43	1.50	0.78	2.62
	Full Professors	28	2.68	1.56	0.19	2.34
Other	Lecturers	2	0.50	0.71	0.00	1.00
	Assistant Professors	1	1.00	—	—	—
	Associate Professors	4	1.50	0.58	0.00	1.00
	Full Professors	1	5.00	—	—	—
No Response		1				

Research Question 1

To determine if the differences in group means were statistically significant, a 4 x 4 factorial ANOVA was conducted with alpha level set to .05. Before conducting the analysis, assumptions necessary for conducting a factorial ANOVA were examined. While the assumption of normality was violated for several of the groups, because the sample sizes of these groups were > 30, we opted to apply the central limit theorem and assume that the sample means of the population were approximately normally distributed. The other assumption of homogeneity of variances was met.

The calculated effect for the overall ANOVA was $\eta^2 = .26$, a large effect. This indicates that 26% of variance in faculty recruitment is explained by the overall model. The results of the two-way factorial ANOVA are presented in Table 2. The main effect for academic discipline was statistically significant, $F(3,266) = 10.07$, $p < .01$, which indicates there were recruitment differences across faculty disciplines (arts and humanities, STEM, social sciences, and other). The effect for faculty rank was also statistically significant, $F(3, 266) = 5.02$, $p < .01$, which indicates that there were differences in recruitment across faculty rank (lecturer, assistant professor, associate professor, and full professor). The interaction effect was not statistically significant, $F(9,266) = 1.38$, $p = .20$, which indicates that the observed differences in academic discipline area for high-ranking faculty are not different from the observed difference in academic discipline for low-ranking faculty. This indicates that within academic discipline type, the effect of library collections on recruitment would not differ across high-ranking faculty and low-ranking faculty. The partial η^2 for faculty rank, academic discipline and interaction were .10, .05, and .04, respectively, indicating that the effects for faculty rank and academic discipline were medium to large and medium, whereas the effect of the interaction was small. Thus, the observed interaction was small in size and not statistically significant, and the main effects of faculty rank and academic discipline were small in size and statistically significant.

To determine more precisely which groups differ from each other by a statistically significant amount, a Tukey test of all pairwise comparisons was conducted. The mean differences and confidence intervals around these differences are presented in Table 4. The results indicate that the arts and humanities groups differ a statistically significant amount from the other groups (STEM, social sciences, and other) and that the other groups do not differ by a statistically significant amount from each other. It was concluded that the effect of library collections on faculty recruitment is greater for faculty in the arts and humanities. Regarding faculty rank, the full professor group differs a statistically significant amount from the lecturer group and the assistant professor group and that the other groups (i.e., associate professors,

TABLE 3
ANOVA Results for Disciplinary and Rank Differences on Recruitment

Source	Df	SS	MS	F
Academic Discipline	3	68.237	22.746	10.07*
Faculty Rank	3	34.008	11.336	5.02*
Model	15	210.811	14.054	6.22
Academic Discipline# Faculty Rank	9	28.115	3.124	1.38
Residual	266	600.994	2.259	
Total	281	811.805		

Note: N = 282, *p < .05

TABLE 4
Pairwise Group Comparisons

Pairwise Group Comparisons Across Faculty Discipline			
Comparison	**Standardized Mean Difference**	**Raw Score Mean Difference**	**Raw Score 95% Tukey CI**
STEM vs. Arts & Humanities	–0.69	–1.62	–2.25 to –1.00
Social Sciences vs. Arts & Humanities	–0.54	–1.26	–1.88 to –0.64
Other vs. Arts & Humanities	–0.54	–1.99	–3.5 to –0.47
Social Sciences vs. STEM	0.17	0.37	–0.21 to 0.94
Other vs. STEM	–0.10	–0.36	–1.86 to 1.13
Other vs. Social Sciences	–0.20	–0.73	–2.22 to 0.76
Pairwise Group Comparisons Across Faculty Rank			
Comparison	**Standardized Mean Difference**	**Raw Score Mean Difference**	**Raw Score 95% Tukey CI**
Asst Professor vs. Lecturer	0.17	0.35	–0.67 to 1.36
Asso Professor vs. Lecturer	0.44	0.94	–0.11 to 1.99
Full Professor vs. Lecturer	0.59	1.28	0.23 to 2.33
Asso Professor vs. Asst Professor	0.36	0.60	–0.04 to 1.23
Full Professor vs. Asst Professor	0.55	0.93	0.30 to 1.57
Full Professor vs. Asso Professor	0.19	0.33	–0.35 to 1.02

assistant professors, and lecturers) do not differ by a statistically significant amount from each other. It was concluded that the effect of library collections on faculty recruitment is greater for full professors.

Research Question 2

In addition to examining the effect of rank and discipline on recruitment, we also wanted to know how these factors impacted faculty members' perceptions of the relationship between the library and their research. As with research question 1, we used a 4 x 4 factorial ANOVA to examine this impact.

The calculated effect for the overall ANOVA was $\eta^2 = .09$, a small effect. This indicates that 9% of variance in faculty recruitment is explained by the overall model. The results of the two-way factorial ANOVA are presented in Table 5. The main effect for academic discipline was not statistically significant, $F(3,266) = 2.86$, $p = .12$, which indicates there were no significant differences across faculty disciplines (arts and humanities, STEM, social sciences, and other) in how faculty perceived the impact of the library on their research. However, the effect for faculty rank was statistically significant, $F(3, 266) = 4.09$, $p = .04$, which indicates that there were differences in perception of research impact across faculty rank (lecturer, assistant professor, associate professor, and full professor). The interaction effect was not statistically significant, $F(9,266) = .67$, $p = .91$, which indicates that the observed differences in academic discipline area for high-ranking faculty are not different from the observed difference in academic discipline for low-ranking faculty. This indicates that within academic discipline type, the effect of library collections on faculty research would not differ across high-ranking faculty and low-ranking faculty. The partial η^2 for faculty rank, academic discipline and interaction were .02, .03, and

.02, respectively, indicating that the effects in all three areas were small. Thus, the observed interaction and main effect of academic discipline were small in size and not statistically significant, and the main effect of faculty rank was small in size and statistically significant.

To determine more precisely which groups differ from each other by a statistically significant amount, a Tukey test of all pairwise comparisons was conducted. The mean differences and confidence intervals around these differences are presented in Table 6. There are no statistically significant differences between academic disciplines. Regarding faculty rank, the full professor and associate professor groups differ a statistically significant amount from the lecturer group. The other groups (associate professors, assistant professors, and lecturers) do not differ by a statistically significant amount from each other. We conclude that the effect of library collections on faculty perceptions of the importance of the library for their research is greater for tenured (associate or full) professors.

TABLE 5
ANOVA Results for Disciplinary and Rank Differences on Research

Source	df	SS	MS	F
Academic Discipline	3	8.571	2.857	1.93
Faculty Rank	3	12.275	4.092	2.76*
Model	15	38.855	2.590	1.75
Academic Discipline Faculty Rank	9	6.031	0.670	0.45
Residual	266	394.634	1.484	
Total	281	433.489		

Note: N = 282, *p < .05

TABLE 6
Pairwise Group Comparisons

Pairwise Group Comparisons Across Faculty Discipline			
Comparison	**Standardized Mean Difference**	**Raw Score Mean Difference**	**Raw Score 95% Tukey CI**
STEM vs. Arts & Humanities	–0.54	–0.40	–0.88 to 0.09
Social Sciences vs. Arts & Humanities	–0.05	–0.04	–0.52 to 0.44
Other vs. Arts & Humanities	–0.97	–1.10	–2.28 to 0.07
Social Sciences vs. STEM	0.52	0.36	–0.09 to 0.81
Other vs. STEM	–0.62	–0.70	–1.87 to 0.46
Other vs. Social Sciences	–0.93	–1.06	–2.22 to 0.10
Pairwise Group Comparisons Across Faculty Rank			
Comparison	**Standardized Mean Difference**	**Raw Score Mean Difference**	**Raw Score 95% Tukey CI**
Asst Professor vs. Lecturer	0.52	0.57	–0.18 to 1.33
Asso Professor vs. Lecturer	0.85	0.94	0.16 to 1.72
Full Professor vs. Lecturer	0.78	0.86	0.09 to 1.64
Asso Professor vs. Asst Professor	0.43	0.37	–0.10 to 0.84
Full Professor vs. Asst Professor	0.34	0.29	–0.18 to 0.76
Full Professor vs. Asso Professor	–0.09	–0.08	–0.59 to 0.43

Qualitative Results

Analysis of the qualitative data set revealed that comments followed 10 themes. These themes, which represent the codes we used for the data set, are listed in Table 7 below. Some codes have a relationship to one another; for example, the general category "collections" is broad in scope and could naturally include several of the more specific categories such as "special collections." To clarify relationships between comments, we opted to use the more specific codes in lieu of a more general code when appropriate. In the example above, a comment about UT's archival collections would be coded "special collections" but would not also be coded "collections" unless the comment included mention of other, more general, collections.

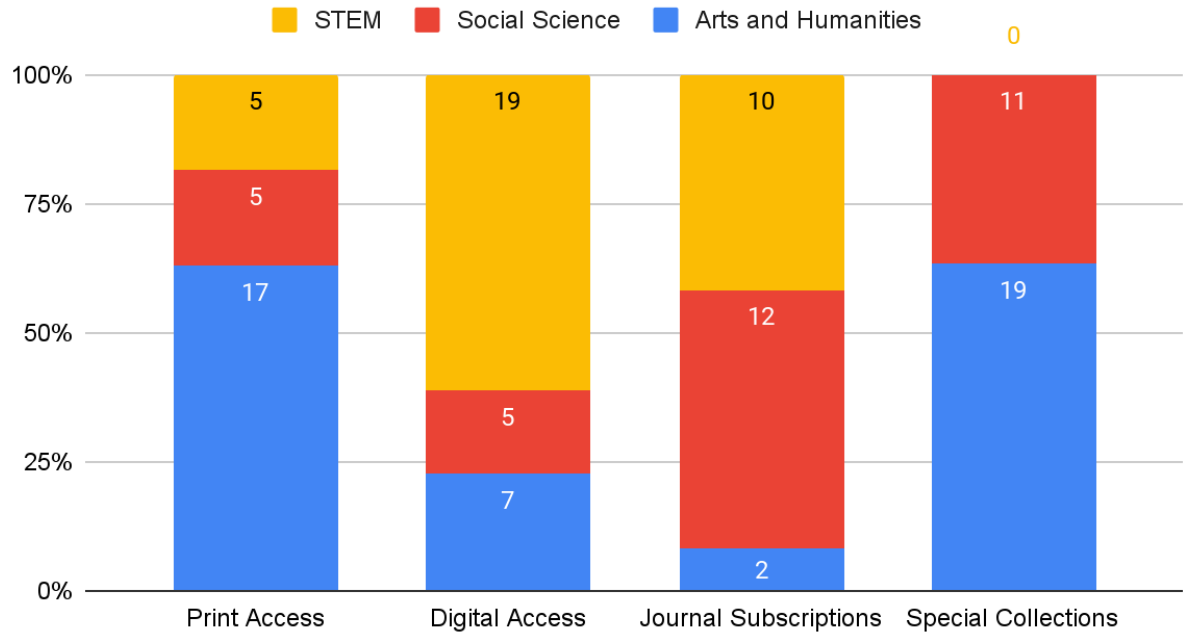
TABLE 7
Codes and Example Comments

Code	Example Comment
Collections	"At top schools the expectation is just that what all these journal articles are going to be available, these books are going to be available. And, so I think there are—If that were not true, it would be a significant negative."
Serendipity/Browsing Behavior	"The most important book that I have ever used in my research, I found from strolling the stacks."
Budget/Investment in Library	"The library is one of the things that kind of, or the lack of attention to the library budget I think is one of the things that indicates to me that the university's maybe not thinking broadly enough about what all is involved in maintaining the success of a research institution."
Digital Access	"The single most important thing for me is access to online journals. I very very very rarely ever come across a journal that I need that is not available online via the UT library. This is most impressive. I cant recall the last time what I needed was not available."
Print Access	"I always take my students now physically into the library and walk them through the finding things on the shelf process, one of the arguments that we made is that in the humanities the libraries are laboratories. So we go in there and yes, I'm looking for …source X or I'm looking for …publication Y. I take that book, I look at it. I decide whether or not it's useful, and then of course next to it thanks to the LC system there are of course dozens of other books on related topics. So that's a primary research method, being physically in the stacks for a humanist I think. And I've actually heard scientists say this as well."
Journal Subscriptions	"I came to UT with the expectation of having Tier 1 research university resources and my expectations were met. I could not function without our library resources and the specific to my work science journal subscriptions."
Librarian Support	"Our assigned librarian is PHENOMENAL and does a great job of supporting faculty and students in our department. Thank you for providing such wonderful and knowledgeable individuals for us to work with!"
Interlibrary Loan	"I tend to go online journals. I can usually find what I need online. It's easier. I have to do some inter-library loans every once in a while."
Special Collections	"I have used the archives at UT in my research for decades. they are the best in the country for what I do, and that was a key reason I agreed to come here."
Search Interfaces/ Web Design	"The need to log in before being able to see the [x database] is very frustrating and slow"

Research Question 3

Analysis of the coded comments revealed that researchers from different disciplinary groups prioritized different aspects of the library and its collections in relation to research, teaching, and recruitment (see Figure 1).

FIGURE 1
Library Collections Priorities by Discipline



Faculty from arts and humanities disciplines were far more likely to mention the importance of print access, serendipitous browsing, and special collections. For example, one arts and humanities faculty member lamented, "it would be lovely to have more materials actually housed in the library rather than in the offsite center, because that just makes it a lot easier for those sometimes serendipitous discoveries to happen." Faculty in STEM disciplines demonstrated an opposing viewpoint. These faculty were far more likely to express the importance of online access and journal subscriptions and to critique the library's electronic interfaces. They also rejected the importance of physical library spaces on campus; for example, one STEM faculty member argued, "I think our library takes up a large space that could be better used for collaborative spaces. As far as I am concerned the library materials could be stored off site as long as they can be delivered in a reasonable time upon request."

Similarly, faculty in STEM and arts and humanities disciplines demonstrated significant differences in the importance they placed on the library and its collections regarding their teaching, research, and recruitment. Thirteen (76%) comments from arts and humanities faculty mentioned concerns about a decreased library budget or the importance of investing in libraries. For example, one arts and humanities faculty member explained,

> The quality of UT Libraries is fundamental to the quality not only of my research but of my general work experience at UT … I am considering going on the market again in the next few years, and one of the factors that will be involved in my

> decision at that point is whether the university has decided to invest more in the Libraries.

STEM faculty were much less likely to express concerns about investment in the library; only two (12%) comments from STEM faculty expressed concerns about budget cuts. For example, one STEM faculty member noted, "The availability of journals within our collection has been getting more and more limited, particularly in [x] area which has significantly impacted our teaching and research negatively." No STEM faculty expressed the importance of investing in libraries.

While arts and humanities and STEM faculty represent varying and, in some cases, opposing viewpoints about the library, social sciences faculty fall somewhere in between. Like arts and humanities faculty, social sciences faculty value special collections. For example, one social sciences faculty member explained,

> The [x special collection] library is a very special resource and I appreciate it enormously. Other associated entities such as [x online resource] have international importance and are major components of UT's broader reputation and scholarly contribution. I would very much like to see more support going to these resources and to the library system in general.

Although social sciences faculty share the humanities' focus on special collections, social sciences faculty appear to align with STEM faculty in other important ways. Like STEM faculty, social sciences faculty were unlikely to express concerns about the importance of the library or the need for better library funding. Only two (12%) comments from social sciences faculty mentioned budget or funding, although the comments that the faculty made were passionately in favor of the library. For example, one social sciences faculty member exclaimed, "It upsets me as a faculty member to think that the libraries are under any kind of attack, to use words that are probably too charged. Or, would be seen as less valuable when they are single handedly the reason that we are here. And I cannot say that strongly enough."

Another point of similarity between STEM and social sciences faculty was the valuing of electronic journals and resources. Unlike arts and humanities faculty, who commonly emphasized the importance of books and other print materials, both social sciences and STEM faculty prioritized electronic resources for their convenience and currency. These resources, faculty explained, were crucial for both research and teaching purposes. As one social sciences faculty member explained, "I greatly appreciate the access to full-text versions of research articles. About 80% of the material I use for my research and about 50% of the material I use for teaching comes from journals we have access to."

Mixed Methods Results

Findings from the qualitative and quantitative results converge to reveal that the importance of the library in faculty recruitment and retention varies by academic discipline. Quantitative results revealed that the library was most important for faculty in the arts and humanities, with significant differences between arts and humanities and all other disciplines. The library was second most important in recruitment for faculty in the social sciences, with significant differences between social sciences faculty and all other disciplines. Similarly, quantitative

results revealed that arts and humanities faculty, followed by social sciences faculty, most strongly indicated the importance of the library to their research.

These findings converge with qualitative findings that suggest that the physical library, including print collections, was most frequently mentioned as an important resource by faculty in the arts and humanities. Social sciences faculty, although less likely to mention physical books and articles, similarly valued archival and special collections. Although findings indicate that STEM faculty are far less likely to value the physical library holdings or consider the library as part of recruitment, results suggest that faculty in STEM disciplines do value access to digital collections and resources.

Findings also revealed a point of divergence between qualitative and quantitative results. Although quantitative results indicated that there were no significant differences between disciplines in the importance of the library for faculty research, qualitative results suggested that the picture is more complex. Faculty from all three disciplinary groups valued library resources, but the types of resources they valued differed significantly. While some faculty called for easier access to print materials on campus, other faculty expressed the need for print resources to yield space for collaborative study. Some faculty expressed concerns about budget cuts and gaps in the library collection, while others expressed a sense of complacency about the ready availability of library resources in their area.

Discussion

Qualitative and quantitative findings converged to indicate that the library plays a different role at a research university in faculty recruitment by discipline and faculty rank. Faculty in the arts and humanities are statistically more likely to consider the library as part of recruitment and retention decisions. Further, faculty in the arts and humanities tout the importance of print collections and ready access to browsable physical collections. This may be because many arts and humanities disciplines, particularly those in the humanities, remain book disciplines that publish a substantial portion of their research in long-form monograph format.

On the other side, while faculty in the social sciences and STEM disciplines are less likely to consider the library as part of a recruitment or retention decision, qualitative results reveal that these faculty do value library collections for research and teaching purposes. STEM and social sciences faculty rely heavily on electronic journal subscriptions to provide immediate access to the latest research in their fields. In addition, social sciences faculty incorporate archival collections into their scholarship and teaching practices.

In addition to differences by discipline, findings also revealed significant differences in recruitment and research by faculty rank. Faculty at higher ranks were more likely to consider the library in recruitment and retention; indeed, full professors were significantly more likely than lecturers and assistant professors to consider library collections during this decision-making process. This may be, in part, due to research expectations. Lecturers are not typically expected to conduct research (although many do) and therefore may be less likely to prioritize library collections when making employment decisions.

Tenured faculty, including both associate and full professors, were also significantly more likely to express the importance of the library for their research. This, again, could be in part due to the level of research expectations; tenured faculty may have more established and robust research agendas at their career stage and may therefore place a higher premium on ready access to secondary research.

Implications for Practice

This study's findings have several implications for practice. This study suggests that there could be an increased role for the library in the faculty hiring process. Some libraries already make it a practice to engage with candidates during the faculty hiring process (e.g., Budzise-Weaver & Bales, 2019). However, other libraries may not have considered partnering with academic departments during the hiring process, especially in disciplines other than the humanities. Arts and humanities faculty are already likely to consider the library during their recruitment and retention process, while STEM and social sciences faculty are less likely to consider access to library resources. Indeed, at an R1 institution like UT, faculty are likely to assume that the library has the collections they need (Chiochios, 2020a). To reduce the reliance on assumptions, librarians may want to consider making availability of relevant collections an explicit part of the hiring process. This could be achieved by working with academic departments to develop boilerplate language that could be added or linked to job ads.

In addition, because disciplinary groups have different priorities, librarians should consider creating a few sets of promotional materials that can be shared with faculty. For example, a handout for arts and humanities faculty might spotlight special collections and the physical library while a handout for STEM faculty could prioritize digital collections and interlibrary loan. Library marketing departments could even create a brief flier that departments could link to or otherwise share with prospective faculty. Such a flier could include an overview of the resources for each department and how to access them.

Even outside the scope of the hiring process, this study's results suggest that there is a continued need to increase library outreach to faculty. Strategies such as hosting webinars and brown bag discussions and visiting department and faculty senate meetings remain important strategies for emphasizing the library's contributions to campus. Finally, the study reinforces the importance of making the library visible outside of the physical spaces. Many faculty, particularly in STEM disciplines, may have little reason to access the library's physical collections, and seamlessness in electronic discovery can mean that people don't realize that their access is provided via the library. Libraries need to continue to ensure that the library's role in providing access to electronic resources is clearly identified through consistent branding.

Implications for Policy

Additionally, advocating for changes in public policy that support increased access to knowledge and information can remove barriers to the dissemination of research. Currently, a large majority of peer-reviewed research is restricted behind a "paywall," meaning it is owned by the publisher and must be purchased. This can be expensive for the average practitioner that wants to stay up to date on evidence-based practices, making access to critical information unaffordable. The cost of purchasing access to academic journals is also expensive for large organizations, like universities, costing them a large portion of their overall budget. The annual price for digital access to electronic journal collections can cost a single R1 university millions of dollars. Despite increased digitization made possible by technology, which results in decreased production costs (i.e., printing and shipping costs), these savings have not benefited the consumer.

Other industries, like the music industry, have lowered consumer prices in response to the rising digital medium. However, the price of journal articles has ballooned, far outpacing the average rate of inflation (Lewis, 2020). This can be attributed to limited competition in the research publication industry, as a handful of companies control a vast majority of the market. As few as

five companies—Springer Nature, Elsevier, Wiley & Blackwell, Taylor & Francis, and Sage—dominate around 50% of the global market (Pandita & Singh, 2023). The largest publisher, Elsevier, controls 16% of the global market, which encompasses 3,000 journals and an additional 40,000 journals through its Scopus platform with profit margins that exceed powerhouse corporations like Microsoft and Google (Pandita & Singh, 2023). If profit margins were in line with comparable publishing companies, like magazines, the consumer could save an estimated $1 billion annually (Lewis, 2020). When a large majority of research is controlled by a few, consumers—universities and libraries, funding entities, and readers—are beholden to current inflated pricing. Not only is this practice not sustainable, but it also actively harms the consumer (Lewis, 2020).

It is important to note that librarians have been advocating for new models in scholarly communications for decades. Because consumer conditions are not sustainable, the market has started to implement cost-saving measures through price negotiations and publishing via open-access methods, and this trend is likely to grow (Lewis, 2020). Open access advocacy is being led by organizations like the Association of Research Libraries (ARL) and the Scholarly Publishing and Academic Resources Coalition (SPARC), which support making information freely available to everyone. Policy changes from the federal government have helped the movement gain momentum as they advance the narrative that publicly funded research should be available to all (White House, 2022). Librarians and scholarly communications advocates can continue to work together to reduce barriers to information access for all.

Limitations and Future Directions

There are several limitations to this research. This data was collected at a single R1 institution and may not be generalizable to other institutions, especially those with different research levels. A second limitation is that only a partial data set was available for the interviews. Full interview transcripts were not included in the data set, and instead only de-identified example comments were made available. In addition, the example comments did not include demographic information beyond the disciplinary group, which precluded examination for differences in qualitative responses based on faculty rank.

Conclusion

The rising costs of academic information, coupled with a more challenging campus budget situation, mean that college and university libraries will continue to need to demonstrate their impact as they advocate for sustainable funding. Faculty impact is an important aspect of that value proposition. Libraries seeking to increase the impact of library collections should consider that faculty recruitment and retention can look different based upon faculty discipline and rank. For example, faculty in STEM disciplines may not respond well to library efforts to market new print volumes; however, those same faculty may be highly interested in efforts to promote underused databases. By examining how different faculty groups view the library's importance on their recruitment and research, libraries can better tailor their outreach efforts to inform faculty of relevant resources, identify and remove barriers and pain points, and ultimately increase their impact.

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References

Buller, J. L. (2021). *Retaining your best college professors: You worked hard to recruit them; now how do you keep them?* Rowman & Littlefield.

Borrego, Á., & Anglada, L. (2016). Faculty information behaviour in the electronic environment: Attitudes towards searching, publishing and libraries. *New Library World*, *117*(3/4), 173–185. https://doi.org/10.1108/NLW-11-2015-0089

Brown, J.M., & Tucker, C. (2013). Expanding library support of faculty research: Exploring readiness. *portal: Libraries and the Academy. 13*(3), 257–271. https://doi.org/10.1353/pla.2013.0019

Budzise-Weaver, T., & Bales, S. (2019). Connecting faculty candidates with the library: Lessons learned from the literature and the field. *The Reference Librarian*, *60*(3), 182–201. https://doi.org/10.1080/02763877.2019.1608350

Chiochios, M., Hedstrom, J., Pierce Meyer, K., & Rader, M. (2020a). *Relationship between library collections and the recruitment and retention of faculty at UT Austin*. ARL Practice Brief. https://doi.org/10.26153/tsw/9030

Chiochios, M., Hedstrom, J., Pierce Meyer, K., & Rader, M. (2020b). *Relationship between library collections and the recruitment and retention of faculty at UT Austin*. Texas Data Repository, V1. https://doi.org/10.18738/T8/EAKPUD

Creamer, E. G. (2017). *An introduction to fully integrated mixed methods research*. SAGE Publications.

Creswell, J. W. (2020). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE Publications.

De Groote, S. L., & Dorsch, J. L. (2001). Online journals: Impact on print journal usage. *Bulletin of the Medical Library Association*, *89*(4), 372–378.

De Groote, S. L., Shultz, M., & Doranski, M. (2005). Online journals' impact on the citation patterns of medical faculty. *Journal of the Medical Library Association*, *93*(2), 223–228.

De Groote, S. L., Aksu Dunya, B., Scoulas, J. M., & Case, M. M. (2020). Research productivity and its relationship to library collections. *Evidence Based Library and Information Practice*, *15*(4), 16–32.

Del Toro, R., Mandernack, S., & Zanoni, J. (2011). Evolution of scholarly communication: How small and medium-sized libraries are adapting. In D. M. Mueller (Ed.)., *Declaration of Interdependence: The Proceedings of the ACRL 2011 Conference* (pp. 153–160). Association of College & Research Libraries. https://alair.ala.org/bitstream/handle/11213/18167/evolution_of_sc.pdf?sequence=1

Dundar, H., & Lewis, D. R. (1998). Determinants of research productivity in higher education. *Research in Higher Education*, *39*(6), 607–631. https://doi.org/10.1023/A:1018705823763

Dykeman, A. (1994). Faculty citations: An approach to assessing the impact of diminishing resources on scientific research. *Library Acquisitions: Practice & Theory*, *18*(2), 137–146. https://doi.org/10.1016/0364-6408(94)90021-3

Figueroa, O. (2015). The influences impacting staff turnover in higher education. *Journal of Management and Sustainability*, *5*(4), 86–93. https://doi.org/10.5539/jms.v5n4p86

Fowles, J. (2013). Funding and focus: Resource dependence in public higher education. *Research in Higher Education*, *55*(3), 272–287. https://doi.org/10.1007/s11162-013-9311-x

Gardner, J. (1991). The challenge of maintaining research collections in the 1990s. *Journal of Library Administration*, *14*(3), 17–25. https://doi.org/10.1300/J111v14n03_02

Hollister, C. V., & Schroeder, R. (2015). The impact of library support on education faculty research productivity: an exploratory study. *Behavioral & Social Sciences Librarian*, *34*(3), 97–115. https://doi.org/10.1080/01639269.2015.1062584

Howell, D. C. (2012). *Statistical methods for psychology*. Cengage Learning.

Jaquette, O. (2019). Do public universities replace state appropriations with master's students? *The Review of Higher Education*, *42*(3), 1101–1144. https://doi.org/10.1353/rhe.2019.0031

Kaufman, P. T. (2008). The library as strategic investment: Results of the Illinois return on investment study. *LIBER Quarterly: The Journal of the Association of European Research Libraries*, *18*(3-4), 424–436. https://doi.org/10.18352/lq.7941

Lee, D. J., Stvilia, B., Ha, S., & Hahn, D. (2023). The structure and priorities of researchers' scholarly profile maintenance activities: A case of institutional research information management system. *Journal of the Association for Information Science and Technology*, *74*(2), 186–204. https://doi.org/10.1002/asi.24721

Leslie, L. L., Slaughter, S., Taylor, B. J., & Zhang, L. (2011). How do revenue variations affect expenditures within U.S. research universities? *Research in Higher Education*, *53*(6), 614–639. https://doi.org/10.1007/s11162-011-9248-x

Lewis, D. W. (2020). Is scholarly publishing like rock and roll? *Journal of Librarianship and Scholarly Communication*, *8*(1). https://doi.org/10.7710/2162-3309.2333

Lupton, A., & Davidson, C. (2013). Assessing the value of e-resources to York University faculty using the MINES for Libraries protocol: An evolving landscape. *Journal of Web Librarianship*, *7*(4), 422–433. https://doi.org/10.1080/19322909.2013.839849

Metcalf, H., Rolfe, H., Stevens, P., & Weale, M. (2005). Recruitment and retention of academic staff in higher education. *National Institute of Economic and Social Research*.

Miller, A. N., Taylor, S. G., & Bedeian, A. G. (2011). Publish or perish: Academic life as management faculty live it. *Career Development International*, *16*(5), 422–445. https://doi.org/10.1108/13620431111167751

Noh, Y. (2012). The impact of university library resources on university research achievement outputs. *Aslib Proceedings*, *64*(2), 109–133. https://doi.org/10.1108/00012531211215150

Nowell, L. S., Norris, J. M., White, D. E., & Moules, N. J. (2017). Thematic analysis: Striving to meet the trustworthiness criteria. *International Journal of Qualitative Methods*, *16*(1), 1–13. https://doi.org/1609406917733847

Oakleaf, M. (2010). *The value of academic libraries: A comprehensive research review and report.* Association of College & Research Libraries. https://www.ala.org/acrl/sites/ala.org.acrl/files/content/issues/value/val_report.pdf

O'Connor, C., & Joffe, H. (2020). Intercoder reliability in qualitative research: Debates and practical guidelines. *International Journal of Qualitative Methods*, *19*, 1–13. https://doi.org/1609406919899220

Pandita, R., & Singh, S. (2023). Unregulated journal publishing industry: Academia driven to consensual intellectual theft. *DESIDOC Journal of Library & Information Technology*, 43(5), 388–396. https://doi.org/10.14429/djlit.43.5.18586

Pfeffer, J., & Salancik, G. (1978). *The external control of organizations: A resource dependence perspective*. Harper & Row.

Rader, H. B. (2000). Fundraising in academic libraries: The United States experience. *The Bottom Line*, *13*(2), 93–99. https://doi.org/10.1108/08880450010694052

Rawls, M. M. (2015). Looking for links: How faculty research productivity correlates with library investment and why electronic library materials matter most. *Evidence Based Library and Information Practice*, *10*(2), 34–44. https://doi.org/10.18438/B89C70

Rushton, J. P., & Meltzer, S. (1981). Research productivity, university revenue, and scholarly impact (citations) of 169 British, Canadian and United States universities (1977). *Scientometrics*, *3*, 275–303. https://doi.org/10.1007/BF02021122

Ryan, J. F., Healy, R., & Sullivan, J. (2011). Oh, won't you stay? Predictors of faculty intent to leave a public research university. *Higher Education*, *63*(4), 421–437. https://doi.org/10.1007/s10734-011-9448-5

Scheffe, H. (1959). *The analysis of variance*. Wiley.

Tenopir, C. (2010). Measuring the value of the academic library: Return on investment and other value measures. *The Serials Librarian*, *58*(1-4), 39–48. https://doi.org/10.1080/03615261003623005

Tenopir, C. (2011). Beyond usage: Measuring library outcomes and value. *Library Management*, *33*(1/2), 5–13. https://doi.org/10.1108/01435121211203275

White House. (2022, August 25). *OSTP issues guidance to make federally funded research freely available without delay.* https://www.whitehouse.gov/ostp/news-updates/2022/08/25/ostp-issues-guidance-to-make-federally-funded-research-freely-available-without-delay/

Wilson, C. S., & Tenopir, C. (2008). Local citation analysis, publishing and reading patterns: Using multiple methods to evaluate faculty use of an academic library's research collection. *Journal of the American Society for Information Science and Technology*, *59*(9), 1393–1408. https://doi.org/10.1002/asi.20812

Xu, Y., & Wang, Y. (2023). Job stress and university faculty members' life satisfaction: The mediating role of emotional burnout. *Frontiers in Psychology*, *14*, 1111434. https://doi.org/10.3389/fpsyg.2023.1111434

Xu, Z., (2022) Research data management practice in academic libraries. *Journal of Librarianship and Scholarly Communication*, *10*(1), eP13700. https://doi.org/10.31274/jlsc.13700

Appendix A: Survey Questions

Online Survey Questions

ARL Practice Brief Study: Attracting and Retaining Top Researchers and Faculty

University of Texas at Austin, Fall 2019

We are conducting a study to assess the impact of libraries and their collections on the recruitment and retention of faculty members. The study is part of a larger assessment project being undertaken by the Association for Research Libraries and has been approved by the University of Texas at Austin's Institutional Review Board (IRB) under the study number 2019-08-0053.

Participation in this study is voluntary, there are no foreseeable risks to participating in it, and you will not receive any compensation for participating. All responses to this survey are anonymous unless you choose to waive your confidentiality.

By clicking here [link], you are agreeing to participate in the study.

The expected completion time is under 5 minutes.

Please tell us a little about your hiring experience when you came to UT:

1. I had an on-campus visit as part of my hiring process: Yes, No (LOGIC)
    a. If yes, a tour of the library was included in my campus visit: Yes, no
        i. If no, I did not have a library tour but I visited the library on my own: Yes, no
2. I was given information about the UT libraries (verbally, printed or online) during my hiring process: Yes, no
3. I had an opportunity to visit with library personnel during my hiring process: Yes, no
4. I reviewed library website (catalog, journal holdings, online collections, services, etc.) during my hiring process: Yes, no
5. The quality of the UT Libraries collections was a factor in my decision to accept UT's offer: Yes, no, blank fill-in
6. At the time of my hire, I assumed that the UT Libraries had everything I would need for my teaching and research: Yes, no, blank fill-in
7. At the time of my hire, I assumed that the UT Libraries would get anything I needed for my teaching and research on request: Yes, no, blank fill-in

Please tell us a little about your perceptions of or experience library collections since joining UT:

8. The library collections are important to my research efforts: Scale, blank fill-in
    a. Extremely important–Very important–Moderately important–Slightly important–Not at all important–Not applicable
9. The library collections are important to my teaching efforts: Scale, blank fill-in
    a. Extremely important–Very important–Moderately important–Slightly important–Not at all important–Not applicable
10. Compared to previous institutions where I worked (including graduate study), the quality of UT Libraries collections is: scale, blank fill-in
    a. Much better–Somewhat better–About the same–Somewhat worse–Much worse

11. UT Libraries collections met the expectations I had before coming to UT: Scale, blank fill-in
    a. Far exceeds expectations–Exceeds expectations–Equals expectations–Short of expectations–Far short of expectations

Please tell us a little about your future:

12. Since I came to UT, I have been offered positions elsewhere but have declined: Yes, no (LOGIC)
    a. If yes, The quality of the library collection was a factor in my decision: Yes, no, blank fill-in
13. I am actively seeking a position at another institution: Yes, no (LOGIC)
    a. If yes, The quality of the library collection will be a factor in my decision: Yes, no, blank fill-in

Please tell us a little about your professional work:

14. I am currently: non-tenure track, tenure-track, tenured
15. My current rank is: Lecturer, Senior Lecturer, Distinguished Senior Lecturer, Assistant Professor, Associate Professor, Full Professor, Emeritus Professor, Blank fill-in
16. When I was first hired as faculty at UT, I was: non-tenure track, tenure-track, tenured
17. When I was first hired as faculty at UT, my rank was: Lecturer, Senior Lecturer, Distinguished Senior Lecturer, Assistant Professor, Associate Professor, Full Professor, Blank fill-in
18. I identify the disciplinary focus of my work as: Arts & Humanities, STEM, Social Sciences, Blank fill-in
19. I regularly use international and/or foreign language materials in my research or teaching: Yes, No
20. I regularly use archival- and/or special-collections (ex. Ransom Center, Benson Latin American Collection, Alexander Archives, Briscoe Center, etc.) in my research or teaching: Yes, No

Please tell us a little about yourself: [a hover-over explaining "Why are we asking this?" "We are trying to explore how libraries are used as recruitment and retention tools and how that might relate to demographics. All answers on this survey remain anonymous."]

21. I use these gender pronouns: she/her, he/his, they/their, prefer not to say, blank fill-in
22. I identify as: Asian, Black/African, Caucasian/White, Hispanic/Latinx, Native American, Pacific Islander, Prefer not to Answer, Blank fill-in
23. My age is: 30 and under, 31-40, 41-50, 51-60, 61-70, 71 and over, prefer not to say, blank fill-in

If you have comments on the questions we have asked or would like to share other comments related to library collections, please let us know in the box below: blank fill-in

If you would like to follow the results of this study, please provide us with an email so we can contact you. All answers on this survey remain anonymous. Your contact information will be disaggregated from the survey. Blank fill-in

Thank you for your time!

Appendix B: Interview Questions

In Person Interview Questions

ARL Practice Brief Study: Attracting and Retaining Top Researchers and Faculty

University of Texas at Austin, Fall 2019

Theme 1: Research & experience of the interviewee (discipline, rank, etc.)
Questions:

1. Please tell us a little about yourself.
    a. How long have you been at UT?
    b. What position were you first hired into here at UT?
    c. What is your current title & rank?

Theme 2: Understanding of "collections"
Questions:

2. Please briefly describe your current research focus/projects.
3. What research methods do you typically use to conduct your research? (probe for library-related methods and extent of those methods)
4. What kind of information (primary or secondary) do you rely on in your research? (probe for collections and extent of use)
    a. Do you use published materials, either online or in print?
    b. Do you regularly use international and/or foreign language materials in your research or teaching?
    c. Do you regularly use archives and/or special collections in your research or teaching?
5. How do you find and access that information? (is this library collections use? probe for local vs sharing)

Theme 3: Use of collections (how, when)
Questions:

6. When you first came to UT, what was your initial experience with the UT libraries and their collections?
7. How has your teaching and/or research benefitted or been hindered by libraries and their collections? (probe for UT collections)
    a. If benefitted, how?
    b. If hindered, how?
8. Do you usually find the books, journals, and other materials that you are looking for in UT's library (either physical or online)?
    a. If not, how do you overcome this lack of access?
9. In general, how would you compare the quality of UT's library with that of your previous institution?

Theme 4: Recruitment & Retention decision making, including the role of collections in those decisions

Questions:

10. You said earlier that you have been at UT for XXX years. What factors helped you decide to seek employment at UT?
11. Knowing what you know now, would those same factors still take priority in your decision-making? If not, which would you consider now?
12. Please describe your knowledge or expectations of the libraries and its collections before starting at UT.
    a. Potential follow-up: Did you receive any information about the library during your job search or interview process? During an on-site interview, was a tour of the library included in your itinerary? And/or did you visit the library on your own (either physically or online)?
13. What is your awareness and view of the libraries and its collections now?
14. Were you offered "start-up" or "research funds" as part of your hire? If so, what did you use them for?
15. Have you ever considered looking elsewhere for work or have you been recruited elsewhere? If so, what might lure you away and what might make you stay?
    a. Potential follow-up: would the quality of the library have any impact on your decision?

More Alike than Not: The Open Access Preferences of Humanities Scholars

Rachel Elizabeth Scott and Ana Dubnjakovic

Several studies have noted that humanists have not been as quick or enthusiastic in their adoption of Open Access (OA) as their colleagues in other disciplines. This article leverages the Ithaka S+R US 2021 Faculty Survey to provide contextualized analysis of the OA and Open Education Resources (OER) preferences of humanities scholars, as well as some practices related to OA and OER, relative to their colleagues in other disciplines. Findings suggest that although humanists do stand apart in many OA preferences, the small effect sizes render these differences less important than previously suspected. The implications of these findings are considered alongside the lower rates of OA publication among humanists.

Introduction

Interest in Open Access (OA) publishing and teaching with Open Educational Resources (OER) has been thought to be discipline-specific, with the particularities and histories of subject areas defining motivations and incentives. Several studies have investigated the differences between publishing and teaching in the humanities versus the sciences, for example, and demonstrated considerable variations in these activities across disciplinary lines.[1] Although disciplinary differences in teaching, learning, and research persist, the preferences of faculty members across the academic disciplines surrounding OA and OER may not be as divergent as their practices suggest.

The 2021 Ithaka S+R US Faculty Survey provides valuable data on the research, teaching, and publishing practices and beliefs of faculty across disciplines.[2] This study leverages that data to promote a more holistic understanding of how humanities scholars perceive and interact with OA and OER—an understanding that might not be so obvious at a first glance, or even after examining the report accompanying the Ithaka data—and to question if and how these differ from those of faculty in other disciplines. The authors investigate descriptive statistics and conduct inferential statistical analysis of survey questions pertaining to OA and OER in the Ithaka survey by participant discipline to pose the following research questions: do humanists differ in their OA publishing preferences, relative to colleagues in other disciplines, and do humanists differ from colleagues in other disciplines with respect to their preferences for OER? By focusing on the intersection of disciplinarity and open practices in publishing

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and teaching, the authors call into question the extent to which humanists are the outliers the literature has suggested them to be.

Literature Review

Research Practices of Humanist Scholars

Studies of the library and research needs of humanist scholars published in the 1980s and 1990s summarized these needs as: focused on human endeavors and achievements, not those of the physical world; cumulative, unlike science, in which one discovery may supersede the next; occurring in the library or archive and not a laboratory; book-bound, or at least text-bound; less rigid in citation practices; a social, but nonetheless independent or individual endeavor; and subjective rather than objective.[3] In a 1982 study of the research practices and needs of humanist scholars, Stone found that humanists discover sources through their colleagues or casual browsing more than their colleagues in the sciences and asserts that they also engage with and analyze materials differently: "the subjective interaction between the humanist and material is a unique factor."[4] Despite the passing of some decades, the Ithaka 2021 survey and report echo previous findings about how humanist scholars conduct their research. Highlighting, for example, the importance to humanists of recommending materials among colleagues, reading book reviews, and reviewing catalogs or announcements from scholarly publishers compared to their scientist or medical faculty colleagues. Over 50 percent of humanists reported reading book reviews compared to around 30 percent of social scientists and fewer than 20 percent of science and medical scholars.[5]

The importance of the monograph to humanists is well established in the literature and remains integral to their tenure and promotion processes.[6] As a group of book-based fields, the humanities continue to hold publication of a scholarly monograph, and preferably one published by a prestigious scholarly press, as essential. Not only is the monograph the expected publication output, but it is also integral to research and discovery in the humanities. Nearly three quarters of humanists indicated they are "dependent" on browsing physical library materials, for example, compared to 43 percent in social sciences and 28 percent in sciences.[7] Studies have also demonstrated that format preferences in the research process vary by discipline. Dubnjakovic, for example, found that disciplinary differences exert more influence than years of experience on book and journal format preference.[8] The Ithaka Survey similarly documented disciplinary differences in format preferences. Over 70 percent of humanists asserted that "Print versions of scholarly monographs play a very important role in my research and teaching"; all other disciplines favored electronic versions to print.[9]

Several studies have documented disciplinary differences across the humanities. In their report for the Center for Studies in Higher Education, Harley et al. analyzed the scholarly communication practices of seven fields based on tenure and promotion requirements, research dissemination, sharing work and keeping up-to-date, research collaboration, research needs, and engagement with the public to discuss and problematize disciplinary differences.[10] Despite uncovering differences in their extensive reports on archeology, history, and music, they nonetheless reiterated these fields' deep investment in peer-review, monographic publishing, prestigious society publications, archival and field research, single author papers, slower speed to publication, and publications remaining vital after decades. More recent studies affirm that publishing patterns and expectations in the humanities remain different from those in the sciences.[11]

Recent studies have documented the impact of advances in information technology on the research and information seeking practices of humanists. Collins and Jubb conducted interviews and focus groups with humanist scholars in 2011 to explore how technology had influenced their research practices and information needs and learned that humanities scholars are open to using technologies that allow them to work more effectively and that traditional practices remain pervasive.[12] Given and Willson interviewed 20 humanists to discuss their digital research practices and found that digital technologies not only support traditional humanities research but also facilitate new scholarly processes.[13] Although these articles delved into digital projects and digital dissemination of scholarship, they did not engage deeply with the topics of OA publishing or OER. Collins and Jubb noted the potential of OA publishing to make it easier for scholars to share their research, citing PLoS One as an example, but the authors highlight skepticism around OA publishers compared to traditional publishers.[14]

Open Access Publishing in Humanities

Research on OA publishing is rapidly proliferating, and a few large-scale studies have recently confirmed the open-access citation advantage.[15] It is important to note, however, that scholarly practices within the arts and humanities may not allow for large-scale analysis. This is due in part to the underrepresentation of arts and humanities content in citation databases such as Web of Science and a lack unique identifiers (e.g., DOI) that facilitate gathering and analyzing a sufficiently large sample of data.[16] A 2018 report prepared by Science-Metrix identified other challenges to studying OA publications in arts and humanities, namely that they: often lack structured metadata that facilitates automated aggregation; require greater effort to be discovered and harvested; and constitute only a small proportion of the overall number of scholarly papers.[17] The report notes that arts and humanities publication venues are often smaller; include non-English content; have a regional focus; feature fewer authors per paper, which means fewer opportunities for green OA depositing; and lack robust metadata or identifiers that facilitate harvesting. Because of these and other factors, attempts to systematically study humanities OA publishing outputs using scientific methodology require many qualifications and may be stymied.

The 2018 Science-Metrix report found the lowest levels of OA availability in the arts and humanities.[18] Of articles published in 2014, the following percent could be read for free in 2016: health sciences, 59 percent; natural sciences, 55 percent; applied sciences, 47 percent; economic and social sciences, 44 percent; and arts and humanities, 24 percent. Further, green and gold OA were more evenly used in the humanities than in health sciences, where gold dominated and the natural sciences, applied sciences, and economic and social sciences, where green was more prevalent.[19] Although this report did not explore explanations for these discrepancies in OA publishing outputs in much depth, more recent studies have.

Severin et al. synthesized several bibliometric studies on OA publishing across academic disciplines to establish prevalence and patterns.[20] The cross-disciplinary team representing medical sciences, natural and technical sciences, social sciences, humanities, and law discussed "author behaviour and attitudes," "publisher behaviour and policies," "infrastructure of scholarly communication," "structural and institutional factors," and "open access mandates and policies" for each of these areas. The humanities entry summarizes findings of several studies to assert that within the domain: prestige is the primary consideration in selecting a publication venue; concerns about OA publishing are shared by academics and learned

societies; misunderstandings and lack of information about OA publishing are common; OA models that do not rely on author payment are of particular interest; open repositories are of more importance than gold OA journals; embargo periods that acknowledge the longer shelf-life of humanities publications and short-term window for publisher profits is a challenge; hybrid and green OA are the primary means by which to comply with OA mandates; scholar-led OA journal and monograph projects are growing, as are disciplinary OA repositories; relative to science publications, those in humanities are not funded and take longer to produce.[21]

Venues for OA publishing in the humanities differ from those in other areas. Fewer humanities journals, for example, have adopted gold or hybrid OA models that rely on article processing charges (APC). Jörk and Korkeamäki conducted a cross-disciplinary study to investigate the business model of OA publishing and found "lowest share of born OA is in the arts and humanities, with 29 percent."[22] They further suggested "commercial publishers have founded fewer OA journals in the social sciences and humanities, perhaps because they rely on APC income."[23] Tenopir et al. noted that arts and humanities scholars have less funding and are less willing to pay APCs from personal funds than those in different disciplines.[24] Related to payment and funding, a recent study showed that arts and humanities scholars perceive a host of costs associated with OA publishing beyond the financial, namely opportunity, reputational, equity, and time costs.[25] Quigley conducted interviews with scholars in the humanities, arts, and social sciences and found that these scholars hold complex opinions about OA publishing based on their experiences, and sometimes lack of understanding of OA models.[26] Scholars' understanding of OA requirements has also been explored in the literature. Humanities scholars reported the lowest level of familiarity with OA requirements for research data in a recent study, but no statistically significant differences were found between disciplines.[27]

Another element of OA publishing relates to self-depositing work in repositories, whether as preprints or a more final version. The 2021 Ithaka survey shows that humanities scholars lag behind scholars in social sciences, sciences, or medicine in sharing pre-prints of their work.[28] Studies have shown that humanities scholars may be uncomfortable sharing anything besides the version of record and document considerable confusion about which version can safely be posted to which platforms at what time and with which limitations.[29] Some humanities-based societies have cautioned scholars against making their work available OA by depositing it in repositories or doing so without extensive embargoes.[30] Unlike scholars who work with large data sets or computer code, humanities scholars may not be comfortable making iterations or versions publicly available as a matter of course.[31] This may change as humanities journals embrace open peer-review processes and publish versions, reviewer feedback, or commentaries alongside the version of record.

Open Educational Resources in Humanities Teaching

Numerous studies have investigated the quality, cost savings, benefits, and labor of adopting an OER.[32] The impact of OER on student learning and student savings have been perceived as overwhelmingly positive by students and instructors alike.[33] OER have been shown to increase instructors' critical reflection and improve their teaching practices.[34] Scholars have also articulated a variety of concerns about OER or OER adoption. Typical concerns have to do with a perceived infringement on instructor intellectual freedom, the perceived quality of existing OER, or imposing additional labor on instructors to redesign courses, but more

critical authors assert that OER align "with the needs of capital" and consider OER in terms of Foucault's technologies of domination and technologies of the self.[35]

Some recent studies have focused specifically on the adoption of OER or the inclusion of OA resources in their teaching by faculty members within the humanities. Chtena investigated art history faculty to explore their motivations and practices with respect to OER.[36] Chtena summarized their motivations to use OER as: "localizing the curriculum, introducing a wide variety of perspectives, marking art history relevant to students' lives, breaking from the chronological/encyclopedic organization, bringing the museum into the classroom, drawing connections between art history and current events and/or politics, offering updated and timely content."[37] A recent study on the engagement of music scholars with affordable and open educational resources found that it was primarily passive rather than active; few faculty members created content for their classrooms, but many did seek out and incorporate freely available resources to supplement, diversify, and enrich their reading lists.[38] Mathieu et al. discuss using OER to address waning enrollments and increase student engagement and participation in world language courses.[39] A recent case study based on a collaboration between librarians and faculty in English and art history details how digital exhibitions can serve as OER as student learn, curate, and build.[40]

No studies that the authors can identify use inferential statistics to delve into disciplinary differences in OA and OER perspectives; this study aims to fill this gap. By exploring humanities-specific Ithaka 2021 data, the authors highlight reported differences in scholars' open preferences as it relates to their publishing and teaching.

Methods

The Ithaka S+R US Faculty Survey 2021 yielded rich quantitative data on the research, teaching, and publishing practices and beliefs of faculty across disciplines. A sample of 145,099 faculty members were invited to participate in the web survey. Of those, 7,615 completed surveys for an overall response rate of 5.2 percent. The resulting data set was released for download on ICPSR, the Inter-university Consortium for Political and Social Research, March 9, 2023.[41] For librarians, these data provide insight into how faculty engage with information as scholars and teachers and how best to support faculty through the provision of resources and services.

The survey is divided into following sections: Discovery, Access, Research Practices, Research Dissemination, Teaching and Learning, and Role of the Library. Accordingly, the Ithaka data document many elements of faculty preferences and attitudes with respect to OA publishing and OER. The 2018 Ithaka survey marked the first inclusion of questions about OER, which it defined as "teaching, learning, and research materials used for educational purposes that reside in the public domain or have been released under an open license, such as Creative Commons, that permits no-cost access, use, adaptation, and redistribution by others with no or limited restrictions."[42] Faculty discipline, age, institution type, appointment type, and other demographic information are tracked, providing an opportunity to make inferences about these groupings and, occasionally, their intersections. The published report offers limited inferential analysis of OA- and OER-related topics along disciplinary lines, however, and only provides descriptive statistics for selected variables by discipline.

To provide concise analysis of broad differences among disciplines, the authors focused on participants readily identifiable as researchers in the fields of natural and social sciences and the humanities. Researchers working in interdisciplinary fields (e.g., Geography, Women's Stud-

ies, Asian Studies, African American Studies, Public Health, and Slavic Studies) were excluded from the study as no further information regarding their specific subdisciplines was available.

The authors conducted an analysis of variance (ANOVA) test, which evaluates the significant differences among means, allowing for the description of complex relationships among variables. A significant difference means that the observed difference between groups is unlikely to have occurred by chance, indicating a real effect or relationship. A one-way ANOVA was performed to compare the effect of disciplinary membership on the intent to publish and use freely available research, preferences related to open access publishing models, and interest in making and using OER. The authors used SPSS version 22 for statistical analysis; the variables included in the analysis are provided in Appendix A.

Results

As seen in Table 1, there is a statistically significant difference between all groups, indicating that the broad disciplinary membership does influence scholars' view of tested variables. However, the effect sizes ($\eta 2$) were miniscule. For reference, $\eta 2$ values range from 0 to 1, and small effect size ranges from 0.001 to 0.05. Most effect size values in the current sample were significantly below this threshold with the largest at 0.042. This result indicates that although disciplinary differences are present, they are less important than other factors that could be influencing scholars' opinions regarding the studied variables. The *F*-test statistic (*F*) shows the ratio of variances between samples; higher variances occur when individual data points fall further from the mean.

Bonferroni test adjusts the significance level to reduce the likelihood of false positives when making multiple comparisons. It indicates that the mean value of the intent to use freely available research (Q6_4) was statistically significantly different between the humanities and all other disciplinary groups ($p < 0.001$). The p-value measures the probability of obtaining test results at least as extreme as the result observed, under the assumption that the null hypothesis—in

TABLE 1
Between Disciplines Differences ANOVA Results

Measure	Social Sciences	Natural Sciences	Humanities	F (4,26.297)	η2
	M	M	M		
Intent to use free research (Q6_4)	3.55	3.53	3.38	38.30*	0.011
Publication preference: journal free to read (Q13_1)	6.12	6.74	5.78	60.59*	0.019
Publication preference: journal free to publish (Q13_2)	8.20	7.59	8.11	30.33*	0.010
Preprints important for sharing research (Q14_1)	5.34	5.80	4.27	133.35*	0.042
Publishers less important due to sharing (Q14_2)	4.70	4.60	4.17	21.43*	0.007
Preference for OA only future (Q14_5)	7.72	7.69	7.33	12.99*	0.004
Prefer low/no cost course materials (Q29_1)	3.48	3.41	3.52	9.96*	0.003
Interest in using OER(Q34_5)	5.21	5.31	5.1	9.66*	0.003
Difficulty locating OER (Q34_2)	4.32	4.17	4.37	10.97*	0.003
Interest in creating OER (34_4)	3.96	4.00	4.02	0.664	n/a
*p< 0.001					

this case, that there is no relationship between disciplinary groups in terms of OA and OER perspectives—is correct. However, the mean differences were modest (< 0.2) and the effect size was small (η2 = 0.011). Although it seems that humanities faculty might be less inclined to use free research, this difference was negligible. On the face of this evidence, humanists' intent to use freely available research is similar to scholars in other disciplines. This could be a part of a trend or simply a function of how the survey question was worded. Comparable results were found among all other variables of interest with the following exceptions. Preprint importance (Q14_1) as a vehicle for research dissemination seemed much less important to humanists than social scientists (< 1.13) and natural scientists (< 1.53) with the largest mean differences. In contrast, mean differences between humanists and social scientists when it comes to preference for journals that do not charge authors to publish OA (Q13_2) were not statistically significant, indicating the possible complete absence of disciplinary differences in this area.

Given the minuscule differences in reported OA and OER preferences and practices based on discipline, the authors investigated potential differences based on age group and functional roles (i.e., participants' identification as primarily researcher or teacher). As seen in Tables 2 and 3, the mean differences and the effect sizes were similarly small, suggesting that age group and functional role also do not have an important relationship to OA and OER practices and preferences.

The Ithaka survey separates researchers into four age groups (1 = 22-44; 2 = 45-54; 3 = 55-64; 4 = 65+). Two-hundred ninety-five researchers or 3.9 percent of the total sample chose not to answer this question and were excluded from the subsequent analyses. Looking at the age groups, a pattern akin to disciplinary differences emerges. Although statistically significant, the mean differences and effect sizes across the board are small. The most significant exists among the youngest group's slightly larger preference for an OA only future (Q14_5) and their perhaps paradoxical largest propensity to report difficulties locating OERs (Q34_2). However, even these differences, while statistically significant, were small.

TABLE 2
Age Group Differences ANOVA Results

Measure	Ages 22-44	Ages 45-54	Ages 55-64	Ages 65+	F (4,26.297)	η2
	M	M	M	M		
Intent to use free research (Q6_4)	3.55	3.48	3.47	3.44	7.33*	0.003
Publication preference: free to read (Q13_1)	6.01	6.03	6.14	6.63	13.59*	0.007
Publication preference: journal free to publish (Q13_2)	7.93	8.09	8.02	7.86	2.15	0.001
Preprints important for sharing research (Q14_1)	5.39	4.86	4.96	5.17	8.47*	0.004
Publishers less important due to sharing (Q14_2)	4.70	4.31	4.43	4.43	5.35*	0.003
Preference for OA only future (Q14_5)	8.18	7.63	7.40	7.18	36.96*	0.018
Prefer low/no cost course materials (Q29_1)	3.55	3.53	3.47	3.35	17.36*	0.009
Interest in using OER (Q34_5)	4.41	4.50	4.26	4.00	28.88*	0.013
Difficulty locating OER (Q34_2)	5.47	5.31	5.13	4.89	40.61*	0.018
Interest in creating OER (Q34_4)	4.29	4.04	3.96	3.70	26.88*	0.012
*p<0.001						

TABLE 3
Functional Role Continuum from Researcher (R) to Teacher (t) Differences ANOVA Results

Measure	R	R/T	Both	T/R	T	F (4,26.297)	η2
	M	M	M	M	M		
Intent to use free research (Q6_4)	3.51	3.49	3.48	3.49	3.47	0.37	0.000
Publication preference: Journal free to read (Q13_1)	6.00	5.99	6.22	6.28	6.34	2.96*	0.002
Publication preference: Journal free to publish (Q13_2)	7.18	7.76	8.22	8.23	7.95	24.87*	0.016
Preprints important for sharing research (Q14_1)	5.58	5.60	5.14	4.83	4.24	36.02*	0.022
Publishers less important due to sharing (Q14_2)	4.23	4.40	4.32	4.59	4.87	8.88*	0.006
Preference for OA only future (Q14_5)	7.33	7.30	7.63	7.64	7.81	5.93*	0.004
Prefer low/no cost course materials (Q29_1)	3.26	3.42	3.52	3.51	3.49	12.22*	0.008
Interest in using OER (Q34_5)	4.72	5.07	5.18	5.36	5.35	53.14*	0.013
Difficulty locating OER (Q34_2)	4.12	4.28	4.28	4.41	4.33	8.94*	0.002
Interest in creating OER (Q34_4)	3.49	3.89	4.02	4.19	4.04	15.11*	0.009
*p<0.001							

The Ithaka survey asks respondents to identify as a researcher versus a teacher on a spectrum, resulting in five groupings (researcher, R; researcher more than teacher, R/T; both; teacher more than researcher, T/R; teacher, T). As seen in Table 3, using these groupings as factors in ANOVA analyses produced similar results. Differences among groups were statistically significant, but the mean differences and the effect sizes were minimal, indicating that the functional role makes little difference when it comes to engaging with OA and OER.

As a final attempt to find some attribute that had a significant relationship to OA and OER preferences and practices, the authors used the professional responsibility "post-award grant/sponsorship administrative and compliance activities" as factors in the t-test analysis. Results indicate that, although all analyses except for the intent to use free research (Q 6_4) were significant, the mean differences and the effect sizes across the board were small, indicating that these factors had minor impact on the variables included in the analysis.

Limitations

Although the results were made available via ICPSR less than one year before the time this paper was submitted for review, the authors acknowledge that the scholarly communication landscape moves quickly, especially in the wake of the COVID-19 global pandemic. The authors further acknowledge the limitation of using secondary data to pose new research questions. Finally, only selected variables were analyzed, and this study accordingly cannot claim to be a comprehensive analysis of OA and OER in the 2021 Ithaka S+R Survey.

Discussion

Research Question 1. Do humanists differ in their OA publishing preferences, relative to colleagues in other disciplines?

Although Ithaka survey results indicate that humanists make more extensive use of library collections and less use of "materials that are freely available online" (Q6_4) than all other disciplines, ANOVA results indicate that differences in the importance of freely avail-

able online materials between disciplinary groups are in fact trivial. Slight differences in this practice do not suggest an aversion to freely available materials online among humanists. Indeed, the means for all three disciplinary groups indicate that this use is somewhere between occasional and often.

Survey participants were asked about the relative importance of OA in the selection of journal venues and specifically whether the journal's articles were free to read (Q13_1) or free to publish ("The journal permits scholars to publish articles for free, without paying page or article charges" Q13_2). Whether articles are free to read was of least importance to humanists, although all three disciplinary groups were somewhat ambivalent about this issue since their means were towards the middle of the ten-point scale. Humanists' relative dependence on library collections, mentioned in the literature review, offers one explanation for this slight difference.[43]

Publishing articles for free, however, was something that both humanists and social scientists rated as highly important.[44] The finding that humanists and social scientists assigned higher importance to cost-free OA publishing than scientists aligns with previous studies.[45] ANOVA results, however, indicate that disciplinary differences are in fact quite small. Again, this result makes sense because all respondents—including natural scientists—preferred publishing in journals that do not charge authors to publish their work open access.

More meaningful differences were discovered in questions related to research dissemination outside of formal publishing systems. The question of whether sharing pre-prints "is an important way for me to communicate my research findings with my peers" (Q14_1) elicited statistically significant differences between humanities and science scholars. Although the largest effect size (at 0.042), it still falls within the category of small effect. As noted in the literature review, humanists do not share a culture of iteration that is more common in some sciences and they may be uncomfortable sharing anything other than the publisher's version of record.[46] There is less buy-in for using preprint servers in the humanities than in sciences such as physics and mathematics, for example, who have long used arXiv.org for this purpose. Additionally, the importance of rapid scholarship dissemination in natural sciences might offer another explanation for this preference.[47]

Humanists were less likely than scholars in the sciences to suggest that "scholarly publishers have been rendered less important to my process of communicating scholarly knowledge by my increasing ability to share my work directly with peers online" (Q14_2) or that they would welcome the replacement of the traditional, subscription-based publication model with an OA model (Q14_5). Indeed, with a mean of approximately four, on a scale from one to 10, on the question of traditional publishers' importance as a way to share research, the more striking discovery is that all researchers regardless of discipline showed marked reluctance to move away from the publisher model. Even more surprisingly, despite this result, with a mean of about eight, all researchers regardless of discipline were happy for OA to replace the subscription-based model. On the face of the evidence, the only conclusion that makes sense is that the researchers prefer to officially publish their studies through mechanisms that ensure they receive appropriate credit. This would align with literature that suggests that authors select journals based not on OA status but rather on the venue's prestige, readership, and impact.[48]

Research Question 2. Do humanists differ from colleagues in other disciplines with respect to their preferences for OER?

When designing undergraduate courses, humanists report giving preference to assigning course materials that are low or no cost, available through the library, and "center historically underrepresented voices" (Q29_1, 2, and 3) more than any other group. These preferences relate to the use of OER, which is investigated explicitly in Q34. Respondents are asked, among other questions, about locating OER (Q34_2) and interest in creating (Q34_4) and using OER (Q34_5). At only 0.003, the effect sizes are quite small. Indeed, disciplinary differences in interest in creating OER were not statistically different, indicating these differences among disciplines in the OER interest and identification are marginal or not present at all. Furthermore, all disciplines report strong interest in using OERs in instruction and relatively low levels of discomfort locating these sources.

More than disciplinary differences, personal and professional factors likely contribute to differences in OER engagement. As reported in the literature review, OER offers a host of benefits, including incorporating diverse perspectives, responding to timely events, making the curriculum local and relevant, and breaking from traditional presentations of text, among others.[49] Despite these broadly acknowledged benefits, however, OER adoption and creation require a considerable amount of labor for faculty who must restructure their courses and rewrite assignments and assessments.[50] Given such strong benefits and obstacles to using OER, it is not surprising that age and functional role as teacher versus researcher played such a minor role in predicting OER interest; the labor entailed in creating and adopting OER must be offset by personally meaningful incentives and rewards.

Conclusion

As the first study to explicitly interrogate the 2021 Ithaka S+R Faculty Survey for differences in OA and OER preferences among disciplines, this study provides novel results suggesting that humanists are more like their colleagues than not. Although descriptive statistics show differences in how humanists perceive and interact with OA and OER, analysis of these differences reveal them to be marginal rather than foundational. Research and teaching practices in the humanities have evolved differently than those in other fields of study, but it does not seem that disciplinarity specifically precludes OA and OER, at least not with respect to preferences.

Although the authors initially suspected that disciplinary differences would be evident in the OA and OER preferences of scholars—as is clearly documented with respect to their practices[51]—this was not supported by the data. Similarly, differences in OA and OER preferences based on age, functional role of researcher or teacher, and grant funding were not evident. Despite research demonstrating differences in OA publishing practices along disciplines, age, and grant-funding,[52] the findings outlined in this paper reiterate that preferences and practices cannot be conflated. A desire to engage with OA and OER may not translate into opportunities and decisions to do so.

As OA and OER continue to evolve, the landscape will only grow more complex. The diversification of publishing options and dissolution of traditional formats poses opportunities and challenges in all disciplines. Movements in the humanities, such as digital humanities and public humanities, have considerable implications for how scholars share their research and teach their students. If librarians wish to ensure the centrality of their support to humanistic research, they would do well to understand disciplinary trends at local and global scales. This article highlights an important consideration for librarians supporting humanities researchers: despite differences in practices, humanists hold similarly positive preferences concerning OA and OER as their colleagues and may need additional support to translate preference into practice.

Appendix A. Questions from the 2021 Ithaka S+R Faculty Survey Questionnaire included in the Analysis

Q6: When you want a scholarly monograph or journal article that you do not have immediate access to through your college or university library's physical or digital collections, how often do you use each of the following methods to seek access to that material?

- Search for a freely available version online (Q6_4): Often (4), Occasionally (3), Rarely (2), Never (1)

NEWQ7. Please indicate which, if any, of the following are among your professional responsibilities.

- Research fund-raising and grant proposal creation (Q7_7): Yes (1), No (2)
- Post-award grant/sponsorship administrative and compliance activities (e.g., research ethics and safety, Title IX, budgetary management, program reviews) (Q7_8): Yes (1), No (2)

Q13. When it comes to influencing your decisions about academic journals in which to publish an article of yours, how important to you is each of the following characteristics?

- The journal makes its articles freely available on the internet, so there is no cost to purchase or read (Q13_1): Extremely important 10 (10), 9 (9), 8 (8), 7 (7), 6 (6), 5 (5), 4 (4), 3 (3), 2 (2), Not at all important 1 (1)
- The journal permits scholars to publish articles for free, without paying page or article charges (Q13_2): Extremely important 10 (10), 9 (9), 8 (8), 7 (7), 6 (6), 5 (5), 4 (4), 3 (3), 2 (2), Not at all important 1 (1)

Q14. Please use the 10 to 1 scale below to indicate how well each statement describes your point of view.

- Circulating pre-print versions of my research outputs is an important way for me to communicate my research findings with my peers (Q14_1): Extremely well 10 (10), 9 (9), 8 (8), 7 (7), 6 (6), 5 (5), 4 (4), 3 (3), 2 (2), Not well at all 1 (1)
- Scholarly publishers have been rendered less important to my process of communicating scholarly knowledge by my increasing ability to share my work directly with peers online (Q14_2): Extremely well 10 (10), 9 (9), 8 (8), 7 (7), 6 (6), 5 (5), 4 (4), 3 (3), 2 (2), Not well at all 1 (1)
- I would be happy to see the traditional subscription-based publication model replaced entirely by an open access publication system in which all scholarly research outputs would be freely available to the public (Q14_5): Extremely well 10 (10), 9 (9), 8 (8), 7 (7), 6 (6), 5 (5), 4 (4), 3 (3), 2 (2), Not well at all 1 (1)

Q29: In general, how often do you perform each of the following when designing or structuring your undergraduate courses?

- Give preference to assigning course texts or materials that are low or no cost (Q29_1): Often (4), Occasionally (3), Rarely (2), Never (1)
- Give preference to assigning course texts or materials that are available through the library (Q29_2): Often (4), Occasionally (3), Rarely (2), Never (1)

Q34: Please read the following statements and indicate the degree to which you agree or disagree with each.

- I find it difficult to locate open educational resources for my teaching (Q34_2): Strongly agree (7), Agree (6), Somewhat agree (5), Neither agree nor disagree (4), Somewhat dis-

agree (3), Disagree (2), Strongly disagree (1)

- I am interested in creating and publishing open educational resources (Q34_4): Strongly agree (7), Agree (6), Somewhat agree (5), Neither agree nor disagree (4), Somewhat disagree (3), Disagree (2), Strongly disagree (1)
- I am interested in using open educational resources in my teaching (Q34_5): Strongly agree (7), Agree (6), Somewhat agree (5), Neither agree nor disagree (4), Somewhat disagree (3), Disagree (2), Strongly disagree (1)

D3. Do you think of yourself primarily as a researcher, primarily as a teacher, or somewhere in between?

- Much more as a researcher than as a teacher (1), Somewhat more as a researcher than as a teacher (2), About equally as a researcher and a teacher (3), Somewhat more as a teacher than as a researcher (4), Much more as a teacher than as a researcher (5)

D5. What is your age?

- 22 to 44 (1), 45 to 54 (2), 55 to 64 (3), 65 and over (4), I prefer not to answer this question (5)

Notes

1. See, for example, Thomas Franssen and Paul Wouters, "Science and Its Significant Other: Representing the Humanities in Bibliometric Scholarship," *Journal of the Association for Information Science and Technology* 70, no. 10 (2019): 1124–37. https://doi.org/10.1002/asi.24206; Howard R. Pollio, "The Two Cultures of Pedagogy: Teaching and Learning in the Natural Sciences and the Humanities," *Teaching Learning Issues* 75 (1996): 4–31.

2. The report is available as Melissa Blankstein, "Ithaka S+R US Faculty Survey 2021," *Ithaka S+R*. Last Modified 14 July 2022. https://doi.org/10.18665/sr.316896; the data are available as Melissa Blankstein and Ithaka S+R. Ithaka S+R Faculty Survey, United States, 2021. Inter-university Consortium for Political and Social Research [distributor], 2023-03-09. https://doi.org/10.3886/ICPSR38593.v1.

3. Karl J. Weintraub, "The Humanistic Scholar and the Library," *Library Quarterly* 50, no. 1 (1980): 22–39. https://www.jstor.org/stable/4307181; Eugene Garfield, "Is Information Retrieval in the Arts and Sciences Inherently Different from That in Science? The Effect That ISI®'s Citation Index for the Arts and Humanities Is Expected to Have on Future Scholarship" *Library Quarterly* 50, no. 1 (1980): 40–57. https://www.jstor.org/stable/4307182; Sue Stone, "Humanities Scholars: Information Needs and Uses," *Journal of Documentation* 38, no. 4 (1982): 292–313. https://doi.org/10.1108/eb026734; Rebecca Watson-Boone, "Information Needs and Habits of Humanities Scholars," *Reference Quarterly* 34, no. 2 (1994): 203–216; Stephen E. Wiberley and William G. Jones, "Patterns of Information Seeking in the Humanities," *College and Research Libraries* 50, no. 6 (1989): 638–45. https://doi.org/10.5860/crl_50_06_638.

4. Stone, "Humanities Scholars: Information Needs and Uses," 303-4.

5. Ithaka S+R US Faculty Survey 2021 Report, 18.

6. Peter Williams, Iain Stevenson, David Nicholas, Anthony Watkinson, and Ian Rowlands conducted seventeen interviews with academics in arts and humanities for "The Role and Future of the Monograph in Arts and Humanities Research," *Aslib Proceedings*, 61, no. 1 (2009): 67–82, https://doi.org/10.1108/00012530910932294.

7. Eunice Schroeder, Janet Martorana, and Chris Granatino, "Building Faculty Support for Remote Storage: A Survey of Collection Behaviors and Preferences," *Collection Management* 38, no. 4 (2013): 301–320. https://doi.org/10.1080/01462679.2013.841603.

8. Ana Dubnjakovic, "The Effects of Discipline Membership and Experience in the Field on Scholars' Book and Journal Format Preferences," *Collection Management*, 45, no. 2 (2020): 162–78, https://doi.org/10.1080/01462679.2019.1669251.

9. Ithaka S+R US Faculty Survey 2021, 24.

10. Diane Harley, Sophia Krzys Acord, Sarah Earl-Novell, Shannon Lawrence, and C. Judson King, "Assessing the Future of Landscape of Scholarly Communication: An Exploration of Faculty Values and Needs in Seven Disciplines," (The Center for Studies in Higher Education, 2010), 545, accessed February 3, 2024, https://escholarship.org/uc/item/15x7385g#.

11. Bo-Christer Jörk and Timo Korkeamäki, "Adoption of the Open Access Business Model in Scientific Journal Publishing: A Cross-Disciplinary Study," *College & Research Libraries* 81, no. 7 (2020): 1080–94, 1089. https://doi.org/10.5860/crl.81.7.1080.

12. Ellen Collins and Michael Jubb, "How Do Researchers in the Humanities Use Information Resources?" *LIBER Quarterly* 21, 2 (2012): 176–87, https://doi.org/10.18352/lq.8017.

13. Lisa M. Given and Rebekah Willson, "Information Technology and the Humanities Scholar: Documenting Digital Research Practices," *Journal of the Association for Information Science and Technology* 69, no. 6 (2018): 807–19. https://doi.org/10.1002/asi.24008.

14. Collins and Jubb, "How Do Researchers in the Humanities," 178.

15. Heather Piwowar, Jason Priem, Vincent Larivière, Juan Pablo Alperin, Lisa Matthias, Bree Norlander, Ashley Farley, Jevin West, and Stefanie Haustein, "The State of OA: a Large-Scale Analysis of the Prevalence and Impact of Open Access Articles," *PeerJ* 6 (2018): e4375, https://doi.org/10.7717/peerj.4375.

16. Piwowar et al., "The State of OA," 10: "Analyzing results on the level of NSF disciplines, data is not shown for the Humanities (n = 1,091) and Arts (n = 164), because they are underrepresented both in the Web of Science and in terms of DOI coverage."

17. Science-Metrix, "Analytical Support for Bibliometrics Indicators. Open Access Availability of Scientific Publications. Final Report," January 2018. https://www.science-metrix.com/sites/default/files/science-metrix/publications/science-metrix_open_access_availability_scientific_publications_report.pdf, at 26.

18. Science-Metrix, "Analytical Support for Bibliometrics Indicators."

19. Science-Metrix, "Analytical Support for Bibliometrics Indicators."

20. Anna Severin, Matthia Egger, Martin Paul Eve, and Daniel Hürlimann, "Discipline-Specific Open Access Publishing Practices and Barriers to Change: An Evidence-Based Review," *F1000Research* 2020, 7:1925, https://doi.org/10.12688/f1000research.17328.2.

21. Severin et al., "Discipline-specific Open Access," 15–16.

22. Jörk and Korkeamäki, "Adoption of the Open Access Business Model," 1091.

23. Jörk and Korkeamäki, "Adoption of the Open Access Business Model," 1091.

24. Carol Tenopir, Elizabeth D. Dalton, Lisa Christian, Misty K. Jones, Mark McCabe, MacKenzie Smith, and Allison Fish, "Imagining a Gold Open Access Future: Attitudes, Behaviors, and Funding Scenarios among Authors of Academic Scholarship," *College & Research Libraries* 78, no. 6 (2017): 824–43, https://doi.org/10.5860/crl.78.6.824.

25. Lindsey Skaggs, Rachel Scott, and Colby Cilento, "Not Just Monetary: Arts and Humanities Scholars' Perspectives on the Costs of Open Access Publishing," *College & Research Libraries* (forthcoming, May 2026), https://ir.library.illinoisstate.edu/fpml/268

26. Niamh Quigley, "Open Access in the Humanities, Arts and Social Sciences: Complex Perceptions of Researchers and Implications for Research Support," *Liber Quarterly: The Journal of European Research Libraries* 31 (2021): 1–23. https://doi.org/10.53377/lq.10937.

27. Heidi Enwald, Vincas Grigas, Jurgita Rudžionienė, and Terttu Kortelainen, "Data Sharing Practices in Open Access Mode: a Study of the Willingness to Share Data in Different Disciplines," *Information Research*, 27, no. 2 (2022), paper 932. https://doi.org/10.47989/irpaper932.

28. 2021 Ithaka survey, 39.

29. Rachel E. Scott and Anne Shelley, "Music Scholars and Open Access Publishing," *Notes* 79, no. 2 (2022): 149–78. https://doi.org/10.1353/not.2022.0093.

30. The American Historical Association, for example, notoriously recommended the embargoing of dissertations up to six years. This was because "an increasing number of university presses are reluctant to offer a publishing contract to newly minted PhDs whose dissertations have been freely available via online sources." AHA, "Statement on Policies Regarding the Embargoing of Completed History PHD Dissertations," https://www.historians.org/publications-and-directories/perspectives-on-history/september-2013/statement-on-policies-regarding-the-embargoing-of-completed-history-phd-dissertations.

31. Rachel E. Scott, Julie A. Murphy, Cassie Thayer-Styes, Chad E. Buckley, and Anne Shelley, "Exploring Faculty Perspectives on Open Access at a Medium-sized, American Doctoral University," *Insights: The UKSG Journal* 36, no 1 (2023): 14. https://doi.org/10.1629/uksg.620.

32. Shanna Smith Jaggars, Kaity Prieto, Marcos D. Rivera, and Amanda L. Folk, "Using Affordable Course Materials: Instructors' Motivations, Approaches, and Outcomes," *portal: Libraries and the Academy* 22, no. 2 (2022): 305–334. https://doi.org/10.1353/pla.2022.0019; Tanya Spilovoy, Jeff Seaman, and Nate Ralph, "The Impact of OER Initiatives on Faculty Selection of Classroom Materials" (Bay View Analytics, 2020), https://www.bayviewanalytics.com/reports/impactofoerinitiatives.pdf; Troy Martin and Royce Kimmons, "Faculty Members' Lived Experiences with Choosing Open Educational Resources," *Open Praxis* 12, no. 1 (2020): 131–44, http://doi.org/10.5944/openpraxis.12.1.987; Rachel Elizabeth Scott, Anne Shelley, Julie Murphy, Rachel Park, and Mallory Jallas, "Exploring Faculty Perspectives on Text Selection and Textbook Affordability," *College & Research Libraries* 84, no. 2 (2023): 180-202. https://doi.org/10.5860/crl.84.2.180.

33. John Hilton, "Open Educational Resources, Student Efficacy, and User Perceptions: a Synthesis of Research Published Between 2015 and 2018," *Educational Technology Research and Development* 68, no. 3 (2020): 853–876. https://doi.org/10.1007/s11423-019-09700-4.

34. Martin Weller, Bea De los Arcos, Rob Farrow, Beck Pitt, and Patrick McAndrew, "The Impact of OER on Teaching and Learning Practice," *Open Praxis* 7, no. 4 (2015): 351–61. https://search.informit.org/doi/10.3316/informit.663878263374139.

35. For example, see Jeremy Knox, "Five Critiques of the Open Educational Resources Movement," *Teaching in Higher Education* 18, no. 8 (2013):821–832. https://doi.org/10.1080/13562517.2013.774354.

36. Natascha Chtena, ""Opening" Art History: Exploring the Motivations and Practices of Faculty using Open Educational Resources in Lower-Level and General Education Art History Courses," *Journal of Interactive Media in Education* 2021, no. 1 (2021). https://doi.org/10.5334/jime.677.

37. Chtena, ""Opening" Art History," 6.

38. Rachel E. Scott and Anne Shelley, "'Having a Textbook Locks Me into a Particular Narrative': Affordable and Open Educational Resources in Music Higher Education," *Notes* 79, no. 3 (2023): 303–34. https://doi.org/10.1353/not.2023.0000.

39. Lionel Mathieu, Kathryn Murphy-Judy, Robert Godwin-Jones, Laura Middlebrooks, and Natalia Boykova, "Learning in the Open: Integrating Language and Culture through Student Curation, Virtual Exchange, and OER" In *New Case Studies of Openness in and Beyond the Language Classroom,* ed. A. Beaven, and B. Sawhill (2019): 65–82.

40. Elizabeth Bassett, Heather Dean, Andrea Korda, Mary Elizabeth Leighton, and Vanessa Warne, "Getting Scrappy in the Classroom During COVID-19: Collaboration, Open Educational Resources, and Hands-on Learning for Humanities Students," *KULA: Knowledge Creation, Dissemination, and Preservation Studies* 6, no. 1 (2022): 1–18, http://dx.doi.org/10.18357/kula.222.

41. Melissa Blankstein and Ithaka S+R, Ithaka S+R Faculty Survey, United States, 2021 (ICPSR 38593) Inter-university Consortium for Political and Social Research [distributor], https://doi.org/10.3886/ICPSR38593.v1.

42. Ithaka, 2018 Faculty Survey, https://sr.ithaka.org/wp-content/uploads/2019/03/SR-Report-US-Faculty-Survey-2018-04122019.pdf, 46.

43. Schroeder, Martorana, and Granatino, "Building Faculty Support for Remote Storage"; Ithaka S+R Faculty 2021 Survey Report.

44. Ithaka S+R Faculty Survey, United States, 2021, 44.

45. Severin, Egger, Eve, and Hürlimann, "Discipline-specific Open Access Publishing Practices and Barriers to Change"; Tenopir, Dalton, Christian, Jones, McCabe, Smith, and Fish, "Imagining a Gold Open Access Future."

46. Scott et al., "Exploring Faculty Perspectives on Open Access."

47. Severin et al., "Discipline-specific Open Access."

48. Severin et al., "Discipline-specific Open Access."

49. Chtena, "'Opening' Art History."

50. Scott and Shelley, "'Having a Textbook Locks Me into a Particular Narrative.'"

51. See, for example, Jörk and Korkeamäki, "Adoption of the Open Access Business Model in Scientific Journal Publishing."

52. Anthony J. Olejniczak and Molly J. Wilson, "Who's Writing Open Access (OA) Articles? Characteristics of OA Authors at Ph. D.-Granting Institutions in the United States," *Quantitative Science Studies* 1, no. 4 (2020): 1429–50. https://doi.org/10.1162/qss_a_00091.

Transfer Student Expectations for Affordable Course Materials

Zach Welhouse, Beth Filar Williams, and Stefanie Buck

This qualitative study examines transfer-related course material affordability challenges faced by undergraduate students at our four-year university. Due to their diverse educational backgrounds and previous exposure to low-cost course materials, transfer students from community colleges have different needs than traditional first-year students. Through focus groups, student surveys, and outreach, we determine that academic librarians at four-year institutions can help ease students' transition through flexible, targeted outreach and by partnering with other units on campus. We conclude with a discussion of actions librarians have taken at our institution and recommendations for librarians at other institutions.

Introduction

Undergraduate transfer students are an underserved population on many university campuses, partially because their demographic is resistant to generalization. Despite their prior experiences with higher education, transfer students often miss social-academic activities designed to connect first-year students with institutional knowledge and social support networks. Inconsistency of information, support, and processes across colleges impedes transfer students from navigating courses (Robison et al., 2020). The transition to a four-year institution often results in transfer shock, a widely noted decrease in students' GPAs the semester following transfer to a four-year college or university (Cedja, 2006; Wang et al., 2021). This article uses the expanded definition of transfer shock employed by Rhine et al. (2010), which also includes other academic and social factors that limit transfer students' likelihood of attaining a bachelor's degree.

Affordability-related transfer shock is especially concerning at Oregon State University, where only about 30% of the classes in the spring 2024 course catalog were low- or no-cost. Statewide adoption of the low- and no-cost course designation stems from Oregon HB 2871 "Relating to higher education; and declaring an emergency," which mandates every public university and community college indicate in its course catalog which courses' "materials exclusively consist of open or free textbooks or other low-cost or no-cost course materials." The house bill also established a statewide OER grant program (2015). By 2023 the grant program saved Oregon students $24,352,296—or about $12 in student savings per program dollar spent.

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(Hofer, 2023). Oregon students have legislative support for low- and no-cost materials, but the availability of these materials varies across institutions. While students at many Oregon community colleges benefit from active, well-funded OER programs, their four-year colleges have greater course material costs. Addressing the challenges faced by transfer students is an important step in establishing campus-wide equity. The fall 2016 cohort of first-time college students in the United States had a six-year transfer rate of 31.2% (Shapiro et al., 2024). In 2022, 31% of our university's new undergraduate students transferred from community colleges within Oregon alone (Oregon State University Office of Institutional Research, 2022).

The academic library can help ease transfer shock. Libraries have implemented many solutions to promote transfer student success, including hiring a transfer student librarian, teaching information literacy courses for transfer students, and partnering with other units on campus for transfer student outreach (Coats & Pemberton, 2017; Roberts et al., 2019; Fawley et al., 2021). Libraries also help by supporting affordability initiatives and providing access to course materials.

In this study, we explore what undergraduate students who transferred to our university from other Oregon institutions know about acquiring affordable course materials and how this process impacts their academic success. We employed structured focus groups to examine student familiarity with library services and whether they expected course materials to be free or low-cost based on their experiences at previous institutions. We also explore the institutional and financial needs of transfer students on our campus and how academic libraries and campus partners can support these needs in their own institutions through strategic approaches to messaging, program development, and engagement in affordability initiatives.

Literature Review

Transfer Student Success and Library Services

Transfer students are a complex group, different from one another in many ways—from major to age—with one commonality: having transferred from another college. Many articles exist about transfer students, but there are far fewer on their experiences in the library, most of which were collected in the double issue of *Reference Services Review* edited by Ivins in 2017 and *Transfer Student Success* in 2021, edited by Fawley et al. Ivins' guest-edited double issue covers university-wide initiatives with library participation, unique services by libraries, information literacy needs for transfer students, and several extensive literature reviews. The book, edited by Fawley et al., covers orientation and outreach engagements, classroom and cocurricular efforts, and increasing transfer student capital.

Laanan et al. (2010) define transfer student capital as the experiences and knowledge that community college students use to navigate the transition to four-year institutions. This knowledge can be leveraged by schools that promote a "relentless welcome," building connections for transfer students across campus, and working toward more transparent systems and structures (Wang et al., 2021).

The University of Washington Libraries approached the promotion of transfer student capital with a design thinking method in a year-long project focusing on the needs and challenges of transfer students to their Seattle campus (Whang et al., 2021). Whang et al. found transfer students differ from their traditional counterparts in that they tended to be older, had more commitments to work and family, as well as greater pressure to complete their degrees within a shortened timeline. Heinbach et al. (2019) agreed, identifying the three key challenges

for transfer students: institutional barriers, feelings of not belonging, and external demands. With these challenges in mind, transfer students often have less time to devote to figuring out or participating in events to understand the often large, decentralized campus resources.

A study at University of Colorado Boulder Libraries uncovered that most transfer students had strong emotional memories of K-12 and public libraries from their youth, including nostalgia for the spaces and specific librarians. They felt the libraries helped foster a feeling of connectedness to others on campus (Roberts et al., 2021). In addition to the positive feeling from past library experiences, and their self-sufficiency and resourcefulness, transfer students often have the perception they *should* know more about academic libraries (and broader campus life) because of their prior experience in college. Paradoxically, they might not seek out necessary help (Whang et al., 2017).

Educational barriers common to adult learners (i.e., students 23 or older) often overlap with transfer students' experiences with higher education. Osam et al. identified impediments to adult learners' educations, including institutional barriers created by schools' focus on traditional students and situational barriers including family and financial responsibilities (2017). Furthermore, like transfer students, adult learners contextualize college education within previous experiences. However, while all transfer students have prior higher education to draw upon, theories of adult learning tend to focus on adult learners' life and employment experience (Chen 2017). As our data suggests, many transfer students are not adult learners. Likewise, not all adult learners are transfer students.

Transfer students are not simply older first-year students, as their previous experiences inform their present. Students who transfer are as likely to graduate as direct-entry students (Xu, 2018) and are among the most motivated and resilient college students. They are used to working through structural barriers. However, they are also negatively impacted by transfer shock and targeted by deficient thinking from universities. Vincent Tinto, a prominent researcher of student retention and learning communities, puts forth two factors for transfer students to successfully recover from this shock: 1) academic integration and 2) social integration (1975). Academic integration includes structural issues like confusing or weak transfer and articulation policies, inaccurate advising or lack of transfer advisors, lack of academic preparedness, and student unfamiliarity with the expectations of their new institution (Laanan et al., 2010; Rhine et al., 2010). Libraries are especially well situated to address social integration issues, which provide transfer students with peer support networks, through actions like transfer-student-only orientations and tours, campus event partnerships, and other welcoming initiatives.

Undergraduate Course Material Affordability

College affordability is a continual, pressing issue for U.S. students (Correa & Bozarth, 2023). The U.S. Bureau of Labor Statistics (2019) reports the cost of higher education, including tuition, living expenses, and course materials, rose by 31% between 2007 and 2017. This increase has forced students to make choices between their educational needs and basic living needs. In some cases, this choice has led students to not acquire course materials they need (Correa & Bozarth, 2023).

For at least a decade, researchers, especially early advocates of open educational resources (OER), have examined the impact of the rising cost of course materials on student success and students' ability to afford college. They have done this at both the community college level and four-year college level. Large-scale studies have shown that students—in some cases

up to 65%—regularly report not purchasing textbooks because of the cost, causing them to: receive a lower grade; drop, fail, or withdraw from a course (DFW); or choose not to register for a certain course because of the cost of the course materials (Donaldson et al., 2019; Nagle & Vitez, 2020). Students also report needing to work more hours to afford their course materials, thus taking time away from their studies. In their ground-breaking research study, "Textbook Broke: Textbook Affordability as a Social Justice Issue," Jenkins et al. note that "regardless of race/ethnicity, income or first-generation status, students consistently reported textbook pricing to negatively impact their stress levels, purchasing habits, first-day access, academic performance, and time-to graduation rates" (2020, p. 8).

The impact of the high cost of learning materials seems to be felt more strongly by certain students, including historically underserved populations, first-generation students and non-traditional students (Jenkins et al., 2020). One of the earliest studies (Colvard et al., 2018) to disaggregate their student data by categories found that, when replacing a commercial textbook with an OER, "while end of course grades increased for all groups considered, DFW rates decreased dramatically for student populations we hypothesized would benefit the most from free textbooks (for example, Pell eligible students, underserved populations, and part-time students)" (p. 272). Spica and Biddex (2021) disaggregated their research data by student demographics such as race and income levels, and found similar results, although further research is necessary.

Some studies have examined the high cost of textbooks on community college students (Spica & Biddex, 2021; Becker et al., 2023). Other studies have focused on four-year institutions. However, very few studies have looked at the impact of college textbook prices on transfer students, whether they are community college students or from another four-year institution. One such study was conducted at Old Dominion University in Virginia (Wittkower & Lo, 2020), which reported having a large number of transfer students coming from Tidewater Community College. Like other studies, the researchers at Old Dominion concluded that "student demographics have an effect on how students perceive the cost of course materials" (p. 124). Regarding transfer students specifically, they found that "more of our transfer students worked 31 or more hours per week than our non-transfer students" (p. 124). They also posit that students transferring in from Tidewater Community College, which has a strong z-degree program (i.e., courses that use only openly licensed materials) may be "the most affected by the cost of textbooks" once they transfer to Old Dominion (p. 124).

Methodology

This IRB-approved qualitative study was conducted using a combination of focus groups and a brief survey. The target population was undergraduate transfer students who had attended at least one Oregon community college within the previous five years before transferring to our university.

Identification and Recruitment of Participants

We recruited potential focus group members with posters, flyers, and email sent to a comprehensive list of transfer students at our university generated by the Office of Institutional Analytics and Reporting. Flyers were distributed at start-of-the-year campus gatherings and transfer-student-specific events. Once the researchers had identified eligible participants, they were invited to attend one of three in-person focus groups. Based on the success of the

initial three focus groups, the authors held two additional sessions: a group held at a transfer student dorm and an online group held via Zoom.

At the focus group meetings, each participant was assigned a number to help preserve their anonymity. Participants signed a consent form to ensure that they understood the parameters of the study and what would be asked. Each participant was also given a survey with demographic questions (e.g., ethnicity, gender, age, financial status) and questions about their experience using library resources and services, which they completed during the discussion break (see Appendix A). Each focus group lasted approximately two hours with a break between the third and fourth questions. One PI acted as a moderator, while the other two authors took notes. All the focus groups were audio recorded with permission of the participants. Student participants were asked to respond to the following six open-ended questions:

Section 1: Affordable Course Materials

1. What strategies do you use to get your required course materials?
2. Are you facing barriers to getting course materials now that you didn't face at your previous institution?
3. Compared to your previous institution, how often have your current instructors or departments kept course material costs under $40?

Section 2: Library Use

1. What is your favorite service at our library? It may be from the checklist (e.g., course reserves, laptops, headphones, lockers, etc.) or not.
2. What has been your experience using the library to get course materials?
3. How does the library where this focus group is taking place compare to your previous library?

During the focus group, participants were provided food and drink. Participants who stayed until the end received a $25 gift card.

Participant Demographics

The participants consisted of a diverse pool of 23 students from seven of our institution's 13 colleges. Based on survey information, 11 participants were Pell-eligible, 10 were first-generation college students, and 16 were on financial aid.

TABLE 1
Demographic Characteristics of Participants

Characteristics	n* (%)
Gender	
Female	17 (74%)
Male	2 (9%)
Non-binary or prefer not to respond	3 (13%)
Not reported	1 (4%)
Ethnicity	
White	12 (52%)
Hispanic	3 (13%)
Asian	3 (13%)
African American	2 (9%)
Multi-racial	3 (13%)

TABLE 1
Demographic Characteristics of Participants

Characteristics	n* (%)
Enrollment Status	
Full-time	21 (91%)
Part-time	2 (9%)
First-generation	
Yes	10 (44%)
No	13 (56%)
Pell Grant recipients	11 (48%)
Received financial aid this term	16 (70%)
*n = 23 participants.	

TABLE 2
Age, Status, Time at Current School, College of Participants

Age	Status	Time at Current School
19-21 (11)	1st Year (0)	1 term or Less (10)
22-25 (4)	2nd Year (5)	2-3 Terms (1)
30-40 (3)	3rd Year (8)	4-5 Terms (5)
Not Reported (2)	4th Year (7)	6+ terms (4)

Transcription, Coding, and Code-Checking

Once the focus groups ended, the authors transcribed the recordings into Google Sheets. The authors used a thematic approach to code the data. They individually brainstormed themes to code, determining five categories: access, affordability, attitudes toward course materials, modality, and service and product awareness. Next, they refined these themes as a group before beginning the coding process. To check for intercoder agreement, the results of the first focus group were coded individually by each of the authors. The authors then reviewed the results and adjusted for ambiguity. If a sentence included more than one concept, it was duplicated so that it could be coded multiple times. Definitions for each of the codes and their subcategories, were added to a coding sheet to ensure consistency (see Appendix A).

Each author then coded the results of three of the focus groups so that every focus group would have multiple coders but keep the workload manageable. After coding all five focus groups, the authors met again to review the results of each group, reviewing the applied codes for consistency. The authors found a high degree of agreement in coding.

Findings

Student comments about course materials fell into five categories: access, affordability, attitudes toward course materials, modality, and service and product awareness. Each of these categories includes two to five subcategories, which arose from patterns the authors identified within student responses.

Course materials are part of a complex financial calculus made by each student, which has a major impact on material affordability and access. "It's not that I can't pay for the course materials, but the costs have impacts," explains one participant. Students have finite resources

and no guarantee that any given education cost will help attain their goals. While they employ a variety of strategies to balance affordability with access to materials, they are beset by institutional barriers and patchwork knowledge about opportunities for campus assistance.

Our transfer students often experience culture shock and disappointment regarding college materials and modalities, which is exacerbated by limited awareness of library services and products. Instructors who explicitly connected specific course materials to learning goals and worked with students to navigate material costs were seen as higher-quality educators. Common pain points include course materials that aren't open or free, mandatory course materials that aren't referenced in class, and required software and digital textbooks that require codes which limit how students access and share materials. Most participants were unaware of library resources that could alleviate costs across multiple categories.

As anticipated, students in our study who attended community colleges that provided most or all of their course materials had higher expectations for their four-year institution regarding OER availability. They expect the same or greater use of OER than at community colleges, especially since they were transferring within-state. Our participants are also less likely to know about their options for acquiring course materials than traditional students: our university, like many institutions, presents its most robust orientation materials at the start of the fall term, with special attention given to incoming freshmen. Our focus group participants report lacking a similar peer group to glean information from, which is often compounded by limited orientation services. These students often come from smaller institutions and can be overwhelmed by the vastness of a large university and library and often did not have any library instruction previously. Our participants described seeking information but often shy from asking for assistance since they feel like they're already expected to know the answers.

Access

Student comments on course material access fell into three subcategories: barriers, strategies, and knowledge gaps directly related to the transfer process.

Our participants found the cost of university textbooks and assignment platforms a key barrier to acquiring the needed course materials or registering for a course. Some chose a course or a specific instructor due to the open, free, or less expensive course materials. Some students benefited from their instructors sharing non-textbook materials like novels or PDFs in the course learning management system (LMS). But other students, especially in STEM disciplines, had to pay high costs. Students were unhappy with having to pay full price for a textbook bundle, when their course only used a portion of it, such as a model kit or an access code for taking an online test. Having to pay for extras seems unreasonable to them when they see free technologies or cheaper options.

Our participants use a variety of strategies to acquire needed course resources. Many waited until the first week of the term to see if their course seemed like it would use its mandatory materials. Other students waited until course material was actively referenced in class. The perceived future value of the course material was a factor in its purchase. Students perceive a course text that is referenced once in a class as less valuable than one that may serve as a future reference within their major. Google is the most common search tool for course materials. One student explains their multi-step process: "So I have a super tight budget and I always like, I'm already checking […] for book lists. So I can see, 'Where am I going to get the material?' Is it gonna be county library, [our university] library, eBay? I literally will just

Google every single place you can get the book. Will I rent it? Will I purchase it?" Other common sources for course materials include piracy, renting from Amazon or other websites, and borrowing from a friend, classmate, or affiliate group. A few students also mentioned working from screenshots and other low-quality copies provided by classmates.

Study participants frequently expressed concern that they had missed a vital piece of campus orientation that would have reduced the stress of accessing course materials. For example, many participants expressed concern about not receiving a full orientation tour or a librarian visit as part of an entry-level course. Participants who were familiar with the library prior to the focus group meetings mentioned coming with a friend or for a fun event like a game night, which helped them feel more comfortable using the library for coursework.

Affordability

Our participants' comments on course material affordability map to four subcategories: instructor engagement, their experience with low-cost/no-cost courses, their expectations regarding material costs, and the impact of material costs on their lives. Unsurprisingly, students appreciated receiving high quality materials for low prices. They also tended to believe their previous community colleges provided more affordable, quality materials than their current institution.

While affordability was central to our participants' college experience, they often expressed shame and uncertainty at addressing it. When asked if they ever approached an instructor to ask about affordable materials, several students had visceral reactions. One student explained, "I wouldn't want to draw that negative attention to myself. [I'm] trying to make as good of an impression as I can because I'm going to be in the college for a while." Another student explained they would never tell a faculty member they couldn't afford textbooks: "They would laugh at me!" Participants shared that few instructors explicitly indicated why they chose specific course materials, and only when the material was open or free. Many of our participants were aware of courses marked low-cost or no-cost in the course catalog but could not depend on their availability.

All our participants shared impacts from the high cost of their required course materials, but some students also had to make sacrifices to purchase them: "I have made my decisions on which instructors to take based on the list of materials, like this book is going to be $60 cheaper, that's the one I'm signing up for." Another student explained, "I told my professor that I couldn't afford the books. They told me to get a free subscription, but that only lasted three weeks so I sold my car to afford the books."

Attitudes Toward Course Materials

Our participants' attitudes toward course materials fell into two subcategories: course materials as a reflection on the quality of university faculty and the relevance of their course materials to their goals. Often, these attitudes linked the cost of education to its perceived quality: "I'm paying a lot more here, shouldn't it be better?"

Students value instructors' efforts to lower costs though instructors do not always successfully communicate the value or relevance of course texts. Students shared many stories about instructors who wrote their own books or sought materials that were open while at the community college. This practice was less frequent at our university. In many cases, participants view our university as more impersonal than their previous institutions. One student summarized this view: "My professors this term have not really gone into specific

details why they chose these textbooks, it's more like 'This is what you need. Go get it.'" One surprising belief that several students mentioned was that instructors who required fewer material purchases were generally more helpful and flexible in their pedagogy. One student explained, "In my experience, professors willing to compromise [to help with costs] don't require a textbook at all." Another student explained, "professors who require less material are often better instructors."

Participants are most frustrated when they purchase required texts their instructors do not use. However, even in cases when instructors demonstrate the value of their course materials, students feel they should be more flexible regarding the materials' format, preferring those that are open or free "like at most community colleges." Participants specifically praised one community college, which provided primarily free, open course materials.

Modality

Our participants had strong, diverse opinions on course materials' ideal medium. The authors categorized comments related to student preferences between digital or print course material, as well as participants' feelings toward ancillary materials and required platforms.

Participants shared that cost often overrules their preferences when choosing between physical or digital formats: low-cost options tend to be ebooks provided by the library, scanned copies, cell phone images shared by classmates, or pirated PDFs. Many students agreed on the benefits of digital course materials—even if they ultimately preferred physical—because of the ease of transport, keyword searching, digital annotation, and pasting into other documents. Specific, proprietary platforms strongly limited students' preferences for digital materials.

Though students have different preferences on print and digital modalities, they strongly dislike ancillary software and time-sensitive access to homework software. Having to buy a whole textbook package to pay for a code to access online homework, take tests, or in-class participation was frustrating: "It's like I'm paying to do my homework essentially, I'm not paying for the book because you never reference the book you pay to do the homework." Other common complaints for specific digital platforms included cost, awkward user interface, the inability to download course materials, and lack of useful features.

Service and Product Awareness

The focus group participants' awareness of library and other campus resources fell into five subcategories: 1. library course reserves, 2. other course materials, 3. library materials, 4. library services, and 5. marketing. Many additional comments fell outside of the affordability focus of this article but were nevertheless important in identifying student perceptions of library services and spaces.

Surveyed students showed mixed awareness of library services for obtaining course materials. At least half of the surveyed students did not know about the library's reservable course materials. Those who were familiar with the course reserve process found it confusing and unreliable. Specifically, students were unhappy that items on course reserve were not always available: high demand physical texts were often unavailable in the limited time students could visit the library, and limited ebook licenses put a cap on online research. Variations on the statement, "Why can't they just give us the PDF in our course module or share a free textbook like we had at [community college]?" were common. Several participants mentioned the campus Basic Needs Center, a student support center that partners with the library, as one option for obtaining

course materials for the entire term, sharing their positive experiences with their focus groups.

Unlike the uncertainty surrounding obtaining course materials, our participants were more confident using the library to obtain articles and supplementary course material. Most participants considered Ex Libris' Primo, our main discovery system, and our databases both accessible and easy to use. Most participants were aware of similar tools from past institutions. However, some students attributed knowledge of these systems to course visits from a librarian focused on finding "three scholarly sources'' or other assignment-based searches. Despite the participants' positive view of librarians during course visits, they generally viewed librarians as helpful but distant. One participant highlighted the value of librarians while also identifying their distance from the everyday experience: "a person you can physically talk to and that's always been very helpful even if you don't utilize it."

Discussion

After reviewing the findings from the focus groups and user surveys, the authors discussed the results through the lens of the five main categories: access, affordability, attitudes toward course materials, modality, and service and product awareness. Within every coding category and subcategory, participants expressed initial disagreements and variations in opinion. This lack of immediate consensus lends support to the truism that transfer students are a heterogeneous group. Successful efforts to appeal to transfer students must be flexible to account for this variety.

After the authors reached a high degree of agreement coding focus group results, they noted the themes arising from the most common subcategory within each major category. These themes suggested a composite transfer student persona. While this persona cannot represent the experiences of all transfer students, their experiences provide one model of our participants' experiences. This persona experiences transfer shock as a result of course material affordability; their community college was more responsive to their financial need. Post-transfer, they use many strategies to evaluate the value of purchasing required course materials, weighing the expected value of the material's cost versus their budget, ease of acquiring alternate materials, and the cost of other materials. Although the composite student does not have a strong preference between print and digital course materials, they loathe DRM and other artificial barriers to prevent the re-use, re-sale, and transferability of information. They feel as if traditional students are more connected to campus life and social networks, partially due to first-year experience activities, which they can leverage to navigate access barriers and benefit from campus resources such as the library.

One major coding cluster crosses subcategories to indicate lack of institutional knowledge among transfer students. Frequent comments in the access: knowledge gaps, affordability: low-cost/no-cost courses, and service and product awareness: library course reserves sub-categories support claims of transfer shock, institutional awe, and the sheer difficulty of adapting to the norms of a new institution.

Likewise, the vigorous discussion surrounding the cross-subcategory cluster of access: barriers, affordability: instructor engagement, modality: required programs, and attitudes toward course materials: university faculty suggests the importance of instructor involvement in addressing transfer student concerns. Many focus group participants praised teachers who aided them with course material affordability issues, but they more readily identified faculty who created educational barriers.

Local Change

The authors and their peers have promoted change at their own institution based on the results of the focus groups. We share our actions recognizing that they may not be generalizable to all academic library contexts and are likely most applicable to libraries with a similar size and focus on serving the entire campus.

Access

One strategy we've already implemented is sharing a handout on accessing affordable course materials through our collections and partners across campus. Many of our participants expressed concerns about not receiving a full orientation tour or librarian visit as part of an entry-level course. Our library is following the advice of Whang et al. (2017) and working with campus partners to target transfer students for outreach along other avenues. We are participating in events like National Transfer Week and other opportunities to share library spaces and services. Even simple activities like attending a transfer meet-and-greet have allowed us to listen and share more about library support.

Affordability

As a library, we have been building our capability for course reserves, especially digitally, since the start of the COVID-19 pandemic. In the last several years, our university's Basic Needs Center has developed a robust circulating collection of course materials, which is discoverable in our library catalog. We have also continued to work with our campus partners, including upper administration, to advocate for more open, low-cost course materials.

Attitudes Toward Course Materials

We are exploring entry points for discussing affordable course material options as part of new instructor training, professional development, and other campus events. Sharing our students' stories and educating campus decision-makers on methods to reduce course material costs is necessary if we wish to change the campus culture.

Modality

Although campus-wide adoption of ancillary software and course material with restrictive DRM is largely outside of our control, we are strong proponents of work being done in other parts of the library to increase the size and availability of our course reserves. Many of these items are available as ebooks, which provide students with the most immediate access to necessary course materials.

Service and Product Awareness

Student suggestions from the focus groups have encouraged us to rethink elements of many student outreach initiatives. We have updated promotion materials, including our social media accounts, newsletters, and handouts. Iterating to catch student interest among the panoply of visual stimuli on campus is an evergreen issue. Recently, we have started using more QR codes on library advertising, as most focus groups suggested them unprompted.

We are also sharing these findings with internal, campus-wide, and professional groups dedicated to improving the student experience. Presenting on transfer student experiences invites discussion and keeps the issues relevant to educators with the capability to improve

the student experience. Meeting students and advisors at transfer-student-specific events has also become an increased priority. We have attended several transfer student-focused events and provided direct outreach.

Recommendations

Every university is different, and transfer students are notoriously difficult to classify. In adapting these recommendations, it is important to communicate with transfer students and related departments. One case study (Vinyard 2020) presents the example of a library that taught a welcome course for every incoming first-year student. Transfer students indicated this course was not necessary. Instead, the library supported them through specific database training, outreach from subject librarians, and focused tours. With these caveats, we recommend:

- Avoid generalizing about transfer students. They are unique, yet similar in facing challenges that typical first-year students do not face. Many of them identify as transfer students, but many do not.
- Build on their transfer capital. Recognize the education they've already received. For example, library support, metacognitive reflections, and online library research refresher activities for upper-level students can employ learner-centered pedagogy to support all students (Fawley et al., 2021).
- Consider a librarian liaison specifically for transfer students, a transfer student services librarian (Coats & Pemberton, 2017), or a personal librarian program for transfer students (Clement, 2021; Fountaine & Hallman, 2021) if your campus has a high percentage of transfer students.

Limitations and Future Directions

Conversations with students are a regular part of life in an academic library. These conversations are great sources of feedback that inform our work. They are also a constant reminder that our focus group students don't speak for the entire student body, let alone all transfer students at our university. In future iterations of this study, we are interested in working with a control group to more directly compare traditional student experiences with those of transfer students. Additionally, now that we've established a basic understanding of transfer student issues, we would like to apply more nuance to future inquiry. Specifically, the notion of how affordability impacts students' lives grew as our conversations progressed. Most students did not present material affordability as a binary can/can't afford decision, but one shaded by time, ownership rights, and competing priorities.

This study was also limited by time and participants. The students who volunteered were a self-selected group. If they felt like they didn't have strong opinions or dissatisfaction with the status quo, it is likely they would not be as interested in attending. Moreover, most of these students attended their initial college-level courses during the early days of the COVID-19 pandemic. Every facet of life on campus was disrupted by the monumental public health crisis, which could account for some participants' feelings of disorientation and being overlooked.

Conclusion

Our focus groups and subsequent discussions have taught us a great deal about our transfer students' expectations and needs regarding affordable course materials. While many of them have adapted strategies for accessing course materials and other campus services from their

previous academic experiences, this knowledge is often imperfect. Libraries can help address transfer shock and improve transfer student success through focused outreach and partnership with other campus groups that work with historically underserved populations like transfer students. Since transfer students are notoriously diverse with regards to educational, financial, and other demographic backgrounds, flexible assistance is necessary. Nevertheless, the introduction of our singular transfer student persona to departmental and campus-wide discussions on library resources and low-cost and OER course materials has already had a positive impact on outreach.

We also recognize how much four-year institutions can learn about affordability from community colleges. As part of the continued research that will grow from this article, we intend to learn more about effective course material affordability measures used by our community college peers. The library is not powerless to alleviate course material costs, but campus-wide attention and regular student feedback are the keys to sustainable, meaningful change.

Appendix A

Demographic Survey Questions

1. What is your age?
2. What is your status at your current university?
    a. Freshman
    b. Sophomore
    c. Junior
    d. Senior
    e. Other
3. How long have you been at your current university?
    a. 1 term or less
    b. 2-3 terms
    c. 4-5 terms
    d. 6+ terms
4. What is your enrollment status this term?
    a. Full-time
    b. Part-time
5. With which gender do you identify?
    a. Female
    b. Male
    c. Non-binary
    d. Prefer not to respond
6. Ethnicity
    a. African American/Black
    b. American Indian/Alaska Native
    c. Asian
    d. Hispanic/Latino
    e. Hawaiian/Pacific Islander
    f. White/Caucasian
    g. Multi-racial/Ethnic
    h. Prefer not to respond
7. Are you a first-generation college student?
    a. Yes
    b. No
8. Are you eligible for a Pell Grant or other need-based financial aid?
    a. Yes
    b. No
9. Did you receive financial aid this term?
    a. Yes
    b. No
10. What is your major?
11. When do you anticipate graduating from your current university?
12. Is there anything you'd like us to know about the library and/or acquiring affordable learning materials?

13. The library offers these services. Please check whether you have used, are aware, or unaware of the following services.
    a. Desktops in the Learning Commons
    b. Laptops/Hotspots
    c. Course reserves/course materials, physical
    d. Course reserves/course materials, electronic
    e. Headphones
    f. Study rooms
    g. Calculators
    h. Books/articles from our university's collection
    i. Books/articles from other libraries (ILL/Summit)
    j. Printing/scanning
    k. Lockers
    l. Charging cords for phones and laptops
    m. Therapy light lamps
    n. Board games
    o. Maker kits (e.g., Rapberry Pi, Makey Makey, GoPro camera)
    p. Adaptive technology (e.g., ergonomic mouse & keyboard, low vision keyboard and calculator, magnifying lamp).
14. What does the term "OER" mean to you?

Affordability Code Book

1. Access
    a. Strategies: Do you share used books? Go to Amazon? Pirate books? Wait until the second week?
    b. Barriers: What gets in your way?
    c. Transfer Student-Specific Issues: Did you get a campus tour? Miss out on common student experiences or classes?
2. Affordability
    a. Expectations: Compared to previous institutions or what you've heard about college.
    b. Instructor Interaction: Did you approach the instructor about costs or affordability options?
    c. Low-Cost/No-Cost: Our campus bookstore defines low-cost as under $40.
    d. Impacts: How do material costs impact your life? Use code 2e for clear, identifiable losses.
    e. Sacrifices: Did the cost force you to miss something important? Work extra hours?
3. Attitudes Toward Course Materials
    a. Faculty: How do you feel about your instructors? Do they seem to care about educational costs? Do they explain their material selection?
    b. Textbooks: Are your course materials worth the cost? How often do you reference course materials?
    c. Library: How do you feel about the library? Is it cozy? Loud?
4. Modality
    a. Physical/Digital: Do you prefer physical or digital textbooks? Which do you use

in ideal circumstances?

b. Ancillary Materials: How do you feel about homework platforms, digital test systems, kits, and other non-book course materials?

5. Service & Product Awareness
   a. Course Reserves: Include physical and digital course reserves.
   b. Other Course Materials: For example, books, articles, our discovery layer, and LibGuides
   c. Library Materials: Loanable items in our Library of Things
   d. Library Services: Lockers, study rooms, printing, and other services provided by the library. Includes spaces.
   e. Marketing: What is the best way to let transfer students know about these services?

References

Becker, K. L., Safa, R., & Becker, K. M. (2023) High-priced textbooks' impact on community college student success. *Community College Review, 51*, 128–141. https://doi.org/10.1177/00915521221125898

Coats, L. R., & Pemberton, A. E. (2017). Transforming for our transfers: The creation of a transfer student services librarian. *References Services Review*, *45*(3), 485–497. https://www.emerald.com/insight/content/doi/10.1108/RSR-11-2016-0079/full/html

Cejda, B. D. (1994). Reducing transfer shock through faculty collaboration: A case study. *Community College Journal of Research and Practice*, *18*(2), 189–199. https://doi.org/10.1080/1066892940180207

Chen, Joseph C. (2017) "Nontraditional adult learners: The neglected diversity in postsecondary education." *SAGE Open*, *7*(1). https://doi.org/10.1177/2158244017697161.

Colvard, N. B., Watson, C. E., & Park, H. (2018). The impact of open educational resources on various student success metrics. *International Journal of Teaching and Learning in Higher Education*, *30*(2), 262–276.

Correa, E., & Bozarth, S. (2023). To eat or to learn? Wagering the price tag of learning: Zero cost textbook degree. *Equity in Education & Society*, *2*(2). https://doi.org/10.1177/27526461231154013

Donaldson, R., Opper, J., & Shen, E. (2019). *2018 student textbook and course materials survey: Results and findings*. Florida Virtual Campus, Office of Distance Learning & Student Services. https://www.oerknowledgecloud.org/record2630

Fawley, N., Marshall, A., & Robison, M. (Eds.). (2021). *Transfer student success: Academic library outreach and engagement*. ALA Editions.

Fountaine, L., & Hallman, S. (2021). Designing and developing a personal librarian program for transfer students. In Fawley, N., Marshall, A., & Robison, M. (Eds.), *Transfer student success: Academic library outreach and engagement* (pp. 51–60). ALA Editions.

Heinbach, C., Paloma Fiedler, B., Mitola, R., & Pattni, E. (2019). Dismantling deficit thinking: A strengths-based inquiry into the experiences of transfer students in and out of academic libraries. *In the Library with the Lead Pipe*. https://www.inthelibrarywiththeleadpipe.org/2019/dismantling-deficit-thinking /

Hofer, A. (2023, August 22). *Continuing savings from past OER grants (Third Report)*. Open Oregon. https://openoregon.org/continuing-savings-3/

Ivins, T. (2017). Guest editorial. *Reference Services Review, 45*(2), 242–243. https://doi.org/10.1108/RSR-04-2017-0007

Jenkins, J. J., Sánchez, L. A., Schraedley, M. A. K., Hannans, J., Navick, N. & Young, J. (2020). Textbook broke: Textbook affordability as a social justice issue. *Journal of Interactive Media in Education, 2020*(1), 3. https://doi.org/10.5334/jime.549

Laanan, F. S., Starobin, S. S., & Eggleston, L. E. (2010). Adjustment of community college students at a four-year university: Role and relevance of transfer student capital for student retention. *Journal of College Student Retention: Research, Theory & Practice, 12*(2), 175–209. https://doi.org/10.2190/CS.12.2.d

Nagle, C., & Vitez, K. (2020). Fixing the broken textbook market. U.S. PIRG Education Fund. https://publicinterestnetwork.org/wp-content/uploads/2022/07/Fixing-the-Broken-Textbook-Market_June-2020_v2-4.pdf

Oregon State University Office of Institutional Research. (2022). New student profile—Fall 2022. *Institutional Research*. https://institutionalresearch.oregonstate.edu/enrollment-and-demographic-reports

Osam, E. Kobena, Bergman, M., and Cumberland, D. M. An integrative literature review on the barriers impacting adult learners' return to college." *Adult Learning* 28, no. 2 (May 2017): 54–60. https://doi.

org/10.1177/1045159516658013.

Relating to higher education; and declaring an emergency, OR HB 2871. (2015). https://olis.oregonlegislature.gov/liz/2015R1/Measures/Overview/HB2871

Rhine, T. J., Milligan, D. M., & Nelson, L. R. (2010). Alleviating transfer shock: Creating an environment for more successful transfer students. *Community College Journal of Research and Practice, 24*(6), 443–453. https://doi.org/10.1080/10668920050137228

Roberts, L., Welsh, M. E., Keller, C. R., & North, C. (2021). Memory, relationships, and spaces: Exploring transfer students' library journeys. *The Journal of Academic Librarianship, 47*(3), 102333. https://doi.org/10.1016/j.acalib.2021.102333

Roberts, L., Welsh, M.E. & Dudek, B. (2019). Instruction and outreach for transfer students: A Colorado case study. *College & Research Libraries, 80*(1), 94–122. https://doi.org/10.5860/crl.80.1.94

Robison, M. Fawley, N. & Marshall, A. (2020). "That background knowledge." What junior and senior undergraduate transfer students need from their library. *Journal of Academic Librarianship, 46*(1), 102092. https://doi.org/10.1016/j.acalib.2019.102092

Shapiro, D., Dundar, A., Huie, F., Wakhungu, P.K., Yuan, X., Nathan, A., & Hwang, Y. (2024). Tracking transfer: Measures of effectiveness in helping community college students to complete bachelor's degrees (Signature Report No. 13) [Report and data set]. National Student Clearinghouse Research Center. Retrieved May 15, 2024, from https://nscresearchcenter.org/tracking-transfer/

Spica, E., & Biddix, J. P. (2021). Prices they pay: Academic achievement and progress to graduation barriers experienced by community college students due to the cost of course materials. *Innovative Higher Education, 46*, 643–662. https://doi.org/10.1007/s10755-021-09557-7

Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. *Review of Educational Research, 45*(1), 89–125. https://doi.org/10.3102/00346543045001089

Vinyard, M. (2020). The kids are all right: How libraries can best serve transfer students. *Portal: Libraries and the Academy*, *20*(2), 339–360. https://doi.org/10.1353/pla.2020.0017

Wang, X., Felten, P., Gooden, L., Iuzzini, J., & Kittrell, E. (2021). Supporting transfer student success: Five key faculty practices. National Institute for the Study of Transfer Students. https://www.nists.org/post/five-key-faculty-practices

Whang, L., Hornby, A., & Vrbancic, E. (2021). Developing transfer student programming: From research to application. In Fawley, N., Marshall, A., & Robison, M. (Eds.), *Transfer student success: Academic library outreach and engagement* (pp. 3–11). ALA Editions.

Whang, L., Tawatao, C., Danneker, J., Belanger, J., Edward Weber, S., Garcia, L., & Klaus, A. (2017). Understanding the transfer student experience using design thinking. *Reference Services Review, 45*(2), 298–313. https://doi.org/10.1108/RSR-10-2016-0073

Wittkower, L. R., & Lo, L. S. (2020). Undergraduate student perspectives on textbook costs and implications for academic success. *Open Praxis, 12*(1), 115–130. https://dx.doi.org/10.5944/openpraxis.12.1.1036

Xu, D., Jaggars, S. S., Fletcher, J., & Fink, J. E. (2018). Are community college transfer students "a good bet" for 4-year admissions? Comparing academic and labor-market outcomes between transfer and native 4-year college students. *The Journal of Higher Education, 89*(4), 478–502. https://doi.org/10.1080/00221546.2018.1434280

Preparing Academic Librarians to Prioritize Privacy in Learning Analytics Projects: An Evaluation of a Professional Development Course

Kyle M. L. Jones and Lisa Janicke Hinchliffe

As institutions of higher education further develop their learning analytics efforts, academic library practitioners are called upon to participate in these efforts and have opportunities to shape their campus strategies. Nonetheless, library practitioners may not be prepared with the knowledge, skills, and strategies to engage with campus stakeholders. This article documents the effectiveness of an online training course that developed librarian skill and confidence. Details discuss opportunities to replicate and extend the course.

Introduction

Since around 2010, researchers, vendors, and higher education institutions have been developing tools, practices, and policies to support learning analytics. Learning analytics "uses analytic techniques to help target instructional, curricular, and support services" to affect an array of educational outcomes, such as personalizing educational programs to student needs and matching resources to improve learning outcomes (van Barneveld et al., 2012, p. 8). As institutions of higher education further develop their learning analytics efforts, academic library practitioners are called upon to participate in these efforts and have opportunities to shape their campus strategies. Nonetheless, library practitioners may not be prepared with the knowledge, skills, and strategies to engage with campus stakeholders. This lack of preparation can mean that library values, such as privacy, are not raised when institutions are planning and designing learning analytics initiatives. While many institutions are still in the early stages of developing learning analytics activities, the need to prepare library practitioners with training and tools is pressing. This article describes the effectiveness of an online training course that develops librarian skill and confidence, prepares them to engage with campus stakeholders, and equips them to contribute to institutional learning analytics efforts. After a brief review of library learning analytics literature, the authors describe the evaluation methods they used and how their quantitative and qualitative data analysis led to findings associated with positive assessments of learning and the course's impact, as well as specific areas for improvement. The authors conclude with a discussion reflecting on the

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course's impact, how the course could be replicated by others, and opportunities to extend the course for other educational needs.

Literature Review

Campus Technologies, Learning Analytics, and Student Privacy

Information and educational technologies, which are integral to the higher education ecosystem in which students are enmeshed, create digital traces of student learning and life. They are key tools used in service to the primary mission of higher education: learning. Learning management systems, communication tools, library databases, and other technological artifacts support a student's ability to access and use information, and to interact in student-to-student and student-to-instructor learning experiences (see Figure 1).

FIGURE 1
Student-Technology Touchpoints, Sites of Data Creation, and Tracking
Image courtesy of Gabriel Hongsdusit for *The Markup*.

Learning management systems track students as they read and complete assignments online.

Automated license plate readers archive video of students' movements on campus.

Campus buildings, like the library, track students as they swipe their student IDs to enter.

Campus Wi-Fi allows universities to monitor students' internet activity.

Remote proctoring software records students in their homes while they take exams remotely.

Campus security cameras at some colleges also use AI to look for "red flags," like weapons or specific people.

Other technologies serve notable purposes in higher education, too. Unfortunately, in the context of American higher education, safety and security have increasingly become motivators in adopting arguably more invasive tools to address campus crime and to support protective interventions during active shooter incidents. CCTV paired with facial recognition applications have become more common (Burke, 2020) in addition to the use of RFID chips in—and printed barcodes on—identification cards, which enable and restrict access to physical spaces. Some campuses are also using license plate readers to flag suspicious cars and aid criminal investigations ("How License Plate Readers Are Helping University Police Solve Crimes," 2023; see "Innovative License Plate Reader Technology Now in Use on CU Boulder Campus," 2023; Nichols, 2023).

These once distinct technological domains—education and safety technologies—have begun to blur into one. Computer scientists see some value in actively surveilling, identifying, and judging students with facial recognition tools paired with AI to mold student learning behaviors (D'Agostino, 2024). Aspects of this technological approach became evident during the peak of the COVID-19 pandemic when students were forced into online learning environments (Flaherty, 2020). Many campuses licensed invasive proctoring software, arguing that academic integrity was at stake. Tools like Proctorio required students to allow monitoring via "webcam, microphone, browser, desktop, or any other means necessary" (Flaherty, n.d., para. 10).

The data gleaned from campus technologies has enabled myriad analytics of student learning and behaviors. Much of this analytical work stands under the umbrella of learning analytics and educational data mining research, though in unique ways, respectively. Both encompass "data design, aggregation, mining, and analytics (e.g., data visualization, predictive modeling, personalize systems) for myriad purposes, including personalized education, predictive advising, and automated interventions in learning behaviors" (Jones, 2022a, p. 4). But, as alluded to above, the evolving technological environment and the learning analytics that are enabled by it create serious privacy issues. Jones (2022a), citing Nissenbaum (2009), writes:

> Privacy is an embedded contextual value built into the overall mission of higher education, and it has normatively moderated the flow and ends of student data and information use for some time. In other words, informational norms mapped to student privacy have served to "regulate the flow of information of certain types about [students] from one actor (acting in a particular capacity or role) to another or others (acting in a particular capacity or role) according to particular transmission principles" (p. 10).

The singular problem is that information flows are changing and are being created for the purposes of "dataveillance" (Clarke, 1988), which put at risk a student's ability to pursue an education according to their own interests without undue influence from higher education actors informed by analytics or by the analytics themselves being built into systems. As librarians began to use learning analytics in their own practices and student-focused services, they, like others, struggled with privacy concerns in higher education as related technologies evolve.

Library Learning Analytics Ethics

Practitioners and scholars alike have widely documented library learning analytics practices and the related ethical issues. In our previous research on this topic, we noted that "the ethics

of learning analytics are nothing but complicated, connecting various nodes such as privacy, autonomy and free will, intellectual property, justice and fairness, and democratic participation" (Jones & Hinchliffe, 2022, p. 2). In that article, we—like others have—concentrated on the idea that privacy is a key instrumental value that enables varied pursuits and expressions of intellectual freedom, which are foundational elements of the educational experience and crucial pillars in professional library ethics (see Currier, 2021; Doty, 2020; Hartman-Caverly, 2019; Oliphant & Brundin, 2019).

There is a growing disconnect between *values* and *praxis*. Citing work by Zimmer and Tijerina (2018), who in their own work identified gaps in professionals' privacy literacy, we argued that "practitioners are unable to meet the practical needs that prioritizing privacy requires as a core professional value" (Jones & Hinchliffe, 2022, p. 2). Briney's (2019) study of published library learning analytics research led them to the conclusion that "academic libraries' actual data practices are not living up to data best practices" (p. 27) demonstrating "evidence of a conflict between libraries' commitment to patron privacy and their current data handling practices in learning analytics projects" (p. 28).

Why might this be the case? We previously wrote, citing Jones (2019), "that part of the ethics problem is that most LIS [library and information science] students receive little research methods training and are likely to be 'under-skilled and unprepared to lead quantitatively rigorous learning analytics projects'" (Jones & Hinchliffe, 2022, p. 3). Huang et al. (2021, p. 363) argue that "the combination of information ethics, information science, and educational technologies built into LIS programs" (p. 362) should motivate LIS educators to fill the values and praxis gap and to take "a proactive, holistic, and direct interest in artificial intelligence (and machine learning or data science) alongside offerings and contributions in information ethics" (p. 363). So, while current practitioners who are conducting library learning analytics projects are ethically attuned to privacy and its importance generally, they are likely underskilled and underprepared to meet the demands associated with learning analytics that raise significant, myriad, and specific privacy problems.

Identified Professional Development Needs

Academic librarians need professional development opportunities to learn ethics strategies and sensitivities that acknowledge the varied issues that learning analytics practices create. It is a pressing problem: "learning analytics can be seen as extending on traditional styles of assessment practiced in the library and that 'to not participate in learning analytics may limit a library's ability to serve students' educational interests'" (Flierl et al., 2023, p. 35 citing Jones & Hinchliffe, 2022, p. 177). Flierl et al. (2023, p. 39), whose work represents an environmental scan conducted on behalf of the Association of College and Research Libraries (ACRL), argued that "academic librarians are increasingly required to gain skills beyond the traditional qualifications" acquired in their master's degree programs and during on-the-job practice. In a previous study (Jones & Hinchliffe, 2022) we investigated: 1) what, exactly, academic library practitioners perceived to be the most pressing ethical issues associated with learning analytics and 2) whether they were prepared to address the issues they identified; to date, this is the only research that addresses these questions. Specifically, in 2020, we conducted a survey of academic library practitioners. The results from the 2020 survey were as follows. While most respondents rated their knowledge of learning analytics ethics, research ethics, and data ethics as "moderately knowledgeable" with a "higher degree of knowledge" for research ethics, "49% of respondents had not received

any training for learning analytics ethics; only 6% reported receiving training in a course while pursuing a degree." Respondents still wanted more education: "88% responded they somewhat or strongly agree they need learning opportunities to better understand ethical issues associated with learning analytics." A strong majority—90%—of respondents stated they somewhat or strongly agreed learning analytics raises ethical issues. We presented respondents with "29 ethical and practical learning analytics issues identified in our literature search grouped by four themes: privacy, data ethics, data management, and trust. The top five ethical issues respondents identified as being very challenging for higher education were: power imbalances (68%), algorithmic biases (64%), self-fulfilling prophecies (59%), establishing new privacy norms (56%), and maintaining trusting relationships (54%)." In our discussion, we argued that the ethics training respondents had received "was useful," but "their direct learning need was for something separate and unique from research ethics," which is to say that specific ethics training associated with learning analytics would be useful and fill current knowledge gaps.

The remainder of this article concerns our development and evaluation of a professional development course to fill the previously identified gaps and reflects an approach to improve academic library practitioners' privacy literacy related to learning analytics. Kumar (2023, p. 6) defines privacy literacy as "(1) knowledge about information flows and how to limit them, (2) a process of critical thinking about information flows, and (3) a practice of enacting appropriate information flows." The course was influenced by this definition, insofar that it aimed to fill participant knowledge gaps; engage them in critical thinking about personal, professional, and institutional values and practices; and provide opportunities for "reflexive engagement" (Kumar, 2023, p. 9) that would enable participants to change the privacy conditions at their workplace via information practices and policies.

Methods

Course Design

We developed an asynchronous, online course using an outcomes-based, or backwards design strategy, following techniques outlined in Biggs (2014). We began by drafting and finalizing course learning outcomes according to thematic areas relevant to the course content. Verbs from Bloom's Revised Taxonomy informed the construction of the outcomes and ensured that they addressed the cognitive process dimension and the knowledge dimension (see Anderson et al., 2000; Iowa State University Center for Excellence in Learning and Teaching, 2022; see Table 1).

TABLE 1
Course Learning Outcomes and their Bloom's Revised Taxonomy Alignment

Course Learning Outcome	Thematic Area	Bloom's Revised Taxonomy: Cognitive Process Dimension	Bloom's Revised Taxonomy: Knowledge Dimension
Describe the social, political, and technological elements of learning analytics in higher education, generally, and academic libraries, specifically.	Learning Analytics	Understand	Conceptual
Distinguish between theoretical aspects of information privacy and their connection to learning analytics.	Privacy	Analyze	Conceptual

TABLE 1
Course Learning Outcomes and their Bloom's Revised Taxonomy Alignment

Course Learning Outcome	Thematic Area	Bloom's Revised Taxonomy: Cognitive Process Dimension	Bloom's Revised Taxonomy: Knowledge Dimension
Critique existing learning analytics principles, policies, practices, and recommendations and the ways in which they may create privacy harms.	Privacy	Analyze	Conceptual
Adjust a learning analytics practice to strategically minimize privacy harms and maximize specific benefits.	Ethics	Evaluate	Procedural
Plan for ethical and evidence-based library learning analytics projects that are based in privacy by design.	Professional Development	Create	Procedural
Develop a learning plan for continuing professional development regarding learning analytics, information privacy, and ethical practice.	Professional Development	Create	Metacognitive

Next, we developed assessments driven by and mapped to the learning outcomes. The major assessment consisted of the Privacy Sourcebook. About the Privacy Sourcebook, we wrote to learners in the introduction:

> Opportunities to engage in conversations about learning analytics will likely present themselves in both expected and unexpected settings. Being prepared for these opportunities will enable you to respond confidently and with clarity of thought. By developing your own Privacy Sourcebook you will have an opportunity to bring together your philosophy on learning analytics and privacy with an environmental scan and an analysis of key stakeholders and allies. When these pieces are put together, you will be able to develop key messages that reflect ethical approaches you would like your library and campus to pursue in designing and implementing learning analytics programs and to identify strategies for action (Hinchliffe & Jones, 2022p, p. 3).

The Privacy Sourcebook contains five unique activities, each described with an introductory overview, a purpose statement for the activity, and a description of the required tasks for successful completion (see Table 2).

We also tasked learners with completing a structured multimedia introduction, participating in four guided discussions, and completing a multimedia presentation focused on the learner's course reflections, growth moments, and construction of their Privacy Sourcebook. To the extent possible and useful, we employed the Transparency in Learning and Teaching (TILT) model to describe an assessment, its purpose, and the relevant tasks (see Winkelmes, 2014). We developed rubrics for each assessment to help learners gauge their engagement and progress in the course, and to help us—the instructors—monitor learner participation and intervene when necessary.

TABLE 2
Privacy Sourcebook Activity Overviews and Purpose Statements

Activity	Overview	Purpose Statement
Environmental Scan	Environmental scanning is a process for observing, reflecting upon, and interpreting data that is relevant to your work. It makes you aware of potential pitfalls while also helping to identify affordances and support structures. As such, it sets the foundation for planning for action.	By conducting an environmental scan you will take stock of the work on your campus with learning analytics, identify leaders and other stakeholders, and strategize where the library is and/or could be involved in these activities.
Philosophy	A philosophy statement is an articulation of one's beliefs and intentions. As a self-reflective statement, it communicates your values and goals as a lens through which to examine the alignment between what is and what you believe should be. Paired with an environmental scan, it enables one to identify actions to further that alignment.	Developing a personal statement of your beliefs about learning analytics will help ground your actions and ensure that your decisions are reflective of your intentions and goals for ethical practice. This activity will provide you with an opportunity to explore various considerations related to learning analytics and articulate your perspectives on these issues.
Talking Points	Talking points are prepared messages that you can convey in a clear and concise manner. At the core of a talking point is the message, which may be stating a position, raising an issue or question, presenting an objection, etc. How that message is expressed takes into account the audience for that message. The audience for a talking point may be a particular person or a group.	Developing your messages in advance ensures that when the opening presents itself you will be ready to communicate what you want to say and it guards against missed opportunities. The particular talking points you will craft will be specific to your context and your intended audience(s).
Resources	Curating a set of resources allows one to find those items that are particularly useful or relevant for one's work. The course has provided you opportunities to engage with a variety of literature (e.g., popular press, scholarly articles), as well as interactions with peers that will have brought to the surface other potential resources, such as communities-of-practice. Each resource serves as a potential intellectual tool to use when engaging in learning analytics.	By identifying the resources that you rely on in your work with learning analytics, you will be well-positioned to share useful information with others, call upon the scholarly literature and other documents to support your talking points, and advocate for prioritizing privacy in learning analytics work.

TABLE 2
Privacy Sourcebook Activity Overviews and Purpose Statements

Activity	Overview	Purpose Statement
Professional Development Plan	Being intentional about ongoing learning enables one to solidify one's knowledge and skills while also continuing to grow and develop. A professional development plan is a mechanism for identifying one's goals for continued learning and systematically addressing one's learning needs.	Learning analytics is a rapidly growing area of practice and research. Through this course you have hopefully developed a foundation of knowledge and skills that will be useful for your ongoing work and serve as a strong basis for ongoing learning. By taking some time to reflect on what you have learned and how you anticipate engaging with privacy and learning analytics going forward, you can then articulate some personal learning goals and identify specific ways to pursue ongoing professional development in this arena.

Finally, we created learning objects to contextualize and deliver our instruction. We developed six modules respectively entitled: Getting Situated; Learning Analytics in Higher Education and Opportunities for Libraries; Learning Analytics and the Privacy Problem; Critical Lenses on Learning Analytics; Ethics in Action; and Planning for Prioritizing Privacy. Each module contained at a minimum an overview page, a multimedia lecture embedded within a discussion forum to facilitate questions and answers, and a readings and media page to access required and supplementary materials; modules also included a module quality survey. Four modules also included a multimedia interview, "Four Questions With …," that we conducted with a leading practitioner or scholar on issues related to learning analytics.

Each module overview page contained a description of the module's content, specific learning outcomes, and activities for learners to complete. Readings and media pages provided guidance on how learners should approach readings; required readings were open access, but supplementary readings were a mix of open and closed access. Modules also had associated relevant assessments. To provide a guide for the course, set expectations, and outline policies, we created a comprehensive syllabus.

With the learning objects drafted, we implemented them in the learning management system (LMS) Canvas. The authors were both familiar with teaching online or hybrid courses in Canvas for our respective institutions, which made our LMS choice straightforward. Further, Canvas provides a "Free-for-Teacher," non-institutionally affiliated version, as our learners would be from outside our respective institutions. An additional benefit of selecting Canvas for our LMS was that it enabled us to create an IMS Common Cartridge (IMSCC) export file each time we ran the course for archival purposes. Using this file, others can duplicate and iterate on the course by importing it into an LMS that accepts IMSCC files. After building the course site in Canvas, co-author Jones did an informal evaluation of its design according to the Quality Matters general standards and associated specific review standards for higher

education courses (Murillo & Jones, 2020; Quality Matters, 2022). As a certified Quality Matters peer reviewer, Jones was familiar with the standards and evidence that support whether a standard is met. We made course design adjustments as needed. All learning objects associated with the course, along with IMSCC exports of the course site, are available for access, use, and modification by others in accordance with the associated license by accessing our research repository (Hinchliffe & Jones, 2022n).

Learner Recruitment and Enrollment

With the course design set, we constructed the process for learner recruitment and enrollment. As we intended to collect data for assessment, evaluation, and research purposes, we began this process by discussing our methods and research designs with our respective institutional review board (IRB) offices. Both Indiana University (Jones, 2022b) and the University of Illinois Urbana-Champaign (Hinchliffe, 2022) IRBs classified our activities as exempt from a full review.

Our targeted participants were individuals who identified as academic library professionals working in American higher education institutions. We recruited participants by posting a recruitment message (Hinchliffe & Jones, 2022j) to 20 academic library listservs and online community groups (Hinchliffe & Jones, 2022i) in addition to publishing blog posts on our project website (Hinchliffe & Jones, 2022r) and updates on our Twitter account (Hinchliffe & Jones, 2022o); we posted no follow-up messages. Interested individuals completed a survey of their experiences, interests, and demographics (Hinchliffe & Jones, 2022b).

Because interest in the course was high but enrollment for each cohort was limited, we reviewed the interest surveys to build diverse cohorts based on personal demographics (e.g., age, race/ethnicity, gender), professional demographics (e.g., job classification, years of experience, experience with learning analytics), and institution type (e.g., community college, research-intensive, private). After selecting participants, we sent them an invitation to enroll by email (Hinchliffe & Jones, 2022h), which required them to complete a pre-course knowledge, skills, and abilities assessment survey (Hinchliffe & Jones, 2022m). Those who accepted our invitation by completing the survey were sent a "join code" to enroll in our Canvas course site (Instructure, 2020). A short waitlist was developed for each cohort and additional invites issued if original invitees declined or did not respond. See Table 3 for final enrollment numbers across cohorts.

TABLE 3
Enrollment and Course Completion

Cohorts	Classes[a]	Invited to Enroll *N*	Enrollment *n*	Incompletes *n*[b]	Completes n	Completion Rate
2021, Fall	2	67	46	13	33	71.7%
2022, Spring	4	116	108	42	66	61.1%
2022, Fall	2	56	47	17	30	63.8%

[a] Learners were evenly divided among classes.

[b] Incompletes include learners who: 1) accepted the invitation but never enrolled in a course; 2) enrolled in a course but were never active and were withdrawn by the instructors; 3) became inactive in a course over more than two modules and were withdrawn by the instructors; and 4) proactively withdrew their enrollment due to personal reasons.

Quantitative and Qualitative Data Collection

We collected quantitative data from learners via multiple instruments, starting with the pre-course knowledge, skills, and abilities assessment survey (Hinchliffe & Jones, 2022m). This survey primarily asked interval questions regarding research, data, and learning analytics ethics, along with categorical questions about a learner's ability to address ethics issues. Other interval questions asked learners to assess their abilities relative to the course's learning outcomes. Upon completion of the course, learners took a similar post-course knowledge, skills, and abilities assessment survey (Hinchliffe & Jones, 2022l); the design enabled calculating pre- and post-course self-reported learning gains. In total, 194 learners completed the pre-course knowledge, skills, and abilities assessment survey; 100 learners completed *both* the pre- and post-course surveys for a completion rate of 52% (see Table 4).

TABLE 4
Pre- and Post-Course Knowledge, Skills, and Abilities Survey Completion

Cohorts	Pre- *n*	Post- *n*	Completion of Both Pre- and Post-
2021, Fall	47	23	49%
2022, Spring	101	52	51%
2022, Fall	46	25	54%

In addition to the two knowledge, skills, and abilities survey instruments, learners completed a course evaluation survey (Hinchliffe & Jones, 2022a). This survey addressed the course's design (i.e., structure, instructional materials) and the instructors' success using interval and short essay questions. Ninety-three learners completed the evaluation survey for a completion rate of 46.3% (see Table 5).

TABLE 5
End-of-Course Evaluation Completion

Cohorts	Enrollment *n*	Completion *n*[a]	Completion Rate
2021, Fall	46	20	43.5%
2022, Spring	108	45	41.7%
2022, Fall	47	28	59.6%

[a] Evaluations were marked as complete when a learner completed 70% or more of the survey.

Learners also had the option to complete a module quality survey at the end of each of the six modules (Hinchliffe & Jones, 2022k). This survey asked about the learner's agreement with four questions regarding the module's activities, design, lecture, and materials regarding how these things impacted their learning; it also contained one short essay question to provide general feedback. Learners completed 229 module quality surveys. We used these surveys to make iterative improvements to discrete parts of the course as necessary. See Table 6 for completion rates across cohorts for each module survey.

Finally, we gathered data from the course activities by exporting the cohort gradebooks into CSVs and exporting rubric scores using a Tampermonkey script for the Firefox web browser (University of Colorado Boulder, 2022), which created analyzable CSVs.

TABLE 6
Module Quality Survey Completion

Cohorts	Module 1 *n*	Module 2 *n*	Module 3 *n*	Module 4 *n*	Module 5 *n*	Module 6 *n*	Total *N*
2021, Fall	23	16	14	8	9	10	80
2022, Spring	22	28	16	11	9	14	100
2022, Fall	6	13	8	8	4	10	49

We also collected qualitative data by interviewing 25 learners who completed a course in either the fall 2021 or spring 2022 cohorts. The interviews were scheduled six to twelve months after course completion to allow learners to act and reflect on course material in their professional lives after their cohort's course completed. We solicited interview participants via a Qualtrics contact list and email message (Hinchliffe & Jones, 2022e); learners indicated their willingness to participate and preferences for interview scheduling by completing a brief survey (Hinchliffe & Jones, 2022g). We sent one reminder message to targeted learners to indicate their participation preference (Hinchliffe & Jones, 2022c). Learners who participated in interviews received an electronic $20 gift code via email for use at Amazon.com (Hinchliffe & Jones, 2022d). Co-author Jones conducted and recorded all interviews via the web-conferencing application Zoom using a semi-structured interview protocol (Hinchliffe & Jones, 2022f). Interviews averaged 30 minutes in duration. We sent recorded audio to AutomaticSync to professionally and confidentially create transcriptions for analysis.

Data Analysis Procedures

Given the multiplicity of research instruments and inclusion of quantitative and qualitative data, we used a variety of data analysis procedures. We initially analyzed survey data using descriptive statistics to sum findings and examine notable changes in means. Next, we worked with the Indiana Statistical Consulting Center at Indiana University-Bloomington (2023) to explore more advanced parametric and non-parametric statistics. We analyzed the pre- and post-course knowledge, skills, and abilities assessment surveys for each cohort to test for significant differences, using tests appropriate to the data. For the 2021, fall cohort, the data passed a Shapiro-Wilk normality test; for this cohort we ran a paired t-test, which is also known as the paired samples t-test or dependent samples t-test. Neither the 2022, spring nor the 2022, fall cohorts passed the Shapiro-Wilk normality test, so we instead ran a paired Wilcoxon signed-rank test using the Bonferroni method to adjust the alpha ($p < .05$). This test is a non-parametric test used to compare two related or paired samples, and it is often used as an alternative to the paired t-test when the assumption of normality is violated or when the sample size is small.

For qualitative data, we imported the transcripts into MAXQDA qualitative data analysis software to support our coding procedures. We first coded the transcripts in relation to the interview protocol question numbers (e.g., 1.1., 1.2., 2.1., 3.1.), which enabled us to focus on specific questions and their answers across transcripts. Next, we thematically coded participant answers within questions. Where variables between questions emerged, we noted them. We used memoing strategies and MAXQDA code analysis tools to ideate and confirm themes (Charmaz, 2014).

TABLE 7
End-of-Course Evaluation Questions on Self-Reported Knowledge Gains and Knowledge Use

Questions	Average[a]			
	2021, Fall	2022, Spring	2022, Fall	Combined
I know significantly more about this subject than I did before I took this course	4.7	4.7	4.6	4.7
I will use the knowledge/skills gained in this course in my profession	4.5	4.6	4.6	4.6

[a]Answer options for each question used the following ranked Likert scale: Strongly disagree (1); Disagree (2); Neither agree nor disagree (3); Agree (4); Strongly agree (5).

Findings

Assessment of Learning

Analysis of course evaluation data and pre- and post-course knowledge, skills, and abilities assessment surveys within and between cohorts indicate strong self-reported learning gains. 99% of respondents across cohorts (N = 93) agree or strongly agree that they know significantly more about this subject than they did before they took the course, and 100% of respondents across cohorts (N = 93) agree or strongly agree that they will use the knowledge/skills gained in the course in their profession (see Table 7).

The statistical analysis of the pre- and post-course knowledge, skills, and abilities assessment surveys across cohorts revealed 11 questions where mean differences were statistically significant and indicated positive learning gains. Table 8 contains results for questions that specifically address knowledge, skills, and abilities. From this table we derive that knowledge concerning data ethics, learning analytics, and the ethics of learning analytics consistently increased across cohorts, with the latter increasing the most by a full point on the scale. Learners also expressed an ability to put their new knowledge into action. Prior to the course, learners were neutral regarding whether they were knowledgeable enough to address ethical issues associated with learning analytics. After the course, they indicated greater agreement with their usable knowledge. Further, they indicated that their course training had now prepared them to address privacy and related ethical issues associated with learning analytics, and that they felt confident representing library perspectives on a campus learning analytics committee.

TABLE 8
Statistically Significant Results from Pre- and Post-Course Knowledge, Skills, and Abilities Surveys: General Questions

ID	Question	Average Measures	Cohort Averages[b]			
			2021, Fall	2022, Spring	2022, Fall	Combined
5	How would you rate your knowledge of data ethics?[a]	Pre-KSA Average	2.61	2.81	2.68	2.73
		Post-KSA Average	3.22	3.40	3.40	3.36
		Average Change	0.61	0.60	0.72	0.63
11	How would you rate your knowledge of learning analytics?[a]	Pre-KSA Average	2.48	2.56	2.68	2.57
		Post-KSA Average	3.48	3.37	3.20	3.35
		Average Change	1.00	0.81	0.52	0.78

TABLE 8
Statistically Significant Results from Pre- and Post-Course Knowledge, Skills, and Abilities Surveys: General Questions

ID	Question	Average Measures	Cohort Averages[b]			
			2021, Fall	2022, Spring	2022, Fall	Combined
14	How would you rate your knowledge of learning analytics ethics?[a]	Pre-KSA Average	2.30	2.33	2.36	2.33
		Post-KSA Average	3.48	3.54	3.52	3.52
		Average Change	1.17	1.21	1.16	1.19
15	To what extent do you agree with this statement: I feel knowledgeable enough to address ethical issues associated with learning analytics.[b]	Pre-KSA Average	2.91	2.85	2.32	2.73
		Post-KSA Average	4.13	4.21	4.16	4.18
		Average Change	1.22	1.37	1.84	1.45
17	To what extent do you agree with this statement: My library ethics training has prepared me to address privacy and related ethical issues associated with learning analytics.[b]	Pre-KSA Average	2.74	2.73	2.48	2.67
		Post-KSA Average	4.26	4.08	4.16	4.14
		Average Change	1.52	1.35	1.68	1.47
18	How confident would you be in your ability to represent library perspectives on a campus learning analytics committee?[c]	Pre-KSA Average	2.61	2.50	2.08	2.42
		Post-KSA Average	3.70	3.71	3.64	3.69
		Average Change	1.09	1.21	1.56	1.27
	Total Average Change		1.10	1.09	1.25	1.13
	Minimum Average Change		0.61	0.60	0.52	0.63
	Maximum Average Change		1.52	1.37	1.84	1.47

[a]Answer options for this question used the following ranked Likert scale: Not knowledgeable at all (1); Slightly knowledgeable (2); Moderately knowledgeable (3); Very knowledgeable (4); Extremely knowledgeable (5).

[b]Answer options for this question used the following ranked Likert scale: Strongly disagree (1); Somewhat disagree (2); Neither agree nor disagree (3); Somewhat agree (4); Strongly agree (5).

[c]Answer options for this question used the following ranked Likert scale: Not confident at all (1); Slightly confident (2); Moderately confident (3); Very confident (4); Extremely confident (5).

Table 9 contains results for questions that concern the course's learning outcomes. Across the outcomes we see nearly a 1.5-point change on the scale asking about their ability to do the stated outcome, moving from "slightly capable" with a pre-KSA average of 2.3 across outcomes closer to "very capable" with post-KSA average of 3.8 across outcomes. We see the largest average increase (1.7) in the learning outcome asking learners about their ability to develop a learning plan for continuing professional development regarding learning analytics, information privacy, and ethical practice.

TABLE 9
Statistically Significant Results from Pre- and Post-Course Knowledge, Skills, and Abilities Surveys: Learning Outcomes

ID	Question/Learning Outcome[a,b]	Average Measures	Cohort Averages			
			2021, Fall	2022, Spring	2022, Fall	Combined
23	Describe the social, political, and technological elements of learning analytics in higher education, generally, and academic libraries, specifically.	Pre-KSA Average	2.4	2.4	2.4	2.4
		Post-KSA Average	3.9	3.6	3.8	3.8
		Average Change	1.5	1.2	1.4	1.4
24	Distinguish between theoretical aspects of information privacy and their connection to learning analytics.	Pre-KSA Average	2.4	2.3	2.3	2.3
		Post-KSA Average	3.8	3.7	3.6	3.7
		Average Change	1.4	1.4	1.3	1.4
25	Critique existing learning analytics principles, policies, practices, and recommendations and the ways in which they may create privacy harms.	Pre-KSA Average	2.3	2.4	2.5	2.4
		Post-KSA Average	4.0	4.0	3.8	3.9
		Average Change	1.7	1.6	1.4	1.5
26	Adjust a learning analytics practice to strategically minimize privacy harms and maximize specific benefits.	Pre-KSA Average	2.1	2.2	2.2	2.1
		Post-KSA Average	3.4	3.6	3.6	3.5
		Average Change	1.3	1.4	1.4	1.4
27	Plan for ethical and evidence-based library learning analytics projects that are based in privacy by design.	Pre-KSA Average	2.1	2.2	2.3	2.2
		Post-KSA Average	3.7	3.8	3.9	3.8
		Average Change	1.6	1.6	1.6	1.6
28	Develop a learning plan for continuing professional development regarding learning analytics, information privacy, and ethical practice.	Pre-KSA Average	2.4	2.4	2.6	2.4
		Post-KSA Average	4.1	4.4	4.0	4.2
		Average Change	1.8	2.0	1.4	1.7
	Total Average Change		1.5	1.5	1.4	1.5
	Minimum Average Change		1.3	1.2	1.3	1.4
	Maximum Average Change		1.8	2.0	1.6	1.7

[a]The stem for learning outcomes questions was: "How would you rate your ability to…"

[b]Answer options for each question used the following ranked Likert scale: Not capable at all (1); Slightly capable (2); Moderately capable (3); Very capable (4); Extremely capable (5).

Evaluation of Course Design

End-of-course evaluation surveys contained two sections, one focused on course design and one focused on instructor effectiveness. The former contained nine Likert scale questions and two open-ended questions, while the latter contained three Likert scale questions and two more open-ended questions. Table 10 contains average scores across within and between cohorts regarding course design. With one exception for cohort 2021, fall, scores for all questions were at or above a four ("Agree"). The consistent, positive rating indicates a stable, successful course design as perceived by the learners.

TABLE 10
End-of-Course Evaluation Questions on Course Design

ID	Questions	Average[a]			
		2021, Fall	2022, Spring	2022, Fall	Combined
1	The course description accurately reflected the content of the course	4.4	4.6	4.4	4.5
2	Course goals and objectives are clearly specified	4.2	4.7	4.5	4.6
3	The structure for this course is easy to understand and follow	3.6	4.5	4.5	4.3
4	Course materials (required readings, supplemental readings) are accessible, appropriate, and helpful	4.5	4.6	4.6	4.6
5	Course lectures are accessible, appropriate, and helpful	4.8	4.7	4.5	4.7
6	Course activities (discussions, Privacy Sourcebook, virtual symposium) are accessible, appropriate, and helpful	4.3	4.5	4.3	4.4
7	I knew what was expected of me in this course	4.0	4.3	4.6	4.3

[a]Answer options for each question used the following ranked Likert scale: Strongly disagree (1); Disagree (2); Neither agree nor disagree (3); Agree (4); Strongly agree (5).

Table 11 contains average scores across within and between cohorts regarding instructor effectiveness. Calculating slightly higher than the course design questions, responses for this section were at above 4.4 (between "Agree" and "Strongly agree") across all cohorts, averaging a 4.5. Again, the consistent, positive rating indicates learners believe the instruction to be successful and it was consistently delivered across cohorts.

TABLE 11
End-of-Course Evaluation Questions on Instructor Effectiveness

ID	Questions	Average[a]			
		2021, Fall	2022, Spring	2022, Fall	Combined
8	The instructors explained concepts effectively	4.5	4.6	4.4	4.5
9	The instructors foster an encouraging atmosphere for learning	4.4	4.4	4.6	4.5
10	The instructors let me feel free to ask questions	4.4	4.5	4.5	4.5

[a]Answer options for each question used the following ranked Likert scale: Strongly disagree (1); Disagree (2); Neither agree nor disagree (3); Agree (4); Strongly agree (5).

Post-Course Impact

Interview participants reflected on how the course's learning experiences helped them examine their own professional ethics vis-à-vis library learning analytics and other student-focused analytic practices at their institution. Individuals reconsidered what one participant called "librarian sensibilities" and another labeled "knee-jerk reactions": professional dispositions to be maximally privacy protecting, even at the expense of potentially useful data collection and analysis. The course helped one participant "rethink and reframe" their philosophy of student privacy and, for another participant, enabled them to "build my thoughts around privacy and […] think a little more critically." Notably, rethinking and reframing their professional ethics

cut two ways. First, they used course learning experiences to flesh out a more nuanced view of student privacy. Second, they melded considerations of expanding data collection and analysis activities with concepts such as beneficence, transparency, consent, and autonomy in reconsidering those activities to better align them with newly formed understanding of student privacy boundaries and expectations.

When asked to describe their most impactful learning experience in the course, interviewees largely pointed to the Privacy Sourcebook. We weaved the Sourcebook's five activities throughout most of the course and it was a keystone learning assignment, so it is not surprising that learners would point to it. What was unexpected, however, was how learners continued to use it in aid to their professional practice after the course concluded. The Sourcebook was an effective learning experience because its structured approach scaffolded information seeking about institutional practices and stakeholders, while enabling learners to build a personal understanding of student privacy that could help them engage in campus activities. For course participants, such as this interviewee, it "elucidates a lot of blind spots that I had in terms of what's happening [or not] on my campus." The Sourcebook also guides participants in asking key questions, like: "What do we do here? Do we have anything like this? Or who's responsible for this? […] Who would I go to for this kind of thing or that kind of thing?" In that sense, it was highly practical. Interviewees stated that it helped them develop useful knowledge and build confidence to be an active participant on committees and hold dialogues with their peers. The Sourcebook was also a resource. Interviewees cited that they would return to it from time to time to review their notes and reflect on what they learned in the course, even using it to jump start conversations with their peers. Others see opportunities to use the Sourcebook in part or in whole with library peers or on committees to guide campus conversations about learning analytics and student privacy—though none report that they had done so.

Analysis of conversations with interviewees suggested that two major gaps still existed in their knowledge concerning learning analytics and student privacy: the practice of learning analytics and mapping information flows. After participating in the course, interviewees reported that learning about the ethics of learning analytics filled a significant gap in their knowledge and prepared them for working with learning analytics, but that they did not know how to take that next step: "So I think the gap," stated an interviewee, "is now trying to think about the application and what data points should be gathered or could be gathered easily that isn't going to be as perhaps intrusive for the students in order to move things forward. So, a little bit more of that nuts and bolts [about] how can I start applying something." To move forward with learning analytics, interviewees indicated that they still needed to do more institutional research about 1) what data access points exist, 2) who managed specific sets of data or data flows, and 3) what institutional policies were in place—if any—to gain access to that data and under what conditions it could be used. But as one participant stated, even though these gaps exist, they now know "the language" to speak to have more informed conversations with others on campus to engage in learning analytics in an ethical, informed way.

Discussion

Reflecting on the Course's Impact

Across the three cohorts, the findings suggest that the course had a positive impact on the professional development of the learners who completed it. Self-reported learning gains were

significant. Learners also consistently reported that the course design and instruction was effective. When considering these findings in isolation it leads us to conclude that the course was a success. We argue, however, that what is more important is the reported *action* that resulted from what was learned. Participants self-reported that they are better prepared to address privacy and related ethical issues associated with learning analytics and they have the confidence to represent library perspectives regarding learning analytics. The interviews support these beliefs with statements that they are engaging in conversations, bringing campus actors together, and taking action to develop learning analytics practices while prioritizing privacy. Those who act on the knowledge gained in the course are working to improve the learning environment for students while also considering their privacy needs and committing to ethical practice.

Could the course be improved? Even though we see markers of success in the data, our reflections have highlighted some problematic areas. Online courses often suffer from problems related to learner engagement, persistence, and completion. This is an issue for both online higher education programs (see Hart, 2012; Rovai, 2003; Yang et al., 2017) and adult learners in professional development programs (see Wuebker, 2013). Completion rates across our three cohorts ranged from ~61% to ~72%, leading us to ask what we could have done in our course design or instruction to improve learner persistence to completion. One reason for this lower-than-ideal rate of completion could be because no professional development credits or credentials were offered; learners engaged in the material simply because they were interested. Should the course be replicated in the future, aligning it with an institution or organization that can grant such credits or credentials could be beneficial.

Replicating the Course

The course is completely replicable. As mentioned previously, our research repository (Hinchliffe & Jones, 2022n) contains all learning objects, including the course as an IMSCC file, which can be imported into our LMS of choice—Canvas—or many other major LMSs. Those who wish to replicate the course can pick and choose learning objects to meet their pedagogical needs. Alternatively, individuals can run the course in whole with minor modifications to course logistics (e.g., due dates), grading needs (e.g., changes to rubrics), and instructional responsibility (i.e., making it clear who is in charge of running the course, contact information, etc.). We have documented many of these considerations and other helpful information in *The Prioritizing Privacy Course Instructor Handbook* (Hinchliffe & Jones, 2023), a 28-page document created to provide future instructors insights and support into our instructional design strategies. Reproducing the course is only limited by the license, which states that it cannot be used for commercial purposes.

Extending the Course

There are several opportunities for extending the Prioritizing Privacy course for different types of learners. Even though the course was not created with LIS graduate students in mind, it can fill some gaps in LIS curricula that Jones and Hinchliffe (2022) and Huang et al. (2021) identified. Course materials are well matched to fit into specific courses, for instance:

- learning objects focused on understanding learning analytics practices in the context of higher education could inform courses on *academic librarianship services and management* or *assessment and evaluation*;

- learning objects focused on theoretical and practical aspects of information privacy could support learning experiences in an *information policy* course;
- and learning objects focused on critical approaches to learning analytics could aid instruction in *information ethics* or *critical data/algorithm studies* courses.

As a six-module course developed to span six weeks, we do not foresee the course being used as-is in a traditional spring/fall semester-long format. However, with modification, the course could be a strong addition to January terms (J-term) or summer semesters as a one or two credit course.

The course is most easily replicable as a professional development experience for the original target audience: practitioners. There are two ways it could be successfully run. First, academic library consortia or professional organizations at the state or national level could replicate the course with facilitators. Only minor changes to the course would be needed, and opportunities within the course exist to contextualize it to an organization's needs or interests. Second, individual academic libraries could run the course as a professional development exercise. In this case, it could also be useful to facilitate the course in such a way that it includes faculty and staff from the library's wider university, but deemphasizing library issues in the course may be needed. Librarian-led facilitation of the course in this way may have the added political benefit of demonstrating to university actors that librarians are leaders in the learning analytics space.

Finally, the course can be—and has been—distilled into a workshop-style experience. From May 2022 to September 2023, we conducted 24 workshops for academic libraries and consortia across the United States by selecting materials from the course for instruction and using pieces from the Privacy Sourcebook to guide individual and group-based activities. These half-day workshops introduced practitioners to the major foci of the course without requiring participants to commit to a multi-week learning experience. Like the course, all workshop materials are available for reuse (Hinchliffe & Jones, 2022q).

Conclusion

With learning analytics continuing to expand in use across higher education institutions, it is imperative that library practitioners engage with campus efforts in planning for and implementing learning activities. If the design of such efforts is to be informed by the ethical concerns librarians have about learning analytics, librarians must find ways to participate in the shared governance and policymaking processes that create the parameters for these programs. Avoidance and disengagement will fail to bring library values of privacy, user control, etc. to the forefront and may leave the library mandated to collect and report data in ways that are professionally problematic or ethically suspect. Professional development opportunities are critical to ensuring that library practitioners have the necessary knowledge, skills, and strategies. The openly available, field-tested curriculum made available through the Prioritizing Privacy course can serve the profession as the basis for ongoing education in this realm.

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References

Anderson, L., Krathwohl, D., Airasian, P., Cruikshank, K., Mayer, R., Pintrich, P., Raths, J., & Wittrock, M. (2000). *A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives* (1st edition). Pearson.

Biggs, J. (2014). Constructive alignment in university teaching. *HERDSA Review of Higher Education*, *1*, 5–22. https://www.herdsa.org.au/herdsa-review-higher-education-vol-1/5-22

Briney, K. A. (2019). Data management practices in academic library learning analytics: A critical review. *Journal of Librarianship and Scholarly Communication*, *7*(1), 1–39. https://doi.org/10.7710/2162-3309.2268

Burke, L. (2020, February 21). Facial recognition surveillance on campus. *Inside Higher Ed*. https://www.insidehighered.com/news/2020/02/21/ucla-drops-plan-use-facial-recognition-security-surveillance-other-colleges-may-be

Charmaz, K. (2014). *Constructing grounded theory* (2nd ed.). SAGE Publications.

Clarke, R. (1988). Information technology and dataveillance. *Communications of the ACM*, *31*(5), 498–512. https://doi.org/10.1145/42411.42413

Currier, C. (2021). Unresolved privacy and ethics issues related to learning analytics in higher education and academic librarianship. *Emerging Library & Information Perspectives*, *4*(1), 117–142. https://doi.org/10.5206/elip.v4i1.13463

D'Agostino, S. (2024, February 27). Facial recognition heads to class. Will students benefit? *Inside Higher Ed*. https://www.insidehighered.com/news/tech-innovation/teaching-learning/2024/02/27/facial-recognition-heads-class-will-students

Doty, P. (2020). Library analytics as moral dilemmas for academic librarians. *The Journal of Academic Librarianship*, *46*(4), 1–5. https://doi.org/10.1016/j.acalib.2020.102141

Flaherty, C. (n.d.). *No More Proctorio*. Inside Higher Ed. Retrieved March 11, 2024, from https://www.insidehighered.com/news/2021/02/01/u-illinois-says-goodbye-proctorio

Flaherty, C. (2020, May 11). Big proctor. *Inside Higher Ed*. https://www.insidehighered.com/news/2020/05/11/online-proctoring-surging-during-covid-19

Flierl, M., Quigley, B., Caswell, T., Costello, L., Li, C., Maher, M., Ness, C., Piorun, M., Prud'homme, P.-A. (Max), Van Diest, K., Walker, G., Wang, M., & Yang, A. (2023). *2023 ACRL environmental scan*. http://deepblue.lib.umich.edu/handle/2027.42/175964

Hart, C. (2012). Factors associated with student persistence in an online program of study: A review of the literature. *Journal of Interactive Online Learning*, *11*(1), 19–42. https://eric.ed.gov/?id=EJ976760

Hartman-Caverly, S. (2019). Human nature is not a machine: On liberty, attention engineering, and learning analytics. *Library Trends*, *68*(1), 24–53. https://muse.jhu.edu/pub/1/article/736893

Hinchliffe, L. J. (2022). *University of Illinois Urbana-Champaign IRB application*. https://osf.io/4r2ex

Hinchliffe, L. J., & Jones, K. M. L. (2022a). *Course evaluation survey*. https://osf.io/mx5bt

Hinchliffe, L. J., & Jones, K. M. L. (2022b). *Interest survey*. https://osf.io/jznhr

Hinchliffe, L. J., & Jones, K. M. L. (2022c). *Interview follow-up recruitment request*. https://osf.io/mq5wu

Hinchliffe, L. J., & Jones, K. M. L. (2022d). *Interview incentive message*. https://osf.io/zafhq

Hinchliffe, L. J., & Jones, K. M. L. (2022e). *Interview initial recruitment request*. https://osf.io/6vcxb

Hinchliffe, L. J., & Jones, K. M. L. (2022f). *Interview protocol*. https://osf.io/c6dqx

Hinchliffe, L. J., & Jones, K. M. L. (2022g). *Interview recruitment survey*. https://osf.io/j65y2

Hinchliffe, L. J., & Jones, K. M. L. (2022h). *Invitation to enroll*. https://osf.io/ur4yf

Hinchliffe, L. J., & Jones, K. M. L. (2022i). *Listserv distribution*. https://osf.io/9y2vt

Hinchliffe, L. J., & Jones, K. M. L. (2022j). *Listserv message*. https://osf.io/qbr5p

Hinchliffe, L. J., & Jones, K. M. L. (2022k). *Module quality survey*. https://osf.io/359td

Hinchliffe, L. J., & Jones, K. M. L. (2022l). *Post-course knowledge, skills, and abilities (KSA) survey*. https://osf.io/qtkxw

Hinchliffe, L. J., & Jones, K. M. L. (2022m). *Pre-course knowledge, skills, and abilities (KSA) survey*. https://osf.io/35mvq

Hinchliffe, L. J., & Jones, K. M. L. (2022n). *Prioritizing privacy Canvas course site*. https://osf.io/auywk/

Hinchliffe, L. J., & Jones, K. M. L. (2022o). *@priorityprivacy*. Twitter. https://twitter.com/priorityprivacy

Hinchliffe, L. J., & Jones, K. M. L. (2022p). *Privacy sourcebook (v2—Spring 2022)*. https://osf.io/wzxks

Hinchliffe, L. J., & Jones, K. M. L. (2022q). *Workshop materials*. https://osf.io/mytbj
Hinchliffe, L. J., & Jones, K. M. L. (2023). *The prioritizing privacy course instructor handbook*. https://osf.io/hwdn7
How license plate readers are helping University Police solve crimes. (2023, February 1). *University of Illinois Urbana-Champaign Division of Public Safety*. https://police.illinois.edu/how-license-plate-readers-are-helping-university-police-solve-crimes/
Huang, C., Samek, T., & Shiri, A. (2021). AI and ethics: Ethical and educational perspectives for LIS. *Journal of Education for Library and Information Science*. https://doi.org/10.3138/jelis-62-4-2020-0106
Indiana Statistical Consulting Center. (2023). Indiana University-Bloomington. https://iscc.indiana.edu/index.html
Innovative license plate reader technology now in use on CU Boulder campus. (2023, July 17). *CU Boulder Today*. https://www.colorado.edu/today/2023/07/17/innovative-license-plate-reader-technology-now-use-cu-boulder-campus
Instructure. (2020, July 20). *How do I sign up for a Canvas account with a join code or secret URL as a student?* https://community.canvaslms.com/t5/Student-Guide/How-do-I-sign-up-for-a-Canvas-account-with-a-join-code-or-secret/ta-p/437
Iowa State University Center for Excellence in Learning and Teaching. (2022). *Revised Bloom's taxonomy*. https://www.celt.iastate.edu/instructional-strategies/effective-teaching-practices/revised-blooms-taxonomy/
Jones, K. M. L. (2019). "Just because you can doesn't mean you should": Practitioner perceptions of learning analytics ethics. *Portal: Libraries and the Academy*, *19*(3), 407–428. https://muse.jhu.edu/article/729196
Jones, K. M. L. (2022a). *The datafied student: Why students' data privacy matters and the responsibility to protect it*. Future of Privacy Forum. https://studentprivacycompass.org/resource/the-datafied-student-why-students-data-privacy-matters-and-the-responsibility-to-protect-it/
Jones, K. M. L. (2022b). *Indiana University IRB application*. https://osf.io/bn92c
Jones, K. M. L., & Hinchliffe, L. J. (2022). Ethical issues and learning analytics: Are academic library practitioners prepared? *The Journal of Academic Librarianship*, 102621. https://doi.org/10.1016/j.acalib.2022.102621
Kumar, P. C. (2023). Orienting privacy literacy toward social change. *Information and Learning Sciences*, *ahead-of-print* (ahead-of-print). https://doi.org/10.1108/ILS-06-2023-0061
Murillo, A. P., & Jones, K. M. L. (2020). A "just-in-time" pragmatic approach to creating Quality Matters-informed online courses. *Information and Learning Sciences*, *121*(5/6), 365–380. https://doi.org/10.1108/ILS-04-2020-0087
Nichols, S. (2023, October 10). University to install license plate readers to improve campus safety. *The Daily Tar Heel*. https://www.dailytarheel.com/article/2023/10/university-new-license-plate-readers
Nissenbaum, H. (2009). *Privacy in context: Technology, policy, and the integrity of social life*. Stanford University Press.
Oliphant, T., & Brundin, M. R. (2019). Conflicting values: An exploration of the tensions between learning analytics and academic librarianship. *Library Trends*, *68*(1), 5–23. https://muse.jhu.edu/pub/1/article/736892
Quality Matters. (2022). *Higher ed course design rubric standards*. https://www.qualitymatters.org/qa-resources/rubric-standards/higher-ed-rubric
Rovai, A. P. (2003). In search of higher persistence rates in distance education online programs. *The Internet and Higher Education*, *6*(1), 1–16. https://doi.org/10.1016/S1096-7516(02)00158-6
University of Colorado Boulder. (2022, May 27). *Export rubric scores*. Github. https://github.com/UCBoulder/canvas-userscripts/blob/main/export_rubric_scores.user.js
van Barneveld, A., Arnold, K., & Campbell, J. (2012). *Analytics in higher education: Establishing a common language*. EDUCAUSE Learning Initiative. https://library.educause.edu/resources/2012/1/analytics-in-higher-education-establishing-a-common-language
Winkelmes, M.-A. (2014). *Transparency in learning and teaching project*. https://tilthighered.com/transparency
Wuebker, M. P. (2013). Adult learners: Improving persistence and performance in online learning environments. *Journal of College Literacy & Learning*, *39*, 38–46.
Yang, D., Baldwin, S., & Snelson, C. (2017). Persistence factors revealed: Students' reflections on completing a fully online program. *Distance Education*, *38*(1), 23–36. https://doi.org/10.1080/01587919.2017.1299561
Zimmer, M., & Tijerina, B. (2018). *Library values & privacy in our national digital strategies: Field guides, convenings, and conversations*. https://cipr.uwm.edu/2018/08/02/project-report-library-values-privacy/

Scholarly Communication Work: On the Ground Perspectives

Allegra K. Swift and Annie K. Johnson

This survey investigates the experiences of scholarly communication workers in North America, with a total of 282 responses. Previous studies on scholarly communication work in academic libraries have tended to focus on organizational structure and necessary competencies. This study aims to put the focus back on workers' own experiences on the job, to better understand the contributing factors to burnout and attrition that can arise for those in these positions. Five main areas are investigated: newness of the position, scope of the work, support and resources, feelings of one's expertise being unvalued or dismissed, and the impact of administration. The study concludes with recommendations for library administrators on how to fortify a more sustainable environment for scholarly communication workers.

Introduction

The Association of College and Research Libraries (ACRL) defines scholarly communication as "the system through which research and other scholarly writings are created, evaluated for quality, disseminated to the scholarly community, and preserved for future use" (2003). Scholarly communication workers, then, are those in libraries who help make sure this system functions properly. They have various job titles, including librarian, manager, specialist, or something else entirely. Library staff with scholarly communication responsibilities hold unique "boundary spanning" roles. These staff are often in non-administrator positions without tangible support, resources, or authority, and yet are expected to lead and develop major programs and initiatives (Hackstadt, 2020). This study was conducted by librarians with experience in scholarly communication, in both non-administrator and administrative positions, who noticed several scholarly communication workers leaving their positions. It examines the range of experiences of people who work in these roles, with or without the designation "scholarly communication" or "librarian" in their title, to better understand the contributing factors to burnout and attrition that can arise. Five areas are explored: newness of the position, scope of the work, support and resources, feelings of one's expertise being unvalued or dismissed, and the impact of administration. After discussing these areas, recommendations are offered to upper administrators as to how they can help prevent burnout and attrition among their staff.

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Literature Review

Much has been written about scholarly communication in libraries. This research largely focuses on how scholarly communication work is structured, differences and commonalities in position descriptions, and skills and training needed for *librarians* specifically. There are far fewer studies that look at the individual experiences of scholarly communication workers or that question the overall sustainability of the work, as this study does. In addition, while there has been significant research on burnout and low morale among academic librarians more generally, this study is the only one that specifically focuses on scholarly communication workers and burnout.

Who is responsible for scholarly communication work and where does it belong in the library? Thomas (2013) drew on 2012 ARL Spec Kit *The Organization of Scholarly Communication Services* to discuss the prevalence of scholarly communication services across libraries. He found that there was no single or predominant model for how scholarly communication work was integrated into academic libraries. Almost 10 years later, Peper (2022) still found that the ways scholarly communication was organized and staffed varied widely across institutions. Case studies have shed further light on some of the ways scholarly communication work is distributed. Shea et al. (2017); and Wu (2019) discussed how they created working groups of volunteers from across their libraries to support scholarly communication initiatives. Whiting and Wright (2020) detailed how they established a formal scholarly communication unit to manage the work. Most recently, Lippincott (2023) found that digital scholarship centers were offering scholarly communication services, particularly related to data services and publishing. This study confirms what others had previously found: that academic libraries continue to staff scholarly communication services in varied ways.

In terms of position descriptions, Finlay et al. (2015) looked at the growth of job advertisements related to scholarly communication, arguing that more training was needed to support this area. Xia and Li (2015) also analyzed job ads and found that responsibilities and even qualifications changed over time often in response to milestones in the scholarly communications ecosystem. Although focused specifically on OER librarianship, Larson (2020), examined position descriptions and argued that a standard scope of work had not yet emerged. This study, on the other hand, examines the actual on-the-ground experiences of scholarly communication workers, and how they view their job responsibilities.

The question of what one needs to know to be a scholarly communication librarian and how they should acquire this knowledge has also been a hotly debated topic. The NASIG Core Competencies for Scholarly Communication Librarians, which was developed in 2017, set the standard for what scholarly communication work should look like for librarians. As a result, many studies, including Lange and Hanson (2020) and Brantley et al. (2017), have focused on how to help existing liaison librarians gain knowledge of what are considered core scholarly communication topics. Bonn et al. (2020), on the other hand, have argued that training needs to begin much earlier, and that library and information science graduate programs should be integrating scholarly communication topics into existing courses and curricula, to better prepare students for these positions. Kingsley et al. (2022) also focused on gaps in education and advocated for more training for scholarly communication work. Owens (2021) argued that the large number of responsibilities of a scholarly communication librarian led many to experience "impostor syndrome." Finally, Hollister and Jensen (2023) looked at the research productivity of scholarly communication librarians and argued similarly that lack of training

was a major issue. This study, in contrast, did not find lack of training to be a primary concern for scholarly communication workers.

Scholarship that discusses the actual on-the-job experiences of scholarly communication workers is less common and tends to be focused on individual case studies. In her well-known satirical article, Salo (2013) noted the many challenges facing scholarly communication librarians without institutional support. In the years that followed the publication of this piece, case studies confirmed that the sustainability of this work continues to be an issue. Champieux et al. (2020) described the need to encourage sustainable planning for outreach events like Open Access Week. Meetz and Boczar (2022) discussed changes made to the publishing program at Pacific University to make it more sustainable for staff. Most recently, the textbook, *Scholarly Communication Librarianship and Open Knowledge* (2023), includes personal essays from 10 scholarly communication librarians about their experiences with this work. This study therefore fills a gap in the literature, as it focuses on the experiences of a broad swath of scholarly communication workers from many different institutions.

Finally, there have been numerous studies that look at low morale and burnout among academic librarians. Kendrick (2017) examined low morale as a phenomenon different from, although related to, bullying and burnout. Nardine (2019) and Wood (2020) both found that burnout was a significant issue for librarians. Most recently, Holm et al. (2023) focused on the many causes of burnout among librarians, including workload, employment status, dysfunctional organizational culture, and leadership. This study complements such previous work on burnout and low morale while looking specifically at the unique experiences of scholarly communication workers.

Methods

The authors created an online survey designed to better understand the experiences of scholarly communication workers working in academic libraries in North America. The survey contained 33 questions that covered position background, current and future work, experiences on the job, and demographics. To be sensitive to respondents and as inclusive as possible, the authors deliberately asked only one open-ended demographic question related to respondents' identities. All questions in the survey were optional. Prior to submission to the IRB, the survey was sent to several individuals outside of the author team who had expertise in survey design and/or scholarly communication. Feedback from these reviewers led to edits to the survey questions. This study was reviewed and judged to be exempt by both the University of California San Diego Institutional Review Board and the University of Delaware Institutional Review Board. Recruitment emails were sent to numerous library listservs including SPARC, NASIG-l, Scholcomm (ALA), Digital Commons, ALPA, Lib-OER, CC-OpenEDU, OCLC-RLP, LPC, IR Managers Forum, and CLIR Postdoctoral Fellows, and survey links were shared over Twitter (now X) and LinkedIn. The survey ran for three weeks, closing on March 20, 2023.

Analysis

The survey received 282 responses which were analyzed using Qualtrics (for quantitative responses) and Taguette and manual thematic coding (for the qualitative questions). Because all the questions were optional, not all the respondents answered every question. Each author led the analysis for different quantitative questions and coding of the qualitative questions, after which the authors came together and compared work.

Limitations

While the survey specified that it was open to anyone in North America, it was written in English and was only distributed to English-language listservs. In addition, one question erroneously asked for Carnegie classification of the respondent's current or previous employer, when such a classification does not apply to universities outside the United States.

Regarding demographic questions, the authors were concerned about anonymity and the risks of re-identification; therefore, they decided before launching the survey to only report on data for subgroups when there were at least 20 respondents in the subgroup. There were fewer than 20 respondents who identified themselves as having any one marginalized identity and, as a result, the authors are unable to report on this data. This was unfortunate, as the authors hoped to find potential correlations between the experiences of scholarly communication workers and their identities.

Results and Analysis

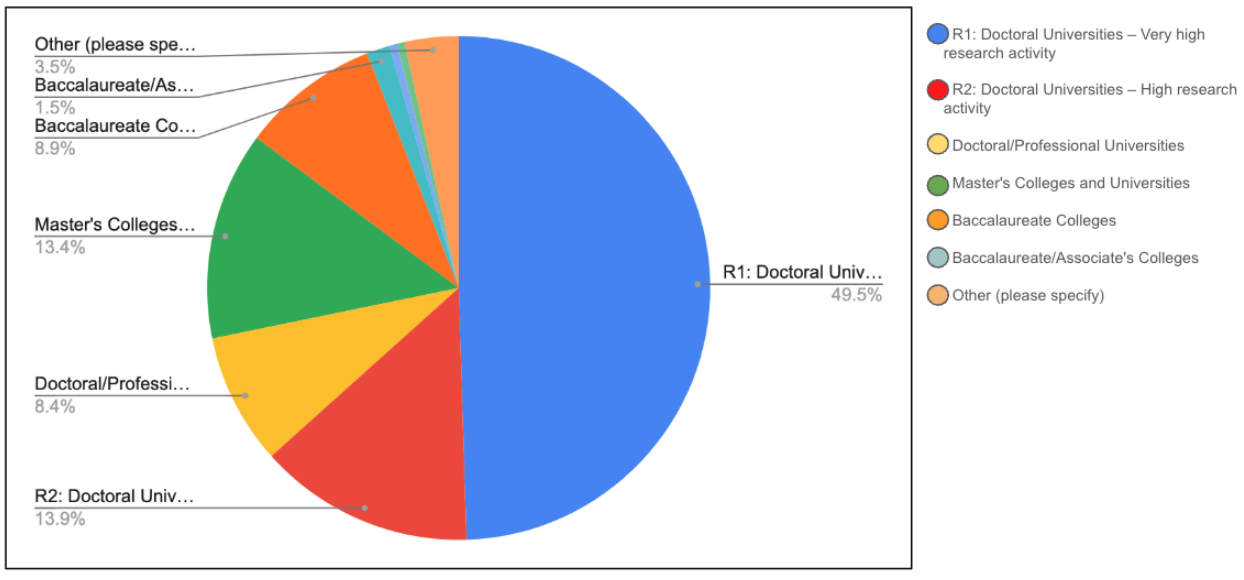
The Position

Of respondents, 87.69% worked in scholarly communication in a North American academic library and 7.46% responded that they used to. Of respondents, 49.5% worked in R1 universities with high research and publication outputs (see Figure 1).

Of respondents, 75.21% indicated that their position required a library and information science (LIS) degree, 13.68% said an LIS degree was not required and 11.11% of respondents indicated that an LIS degree was preferred. Only a small group of respondents indicated that a juris doctor or PhD was preferred or required for their position.

Of respondents, 96.15% were in a permanent position. In terms of how their positions are classified, 47.86% of respondents reported being faculty while 48.29% reported being classified as staff. Only 23.93% of respondents indicated that they are a member of a union.

FIGURE 1
Carnegie Classification of Your Current Library or Where You Were Most Recently Employed

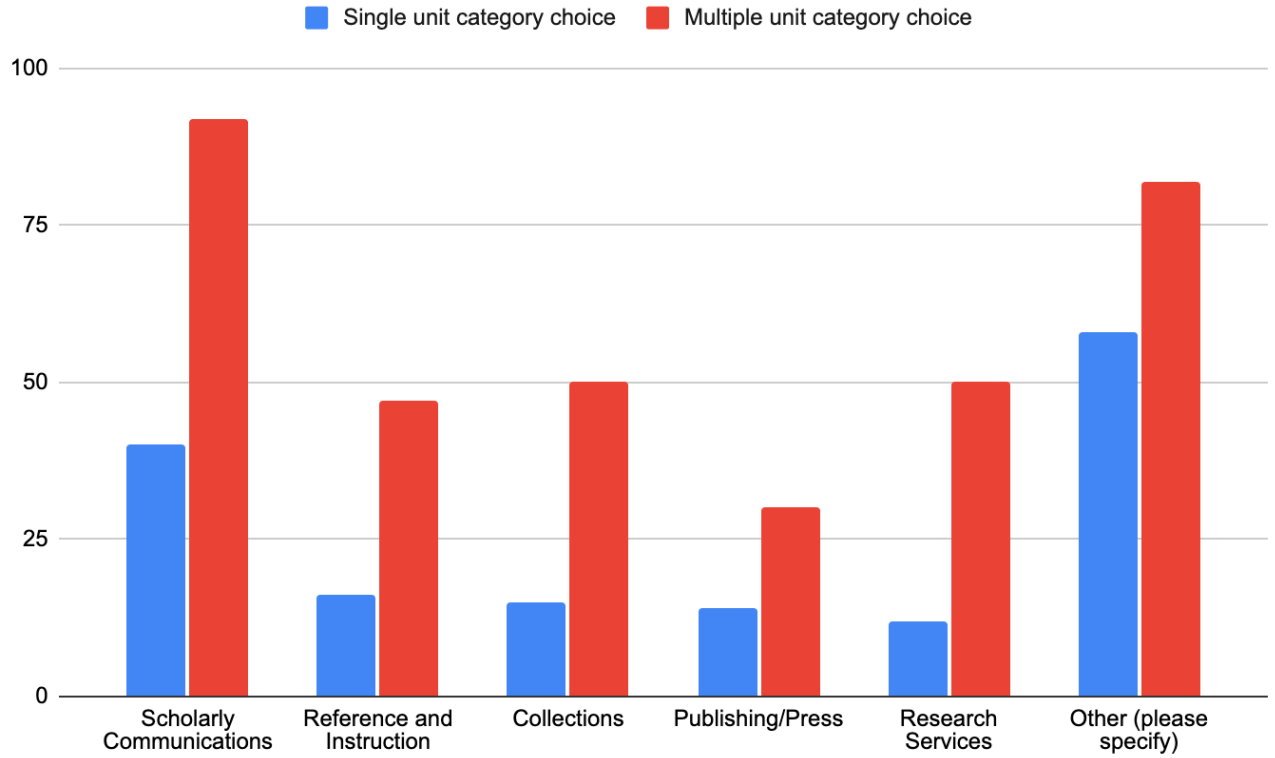


Note: Numbers are rounded so the percentages may not add up to 100%.

The question, "What unit within the library is your position considered a part of?" was intended to surface the wide range of possible organizational structures workers in these roles found themselves in. The respondents (282) to this question were allowed to make multiple choices but 97 respondents chose a single general category for type of unit. Forty were solely in a scholarly communication unit, 16 reported under reference and instruction, 15 to collections, 14 to a publishing/press unit, and 12 to research services (see Figure 2).

Most respondents' choices conveyed that their position was situated in multiple reporting areas within the organizational chart, sometimes under as many as four categories with the most common denominator again being scholarly communication (92). Many respondents felt the need to elaborate and chose the "other (please specify)" free text field in addition to the categories presented. Respondents reporting under collections or research services combined were evenly split with reference and instruction at 50 and 47, respectively. Thirty respondents were also aligned with publishing/press units (see Figure 2).

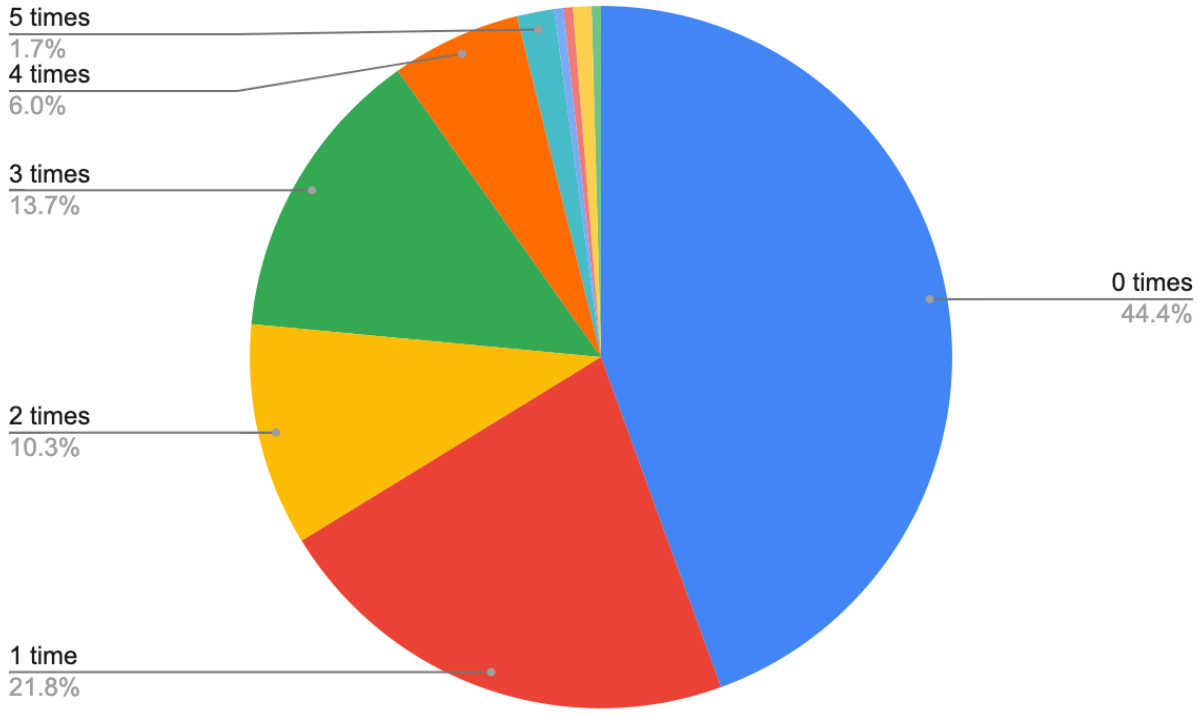
FIGURE 2
What Unit Within the Library is Your Position Considered a Part of?



Of the respondents, 82 chose "other" to indicate lack of a unit structure, or to enter the title of a unit that was not included in the survey drop-down choices. Units listed by respondents included: "Digital" initiatives/library/scholarship/strategies, technical services, special collections/archives, systems and information technology, library administration, and access services/public services.

The survey asked how many times individuals had experienced changes in reporting structure. While 44.44% of respondents had not experienced any reporting structure changes, 21.79% of respondents had experienced organizational change once and 31.62% reported

FIGURE 3
Number of Times the Reporting Structure has Changed for Your Current Position



Note: Numbers are rounded so the percentages may not add up to 100%.

experiencing changes between two to five times. A few individuals went through six to nine changes in their organization (see Figure 3).

The Person

The authors chose to combine the personal identity question in a free-form text field to be inclusive of how respondents express complex and multiform identities, lessen potentially triggering or offensive survey fields/drop downs, and avoid deanonymization (see Figure 4).

Hulbert and Kendrick (2023) examined several sources of data on ratios of race or family origin in libraries, all reporting the profession has been consistently over 80% White. While the numbers for BIPOC librarians have fluctuated over the years they remain well below 5 or 10% depending on the demographic (2023). The profession has also been reported as over 80% women for decades (Iglesias & Gard, 2023) with no gender-diverse data collection for comparison. This survey focuses on the scholarly communication worker who is usually the sole dedicated person in this position in their place of work thereby increasing the possibility of identification if the respondent was not a white cisgender woman. By asking the personal identity question, the authors could ask a follow-up question to understand if the respondent experienced barriers in their work related to their self-described identities.

The survey asked respondents in what year they were born. This data was then generalized by compressing individual years into decades. Most of the respondents were born in the 1970s or 1980s. Under 20% of respondents were born in the 1950-1960s, and a small number are still working past the retirement age of 65.

Of respondents, 200 indicated how many years they had logged as a scholarly communication worker with the average being seven years. There was an overall range of six months

FIGURE 4
Word Cloud of Responses to Tell Us About Your Identities (e.g., Dis/Abilities, Ethnicities, Gender Identity, Race, Sexual Orientation, etc.)

to 27 years. Of respondents, 45.50% reported five years or fewer, 34.50% reported between six to 10 years, and 20.00% of respondents have been working in scholarly communication positions somewhere between 11 to 20 years (see Table 1).

TABLE 1
Numbers of Years as a Scholarly Communication Worker

Respondents	Years in a scholarly communication role
91	5 years or fewer
69	6-10 years
40	11-20 years

Newness

Of respondents, 56.84% indicated that they are or were the first person to hold their position in their library. The "newness" of scholarly communication work was also evident when respondents were asked what unit they are/were a part of. As previously mentioned in the discussion of demographics, respondents detailed belonging to almost every single unit of the library, or, in some cases, no unit at all. Academic libraries have clearly not come to a consensus over where scholarly communication should "sit" within an organization.

Some respondents indicated that they applied specifically for their scholarly communication position, while others noted that scholarly communication work was "added" on to their original position within the organization. In some instances, scholarly communication work was added on in part because of the advocacy of the individual; however, in other instances respondents noted that staffing changes—such as reorganizations and staff departures—were responsible for the change. The establishment of an institutional repository was also noted as another reason why scholarly communication responsibilities were added to a person's existing role.

Being the first person in a new position brings opportunity. One respondent explained that "the job description is generic and it will be up to me to shape my new role" while another noted, "when I began I was tasked with essentially building a SC program from scratch." But it can also lead to overly high expectations from other staff as well as scope creep. As one respondent explained, "my area is a start-up with many projects, few policies and consideration for managing expectations." Another new scholarly communication worker explained, "I have been in my position [for] 18 months. I started to be overwhelmed by the demand for my services when I hit my first year anniversary." Yet another agreed: "I have been in two scholarly communication focused positions that were new to the institution and both had heavy job creep…"

Scope of the Work

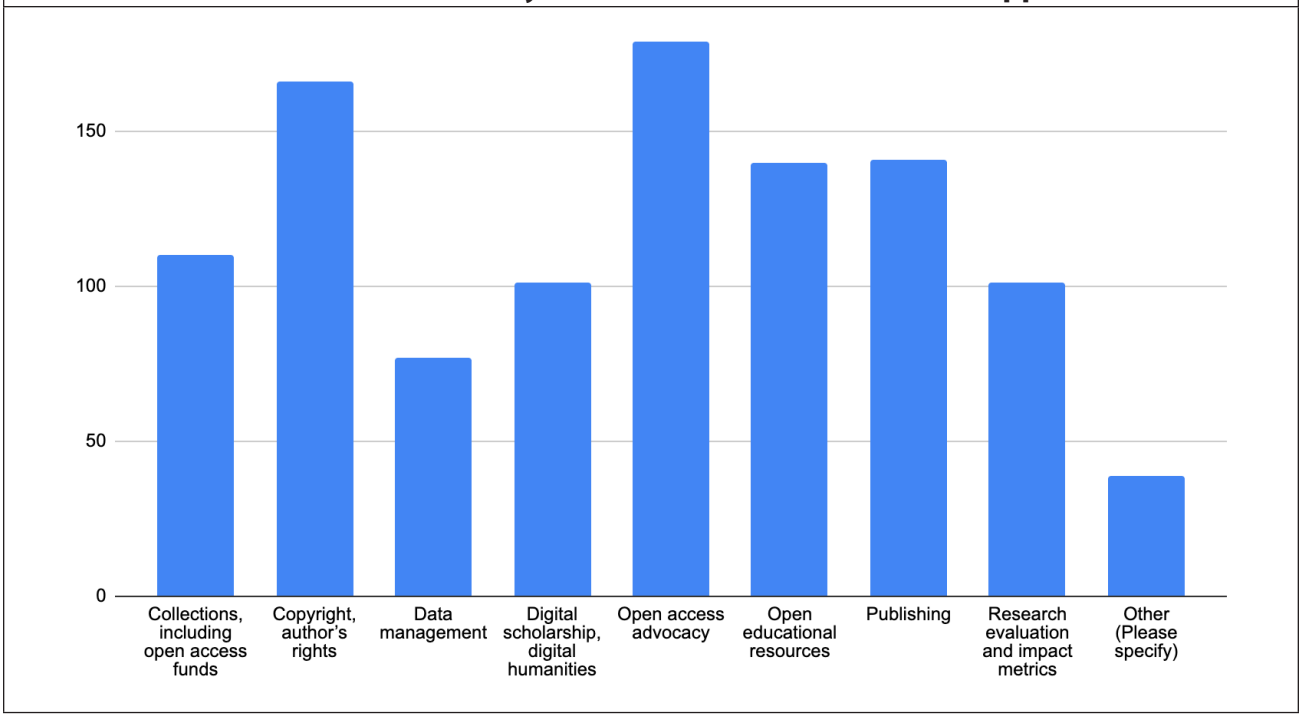
When asked to identify what areas of scholarly communication work the individual supported, responses indicated the breadth of scholarly communication work, with open access advocacy and copyright being two of the most frequently noted areas of work. Other areas noted included: collections, data management, digital scholarship/digital humanities, open educational resources, publishing, and research evaluation and impact metrics (see Figure 5).

When asked about whether their job description accurately reflects their work, 64.53% of respondents said it did. However, several respondents also indicated that their job descriptions were vague and could therefore encompass lots of different types of work.

Other responses shed more light on this question of scope. One respondent who was hired as a liaison librarian but whose work has expanded into scholarly communication noted, "I am basically trying to do two jobs and am completely overwhelmed and frustrated." Another explained, "The exact boundaries of my job were never clear, and asking for clarification got me nowhere." Yet another respondent noted that scholarly communication work is "like pushing a large and ever-growing rock uphill in sand."

Despite these sentiments, 58.53% of respondents said they were currently focused on growing their scholarly communication services. Indeed, only 2.30% of respondents indicated that they were cutting back their services. Several respondents noted that doing this work was a balancing act: "The role encompasses enough work for at least 3 people. I am focused

FIGURE 5
What Areas of Scholarly Communication Work Do You Support?



on better defining what I can reasonably support, which means deciding what to maintain, what to grow, and what to pare back." Another noted, "In some ways, my services just keep growing. I see a greater need now than I did 10 years ago for OA conversations with faculty and students. In particular, I've ended up leading OER work on campus; OER has become a substantial part of my work (even though it's not specifically referenced in my job description). On the other hand, I'm aware that I'm only one person and can't possibly do 'all the things' without putting some things in maintenance mode or paring back in (hopefully) strategic (less urgent) areas."

Importantly, survey results also indicated that scholarly communication workers are adaptive and dedicated to this work despite its challenges. As one respondent noted, "Even when it feels like a struggle, I absolutely love this work and wouldn't want to give it up." Another explained, "I think it's an exciting place to be, and I'm grateful to be doing this work, despite the disappointments." Yet another noted, "I love the work I do—I find it fulfilling and I believe in it on a fundamental level."

Support and Resources

Several survey questions focused on support for scholarly communication in terms of staff time. Of respondents, 63.25% indicated that they do not supervise other staff members (excluding student employees) and 50.92% said they do not have an established team or unit for scholarly communication work. When asked how other library staff collaborate with them when it comes to scholarly communication work, responses varied. Several respondents mentioned referrals to their services by liaison librarians as the primary form of "collaboration." Others mentioned specific areas such as the institutional repository, transformative agreements, copyright, data management, and publishing. Still others noted they received no help from other library staff members. Of respondents, 78.90% indicated that there are other positions,

departments, and/or offices on campus with whom they collaborate, though the nature of the collaboration was unspecified in terms of workload sharing.

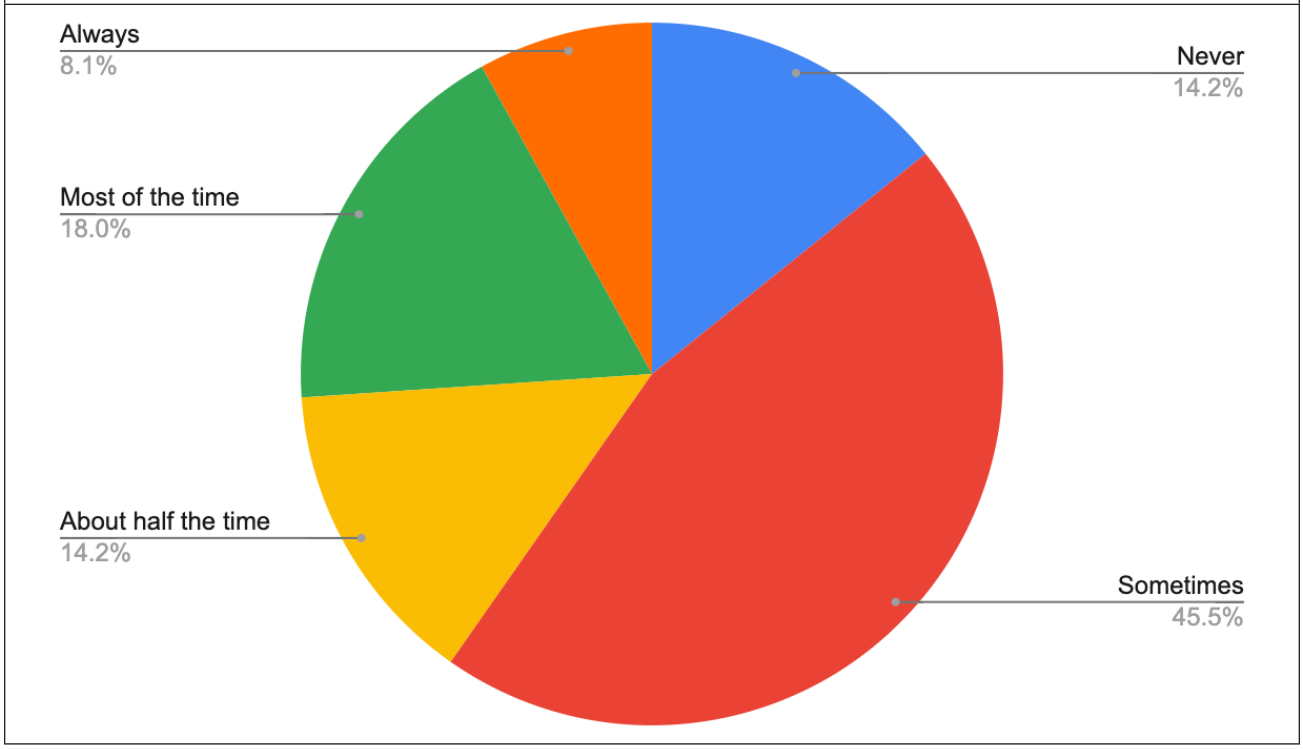
Of respondents, 73.71% indicated that they "strongly agree" or "somewhat agree" that their supervisor understands their work. In addition, 81.22% of respondents "strongly agree" or "somewhat agree" that their supervisor advocates for their work. Responses to the questions about direct supervisor advocacy were one of the strongest in the survey, with only 8.92% of respondents choosing the ambivalent "neither agree or disagree."

Of respondents, 51.17% of respondents "strongly agree" or "somewhat agree" that their colleagues understand the work they do. In addition, 65.26% of respondents "strongly agree" or "somewhat agree" that they feel valued as a colleague/employee. When asked if colleagues appropriately refer patrons to the respondents as an expert in scholarly communication topics, most responses were positive with 35.68% responding that they "strongly agree" and 35.21% responding that they "somewhat agree."

When asked about support for scholarly communication in terms of financial resources, about 74.79% said they did not manage a budget. In addition, 52.11% "strongly disagreed" or "somewhat disagreed" that scholarly communication work is appropriately resourced at their workplace. On the other hand, 54.93% of respondents either somewhat or strongly agreed with the statement, "I am compensated fairly for my work."

To acquire additional resources or support, individuals often must advocate for themselves. When asked how often they were required to advocate, only 14.15% of respondents said "never," while 45.28% said "sometimes." 14.15% said "about half of the time," 17.92% said "most of the time," and 8.02% said "always."

FIGURE 6
Answering From Your Perspective and Experience, How Often Are You: Required to Advocate for Your Position and Work?



Adding to the individual's workload is the emotional labor of advocating for the work and position itself. Only 14.15% felt they did not have to explain the work or why it should matter both internally to the library and externally to campus (see Figure 6).

Expertise Unvalued or Dismissed

While more respondents felt they were valued as colleagues—and that their supervisors understood and advocated for their work—their experiences with faculty and administration outside the library reflected a much different experience. As a respondent recounted, "I think I am valued in many ways, but I don't think I or my work really is understood or valued broadly in the university. I mainly only feel the most valued by my immediate team." In addition, respondents described feeling that their expertise was not valued and dismissed or disregarded for reasons that often intersected with identities and experiences of discriminatory behaviors. Expressions of demoralization and frustration surfaced in the qualitative data, often reflecting sexist stereotypes related to the value of women's expertise and contributions: "I also frequently talk to upper administrators, who tend to see me (either due to my gender or librarian status, unclear) as being of a lower social class. I am often treated like a secretary or substitute teacher rather than a highly knowledgeable professional who is a published expert in her field." Workers who self-identified as women and BIPOC reported that they experienced microaggressions and gaslighting directed at their identities further contributing to demoralization. Adding to the exhaustion, the work itself often requires advocating for culture change and examination of status quo unlike many other roles in the library. "I think library colleagues write me off as too passionate about open access and justice in scholarly communication and often devalue my input as a result," as one respondent related.

Indeed, some respondents noted that they had experienced barriers and/or discrimination as a scholarly communication worker related to their identities. Often these experiences were aligned with how the worker personally identified themselves. As a result of experiencing barriers and/or discriminatory behaviors due to identities 70.37% respondents felt less valued and 59.26% experienced low morale.

Impact of Upper Administration

Survey responses made clear the impact of upper administration on scholarly communication work. This impact could be either positive or negative. Several respondents mentioned reorganizations that resulted in the creation of their position and/or a scholarly communication unit within their library. One respondent noted "I am fortunate to have a library director/supervisor that really sees the value to what I bring and the connections of this work across campus." Another explained, "For several years, I was the only SC professional in my institution, but I had 22 years of experience to underscore my knowledge and lend weight to my voice. Having advanced to the administrative level, I have been able to successfully grow our SC unit." However, others noted that for those without the support of upper administrators, within the library and the broader institution, it was difficult to find success. As one respondent explained, "Our initiatives would likely get considerably farther on our campus if we had more support from upper administration and the policies guiding faculty behaviors (course text adoption, transparency about course materials costs, timely communication with the library about required texts for course reserve, contributions to the IR, etc.)."

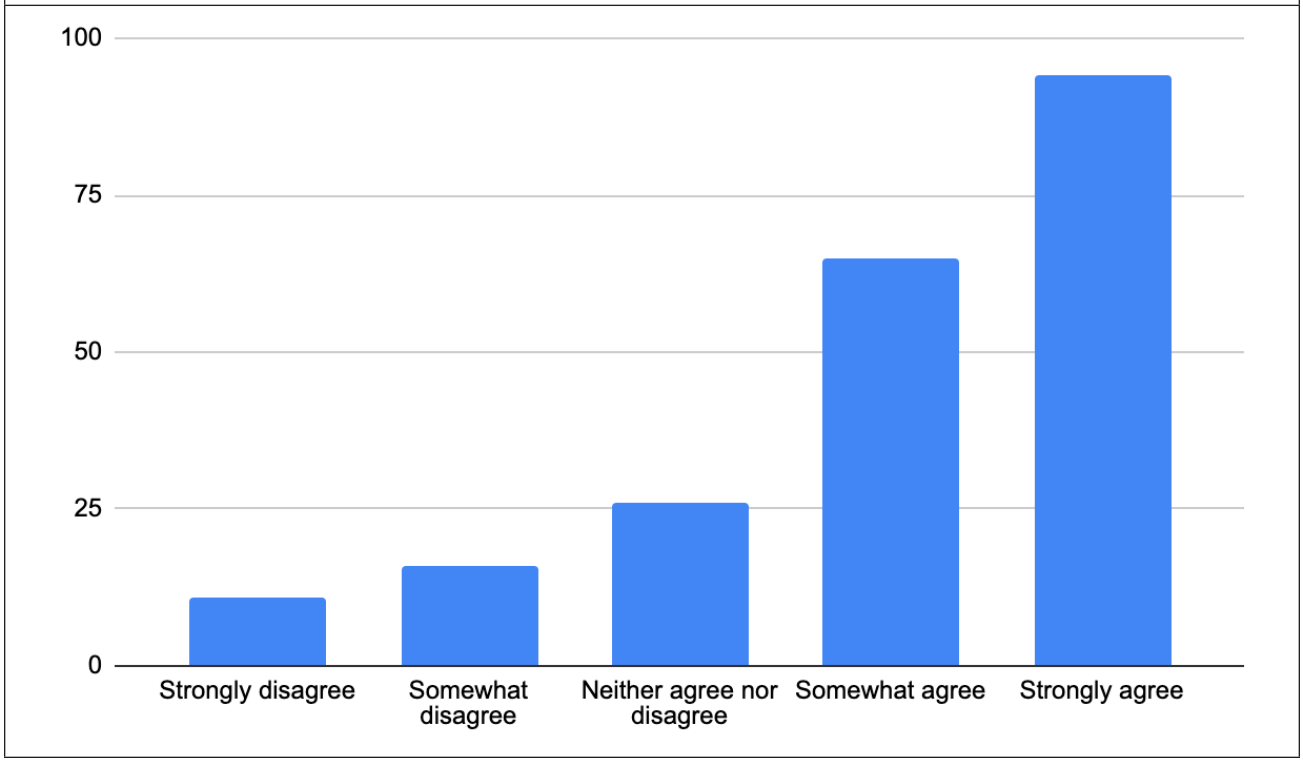
At a fundamental level, several respondents pointed toward understanding the work as key. Funding and advocacy were also brought up by respondents as part of the equation: "I believe schol comm needs significant administrative support and funding to be done adequately. If an institution does not have the willingness, time, or funding to support schol comm, I would advise them to reduce the scope of their ambitions rather than hiring someone to 'fix' these problems without resources." Another summed up the situation as: "You are typically not in a position of power, yet in order to make lasting change, you need to be able to influence policies and procedures at a very high level at the university, which is incredibly difficult when you can't even be in the room with the people making the decisions."

Burnout and Attrition

When asked about whether they had experienced feelings of "burnout" such as reduced initiative or low-morale, 44.34% of respondents strongly agreed and 30.66% somewhat agreed (see Figure 7). As one respondent explained, "I experienced severe burnout in fall 2021 lasting roughly a year that greatly impacted my work and personal life, a direct and measurable result of increasing workload over time with little to no support." Another explained, "The amount of work is impossible. One person CANNOT do OA, OER, copyright, digital everything, IR, ETDs, data management, etc, etc. I am BURNT out and do the bare minimum to keep my work going."

The respondents who indicated that they strongly agreed that they had experienced feelings of burnout were more likely than overall survey respondents to indicate that their reporting structure had changed one or more times (61.70% compared to 55.55% of overall respondents). They were also more likely to indicate that their job description does not accurately

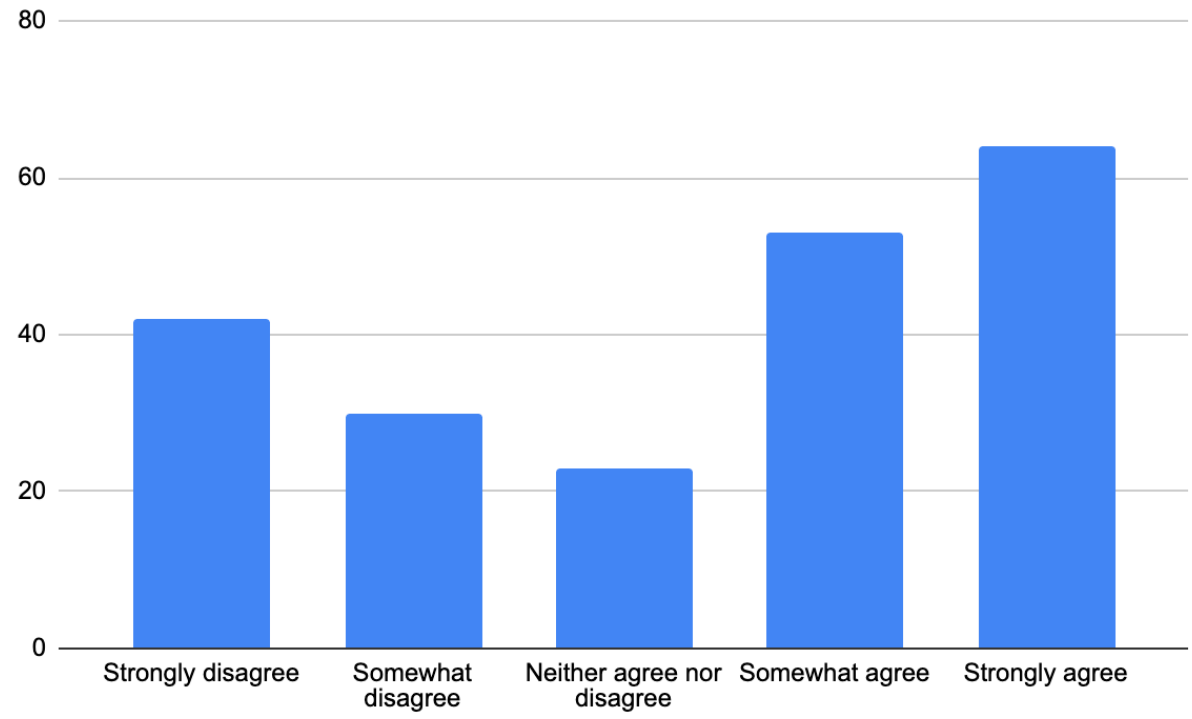
FIGURE 7
As a Scholarly Communication Worker: I Have Experienced Feelings of "Burnout," Such as Reduced Initiative or Low Morale



reflect their work (38.30% compared to 29.06% of overall respondents). They were less likely than the overall survey respondents to "strongly agree" that scholarly communication work is valued at their library (24.47% compared to 33.80% of overall respondents). Finally, only 2.13% of those who noted having experienced strong feelings of burnout "strongly agreed" that the scope of their work is sustainable (compared to 8.45% of overall survey respondents), and 15.96% "somewhat agreed" that the scope of their work is sustainable (compared to 28.64% of overall survey respondents).

When asked about whether they had often considered changing careers, either by applying for another position or leaving libraries altogether, 30.19% of respondents strongly agreed and 25.00% of respondents somewhat agreed. One respondent noted that they "are thinking of leaving the profession daily." Another explained that because they were so burnt out, they "left for another academic librarian position that had no scholcomm aspect to it" (see Figure 8).

FIGURE 8
I Have Often Considered Changing Careers, Either by Applying for Another Position or Leaving Libraries Altogether



Discussion

The data from this survey presents a complicated picture of scholarly communication work. Most respondents expressed the desire to grow their services but also felt that the work, as it is, is not sustainable. Most respondents felt their work is valued and about half believed the work is understood in the library, but more so by supervisors. However, perceptions of value did not always extend to being well-resourced or being included in initiatives or decision-making related to the work. The organizational and reporting structure that should serve as a foundation and support for the work is fractured across the library and over half of workers experienced change in reporting, often multiple times. This could make it difficult to maintain any consistency as

the worker needs to adjust to different departmental or program focus and goal setting.

While positions across the library experience burnout, this study has shown that scholarly communication workers specifically experience burnout. People in these positions must consistently advocate for changes in the scholarly communication landscape, as well as for the importance of their work more generally. So, what would improve morale and retention? Would including scholarly communication workers in institution-wide scholarly communication initiatives and decision-making result in better scoped, defined, and sustainable work? Could an examination of both the job responsibilities and the reporting structure result in a more stable foundation and alignment with the organization's needs allowing for focus and growth of services? Future research could delve into the gap between workers' understanding of the value and needs of the work, library administrators' perceptions, and organizational strategic directions to bring about better alignment and progress.

Conclusion

Recent research on scholarly communication in academic libraries has focused on the lack of official skills and training in scholarly communication work and how it is up to the individual worker to fix this. However, this study shows that some of the main issues facing scholarly communication workers are structural and related to appropriately scoping and resourcing the work. As a result, our recommendations for change are largely directed at upper administrators. Library administrators have a huge role to play in terms of making scholarly communication work sustainable. First, administrators in collaboration with direct supervisors and the scholarly communication workers themselves should take the time to understand what the work involves and actively develop a plan as well as budget to support it. Before hiring for a new scholarly communication position, administrators should also think carefully about the focus of scholarly communication work in their specific library and institutional environment, how it will be resourced and supported, and the role's alignment in the organizational structure. Library administrators should work with scholarly communication workers to refine scope and services to align with capacity. If scholarly communication work is only "part" of a person's job, administrators must decide what the person can stop doing so that they can properly prioritize scholarly communication work accordingly. Ultimately, if scholarly communication work is truly core to academic libraries, properly scoping and supporting this area of librarianship is key.

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Bibliography

Association of College and Research Libraries (2003). *Principles and Strategies for the Reform of Scholarly Communication*. http://www.ala.org/acrl/publications/whitepapers/principlesstrategies

Bonn, M., Cross, W., & Bolick, J. (2020). Finding our way: A snapshot of scholarly communication practitioners' duties and training. *Journal of Librarianship and Scholarly Communication*, *8*(General Issue), eP2328. https://doi.org/10.7710/2162-3309.2328

Bonn, M., Cross, W., & Bolick, J. Eds. (2023). *Scholarly communication librarianship and open knowledge*. ACRL.

Brantley, S., Bruns, T.A., & Duffin K.I. (2017). Librarians in transition: Scholarly communication support as a developing core competency. *Journal of Electronic Resources Librarianship*, *29*(3), 137–150. https://doi.org/10.1080/1941126X.2017.1340718

Champieux, R., Thomas, C., & Versluis, A. (2020). Using outreach weeks to examine labor, assessment, and value in open advocacy. *Journal of Librarianship and Scholarly Communication*, *8*(General Issue), eP2371. https://doi.org/10.7710/2162-3309.2371

Finlay, C., Tsou, A., & Sugimoto, C. (2015). Scholarly communication as a core competency: prevalence, activities, and concepts of scholarly communication librarianship as shown through job advertisements. *Journal of Librarianship and Scholarly Communication*, 3(1), eP1236. http://dx.doi.org/10.7710/2162-3309.1236

Hackstadt, A. (2020). Leadership, development, and expertise: A qualitative content analysis of scholarly communication librarian position announcements. *Journal of Librarianship and Scholarly Communication*, *8*(General Issue), eP2376. https://doi.org/10.7710/2162-3309.2376

Hollister, C.V. & Jensen, J.M.K. (2023). Research productivity among scholarly communication librarians. *Journal of Librarianship and Scholarly Communication*, *11*(1), eP15621. https://doi.org/10.31274/jlsc.15621

Holm, C., Guimaraes, A. & Marcano, N. Eds. (2023) *Academic librarian burnout: Causes and responses*. ACRL.

Hulbert, I. G., & Kendrick, C. (2023, April 18). *By any measure: The racial demographics of librarians*. https://doi.org/10.18665/sr.318716

Iglesias, A., & Gard, C. (2023). Pursuing academic librarianship: Gender identity and factors affecting job attainment. *The Journal of Academic Librarianship*, *49*(6).

Kendrick, K. D. (2017). The low morale experience of academic librarians: A phenomenological study. *Journal of Library Administration*, *57*(8). https://doi.org/10.1080/01930826.2017.1368325

Kingsley, D., Kennan, M., & Richardson, J. (2022). Scholarly communication competencies: An analysis of confidence among Australasia library staff. *College & Research Libraries*, *83*(6), 966. https://doi.org/10.5860/crl.83.6.966

Lange, J. & Hanson, C. (2020). "You need to make it as easy as possible for me": Creating scholarly communication reports for liaison librarians. *Journal of Librarianship and Scholarly Communication 8*(1), eP2329. https://doi.org/10.7710/2162-3309.2329

Larson, A. (2020). Open education librarianship: A position description analysis of the newly emerging role in academic libraries. *The International Journal of Open Educational Resources*, *3*(1). https://doi.org/10.18278/ijoer.3.1.4

Lippincott, J. K. (2023). *Directions in digital scholarship: Support for digital, data-intensive, and computational research in academic libraries*. Coalition for Networked Information. https://doi.org/10.56561/ULHJ1168

Meetz, J., & Boczar, J. (2022). Library publishing programs at capacity: Addressing issues of sustainability and scalability. *Journal of Librarianship and Scholarly Communication*, *10*(1), eP12909. https://doi.org/10.31274/jlsc.12909

Nardine, J. (2019). The state of academic liaison librarian burnout in ARL libraries in the United States. *College & Research Libraries*, *80*(4), 508–524. https://doi.org/10.5860/crl.80.4.508

NASIG. (2017). *NASIG core competencies for scholarly communication librarians*. NASIG. https://s3.amazonaws.com/amo_hub_content/Association92/files/CompetenciesforScholCommLibrarians_final_ver_2017-08-12.pdf

Owens, E. (2021). Imposter phenomenon and skills confidence among scholarly communication librarians in the United States. *College & Research Libraries*, *82*(4), 490. https://doi.org/10.5860/crl.82.4.490

Peper, M. (2022). A comprehensive survey of research library organizational structure. *Library Leadership & Management*, *36*(1). https://doi.org/10.5860/llm.v36i1.7514

Salo, D. (2013b). How to scuttle a scholarly communication initiative. *Journal of Librarianship and Scholarly Communication*, *1*(4), p.eP1075. https://doi.org/10.7710/2162-3309.1075

Shea, A., Steinhart, G., & DelRosso, J. (2017). A team- and project-based approach to advancing scholarly communication initiatives across the library. *Research Library Issues*, *291*, 6–18. https://doi.org/10.29242/rli.291.2

Thomas, W. (2013). The structure of scholarly communications within academic libraries. *Serials Review*, *39*(3). https://doi.org/10.1080/00987913.2013.10766387

Whiting, P. and Wright, A. (2020). Upcycling a schol comm unit: Building bridges with creativity, reallocations, and limited resources. *The Serials Librarian*, *78*(1-4), 239–243. https://doi.org/10.1080/0361526X.2020.1701903

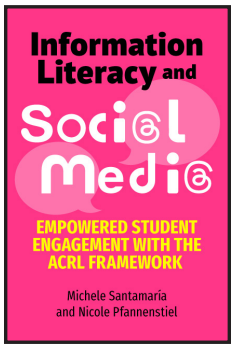
Wood, B. A., Guimaraes, A. B., Holm, C. E., Hayes, S. W., & Brooks, K. R. (2020). Academic librarian burnout: A survey using the Copenhagen Burnout Inventory (CBI). *Journal of Library Administration*, *60*(5), 512–531. https://doi.org/10.1080/01930826.2020.1729622

Wu, A. & Davis-Van Atta, T. & Thompson, S. & Scott, B. & Washington, A. & Liu, X. (2019). From meow to ROAR: Expanding open access repository services at the University of Houston Libraries. *Journal of Librarianship*

and Scholarly Communication, *7*(1). https://doi.org/10.7710/2162-3309.2309

Xia, J., & Li, Y. (2015). Changed responsibilities in scholarly communication services: An analysis of job descriptions. *Serials Review*, *41*(1), 15–22. https://doi.org/10.1080/00987913.2014.998980

Information Literacy and Social Media: Empowered Student Engagement with the ACRL Framework. Michele Santamaría and Nicole Pfannenstiel. Association of College and Research Libraries, 2024. 118 pp. Paperback, $50.00 (979-8-89255-545-6)



Michele Santamaría, learning design librarian at Millersville University, and Nicole Pfannenstiel, who teaches college composition, draw on their interdisciplinary collaboration, which began on X (formerly Twitter), to argue for a new approach to information literacy instruction. In *Information Literacy and Social Media: Empowered Student Engagement with the ACRL Framework*, Santamaría and Pfannenstiel make a compelling case for why and how educators should move beyond traditional "walled gardens" of peer-reviewed scholarship (p. vii) to engage students with the complex, risky, and vital "rainforest" (p. x) of social media when teaching information literacy. The authors argue that traditional information literacy methods are inadequate for the current information landscape. Challenges such as misinformation and deepfakes, coupled with the neglect of these issues, can lead to serious implications for public life and the information environment. The authors' core argument posits that by teaching students to embrace their role as information creators within social media platforms—utilizing the ACRL Framework for Information Literacy for Higher Education and a metaliterate approach—they can become flexible, accurate evaluators and participants in communities of learning. Metaliteracy, in this context, incorporates perspectives from media literacy, digital literacy, news literacy, and critical thinking. The authors explicitly choose the term "creators" over "producers" to emphasize the empowered agency users have, even in seemingly passive actions, such as liking or sharing, which contribute to the algorithmic feedback loops that shape information landscapes (p. x).

The book is structured into four chapters, along with an introduction and appendices. The introduction situates the book's methods in the context of social media's "messiness" and the need for empowered learning (p. v). Chapter 1 broadly conceptualizes information literacy teaching with social media and includes a literature review. Chapter 2 addresses student pushback to using social media in academic settings and maps ACRL Framework concepts onto specific platforms, while also emphasizing instructor self-reflection. Chapter 3 provides concrete cross-disciplinary lesson plans. Chapter 4 considers creativity and ethics as key components of metaliteracy and reflects on the future pedagogical mission.

A key strength of the book is its unwavering focus on "praxis and action" (p. xi). Rather than debating the theoretical boundaries between different literacies, the authors provide practical guidance for how educators can serve as "educator-guides" or facilitators to help students navigate social media environments critically and ethically (p. 6). They argue that social media spaces, with their inherent risks and complexities, are precisely where impactful, lifelong information literacy education can occur. The book explicitly acknowledges the volatility of social media platforms but maintains that the focus should be on developing enduring habits of mind and dispositions aligned with the ACRL Framework that can transfer to any information environment.

Chapter 2 delves into the challenge of student resistance to using social media for academic purposes, a perspective often reinforced by schooling and acceptable use policies. The authors propose that by validating students' existing digital practices and helping them interrogate their real-world internet use, educators can foster a sense of belonging and support skill development. This chapter also emphasizes the crucial role of educator self-reflection regarding their own social media habits and dispositions as a foundation for inclusive teaching and guiding of students.

The practical heart of the book lies in Chapter 3, which presents adaptable lesson plans designed to integrate social media into information literacy instruction. These plans empower students as creators and focus on the process and reflection necessary to develop information literacy habits of mind. A comprehensive lesson plan template is included, structured around several key components: the teaching scenario, learning objectives aligned with the ACRL Framework, recommendations for social media or digital environments, the activity steps, guided post-activity reflection for students, and a space for instructor notes. Examples include using hashtags to understand keywords and authority; exploring authority through social media influencers; engaging with AI writing bots on platforms like X to discuss research ethics and iteration; annotating readings through public sharing; and using social media for sharing resources and scholarly conversation. The lessons are often designed with the reality of one-shot instructional sessions in mind, using formative assessment techniques like peer review and guided reflection.

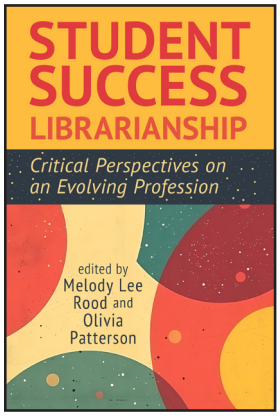
A significant aspect of this work is its approach to concepts such as authority and citation within the social media context. The authors illustrate how social media practices—using likes, comments, tags, and hashtags, for example—can be used to discuss the construction of authority and the importance of attribution, sometimes mirroring academic citation practices. The book also contains some interesting real-world references. The example of the Ticketmaster/Taylor Swift incident illustrates the value of keeping an open mind and a critical stance. When Ticketmaster's website crashed, both fans and the company used social media to navigate and communicate (p. 36). This highlights how users conduct research on social media for understanding, and how companies leverage these spaces for communication. Similarly, the Wikipedia "Six Degrees of Kevin Bacon" game, where the goal is to navigate from a starting Wikipedia page to a target Wikipedia page by clicking hyperlinks in fewer than six steps or "moves," is presented as a way to practice strategic searching and understanding information pathways (p. 40).

The final chapter highlights creativity and ethics as fundamental to metaliteracy, with the authors arguing that these elements are essential when educators and students engage with social media. They suggest that even minimal interaction can be an act of ethical creation if approached with awareness. The book emphasizes that addressing the civic implications of information literacy requires moving beyond simple checklists and engaging students in the very social media spaces they frequent, as this is where they most often seek information.

Information Literacy and Social Media: Empowered Student Engagement with the ACRL Framework is a timely and practical resource for librarians and non-librarian educators alike who are grappling with how to teach information literacy in a constantly evolving digital landscape. By providing a theoretical foundation (e.g., metaliteracy, ACRL Framework) alongside concrete, adaptable lesson plans, the authors offer a valuable roadmap for engaging students as active, critical, and ethical information creators within the environments they inhabit daily.

The book's emphasis on self-reflection and collaboration further strengthens its utility for busy practitioners. This volume may be particularly useful for those seeking to update their information literacy pedagogy to address the challenges of misinformation and algorithmic influence by meeting students where they are. Its insights into student dispositions and the practical applications of the Framework make it an insightful addition to the literature on information literacy instruction. — *Judy K. Davis, University of Southern California*

Student Success Librarianship: Critical Perspectives on an Evolving Profession, Melody Lee Rood, and Olivia Patterson eds., Association of College and Research Libraries, 2025. 232 pp. Softcover, $88.00 (979-8-89255-619-4)



Student Success Librarianship: Critical Perspectives on an Evolving Profession, edited by Melody Lee Rood and Olivia Patterson, explores the role of student success librarians within academic libraries. As a newly hired student success librarian, I found it validating that many contributors grapple with defining and measuring student success. The question, "What does it mean to be a student success librarian?" would likely resonate with anyone in this or in a related role. The authors also highlight that there is a messiness in defining and articulating the work, which can lead to burnout from the ever-evolving nature of the role, along with the potential for performativity (Lai, 2025).Throughout this edited collection, the authors seek to validate the experience of student success librarians, acknowledging that it is "challenging to try and be the face of the library and to be everywhere and do everything" (vi). No two librarians in this role will share the same experience, and the editors' effort to center both the frustrations and triumphs at the start of the collection is a welcome start to the conversation. The volume is divided into three parts: theory, praxis, and research; readers will appreciate the roadmap included at the beginning of the volume, which provides an overview of the collection and a breakdown of each chapter.

Part I: Theory sets out to address the previously mentioned messiness that comes with the role and challenges definitions of success that can be too closely tied to metrics such as retention and graduation rates. Paul Lai discusses the quick fix mentality of the position that is sometimes used to try and reach all student populations, and how the position does not always look like traditional librarian work. Nate Floyd and Laura Birkenhauer also touch on how a lack of a clear definition of responsibilities makes it challenging for student success librarians to have their positions and objectives negotiated and evaluated. Despite these difficulties, student success librarianship has the potential to recognize the diverse needs of students with unique lived experiences. Within this section, contributors also explore the concept of boundary work to advocate for student success librarians exploring flexible limits to ensure that new participants, practices, and knowledge are valued and used to foster a sense of belonging. Authors in this section discuss the application of student success frameworks from "meeting the specific needs and goals of different student populations at a given institution" (32) to areas such as archives and special collections, where many students have previously not seen themselves represented. Finally, the authors advocate for sustainable and adaptive engagement practices that are grounded in self-care to foster relationships and belonging.

Part II: Praxis consists of case studies and reflections, offering real-world examples that readers will find useful and adaptable. As success can manifest differently at various institutions, this section showcases a diverse range of initiatives that focus on the whole student and address mental, physical, emotional, and social needs. Linking student success to "Maslow's hierarchy of needs" (68), readers learn from María Evelia Emerson about various practical initiatives, such as a student food pantry, that aim to address the range of students' needs. This section also outlines the importance of cross-campus collaboration for creating a variety of initiatives allowing all students to succeed. Building those relationships ensures that the library can draw on a wide range of expertise so that all students feel represented, supported, and are moving toward a shared vision of success.

Part III: Research presents studies that focus on the complexities of student success librarianship and examine how student success is understood and supported in academic libraries. Challenges faced when doing this type of work speak to the personal and unique perceptions that all students have of their own success. The authors in this section point out the gaps in LIS education when preparing to work with under-represented populations and offer insights into a more holistic approach to defining accomplishment. They again tackle the problem with creating a single, prescriptive definition of student success. Clear roles and support from administration are outlined as being crucial for these positions to ensure that they are valued, and the authors also highlight the strong importance of maintaining collaborative relationships across campus. A mixture of surveys, job-ad analyses, focus groups, and case studies offer feedback to understand both this position and its role in academic libraries.

The collection of articles in *Student Success Librarianship* emphasize the significant challenges student success librarians face, and the authors do a solid job of highlighting the many ups and downs that practitioners may face. The authors don't shy away from mentioning that the role can be deemed as performative. There can be a high risk of burnout, leaving practitioners without sustained support from the institution, which can lead to projects being placed on the back burner or potential job cuts. However, authors do point out they feel there is a meaningful impact and take great pride in helping empower students to achieve both academic and personal success. They also acknowledge that the role is still being defined and will take ongoing efforts to align with various institutional goals while prioritizing the diverse and complex needs of students. This collection will be of interest to librarians at academic institutions working in student success positions and any librarian interested in outreach and engagement with students. — *Kathleen James, Student Success Librarian, University of Calgary*

***Strengthening Library Ecosystems: Collaborate for Advocacy and Impact**, Dorcas Hand, Sara Kelly Johns, Michelle Robertson, & Eryn Duffree, ALA Editions, 2024, 272p. Softcover, $54.99. 9798892555722*

Strengthening Library Ecosystems: Collaborate for Advocacy and Impact provides an important exploration of ecosystem framework in the context of library advocacy. It builds on a previous project stemming from ALA's Ecosystem Task Force called *One Voice: The Toolkit*. This title explores the practical implementation of ecosystem strategies while also highlighting the resources developed by ALA and its affiliates that support library ecosystems. It is evident that the content presented was composed with an acute awareness of the current geopolitical landscape given the emphasis on the urgent need for advocacy efforts to protect the core values of libraries considering increasing attacks on intellectual freedom and civil liberties.

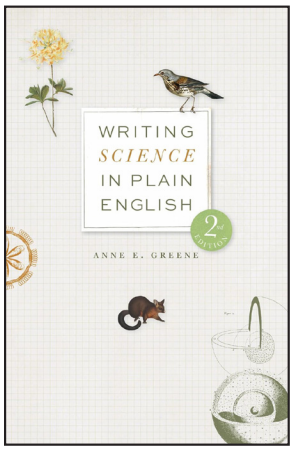
Amid efforts to ban materials, defund programs, and criminalize the work of librarians, this book offers a roadmap for advocacy by strengthening the connections between libraries of all types, library stakeholders, and policymakers. Even with the ongoing escalations in the political climate and the intensification of challenges to equitable access to information following the book's publication—exemplified by the recent dismantling of the IMLS—the foundational concepts and resources remain increasingly critical. The theme that an attack on one library is an attack on all is an enduring chorus. The authors' promotion of ecosystem ideals is based on the assertion that strengthening the collective voice and speaking in unity is more important now than ever.

Hand, Johns, Robertson, and Duffee's *Strengthening Library Ecosystems* boasts a wealth of collective knowledge from wide-ranging professional backgrounds and represents the three largest library categories: public, K-12, and academic libraries. Several of the contributors have served as leaders in major library organizations, including a former ALA president, and many have experience on national advocacy and ecosystem committees. The scope of their expertise cements the book as a credible and constructive resource for advocacy fieldwork. The book showcases the value of ecosystem thinking in advocating for libraries largely through its structure. It is divided into five key parts with each part building on the argument for the necessity of a networked community framework in advocacy. Part I "The Ecosystem Foundation" introduces ecosystem theory and highlights how all libraries, despite their differences, share core values, goals, and interconnections. Part II "Elements of Ecosystem Thinking," delves into the application of a continuum model which can be used to assess competencies like leadership, communication, collaboration, and sustainability. This model allows ecosystem groups to scale their progress from "Beginning" to "Evolving" to "Highly Effective." In Part III, "Applying Ecosystem Ideas," the connection between ecosystem thinking and advocacy is further investigated, beginning with a broad definition of advocacy then narrowing the focus to best practices for creating library legislative agendas and policies that protect information freedom.

Part IV "Many Kinds of Library Advocates," explores the concept of "One Voice" in greater depth. These chapters outline the contributions of public, school, and academic libraries to their communities and show how different types of libraries connect back to overarching library core values. They examine each type of library's distinct challenges from attacks in the state legislature to roadblocks from the municipal administration but also include advocacy tips to fight opposition. Here, the authors also broaden the library ecosystem beyond just libraries and identify potential allies such as professional associations, vendors, foundations, community groups, and other organizations that share similar values and can amplify advocacy efforts. Finally, Part V "Ecosystems in Action," presents five case studies of ecosystem-driven advocacy. It presents practical insights into their successes, challenges, and lessons learned. The book concludes by combating what is coined as the "myth of going it alone," a common pitfall of advocates and a known cause of burnout. As library supporters, coalition building is the only sustainable path to robust activism. The appendix is also an important feature of the text as it offers templates, checklists, and suggestions for additional reading materials that can provide grounding for theoretical concepts with real-world applications.

One strength of this book lies in its clear, practical resources. For example, Part II includes charts for assessing progress along a continuum. These tools help groups evaluate their development across competencies referred to in the text as "pillars." Examples under the "leadership" pillar include continuum assessments for ecosystem perspective, change agent, core values, and relationships. Users of the continuum models will find value in the framework's acknowledgment that building an ecosystem can be a slow and constantly evolving process. Ecosystem groups are given developmental benchmarks for ongoing reflection rather than fixed standards. The book also provides easily identifiable and clearly defined key terms, highlighted throughout the text, making it accessible for readers unfamiliar with ecosystem or advocacy topics. Another core strength of this title is its reliance on real-world examples of successful ecosystem advocacy. Cited throughout the book and featured as a focus in Part V, these tangible case studies can be applied to the reader's own advocacy efforts. *Strengthening Library Ecosystems* is a valuable resource for libraries of all types and the people who support them. Its focus on fostering connections between libraries makes it a good fit for any collection. This book is also a beneficial acquisition for groups looking to build or strengthen ecosystem efforts due to its excellent compendium of existing tools and resources from ALA and its affiliates. Furthermore, this book is essential for anyone engaged in legislative action, public awareness campaigns, or broader coalition development, standing as both a call to collective action and a guide to building resilient, unified library ecosystems.— *Madeline McConnell, University of New Mexico*

Writing Science in Plain English, Second Edition. Anne E. Greene. University of Chicago Press, 2025. 131 pp. Paperback, $19.00. 978-0-226-82503-8



A bright student once told me that she had never been "any good at English composition" after I gave her feedback to improve the clarity of a science report. Certainly, as a professor or instructor, encountering those who do not realize that clear writing and science go hand in hand is not unfamiliar. Scientists must often express their ideas, reasoning, and process to a wide variety of readers. Spoiler: most of us are quite bad at it. We tend to write in a dry style, use complex words to describe simple concepts, use jargon to impress, and create acronyms that only a handful of experts in the field could appreciate or ever use again. Consequently, this limits impact, confuses readers, and induces naps for the intended audience. Obviously, there is much work to be done. Yet, writers are often expected to learn science writing by chance or simply by emulating writing, both good and bad examples. This model perpetuates commonly held [bad] conventions that decrease writing effectiveness. Students, like the one mentioned above, fail to recognize the utility of their English composition courses in science. Good science is not just completed, it must also be understood to be impactful. It is easy to identify clear scientific writing, it is harder to learn to write clearly and harder still to teach the skill to others. Greene's *Writing Science in Plain English* makes a compelling case for why and how to compose clear and scientific writing. This second edition provides an updated, strong set of guiding principles for developing clear science writing and breaking the cycle. A biologist with experience in teaching writing for the sciences, Greene begins with a brief overview of what is at stake. She cites evidence that as discipline specific jargon and

use of acronyms increases, the number of citations decreases. She argues for a narrative style of storytelling which makes writing more readable and memorable. This approach increases impact. The chapters that follow are short and focused, offering specific techniques for improvement. For example, she shows how using concrete nouns as subjects followed closely by action verbs builds sentences that are easy to follow. Before accusing the author of inducing naps herself, suggestions are followed by real examples of poor writing followed by suggested revisions to increase clarity. Other chapter topics include strategies for choosing words with care, omitting excess words, and organizing ideas at the sentence, paragraph, and document level to match readers' expectations. True to the journalistic style professed in the work, the book's strength is its succinctness. Each chapter is just a few pages, and the total length is very manageable. What is particularly compelling is the explicit connection between solid *scientific* writing and reader comprehension. The second edition adds additional sources to support her assertions, increasing her credibility. More than just a manual, the book includes examples of the practicality of the suggestions. The book also has exercises for the reader to develop mastery of the skills and check their comprehension with answers in the appendix. This active learning format makes reading and engaging with the material much like how a typical science textbook is organized, helping hold the reader's attention. The only critique is that most of the examples and exercises come from biology, Greene's field. While there are a few examples from other sciences sprinkled in, readers unfamiliar with biology might hesitate to revise the exercise texts, worried about changing their meaning. In the end, the edited passages did make more sense to a biology outsider which solidified the utility of the techniques.

As stated, many scientists never receive formal training in scientific writing. Greene's book is a solid place to start. This book is a good addition to the collection of any scientific writer wanting to add clarity to their written word or to increase reviewer's comprehension of their ideas. Additionally, the book is an excellent choice for anyone teaching a science writing course at the undergraduate or graduate level. Greene masters the context of clear and effective writing strategies for scientists, even as the advice is useful for any technical writing. The second edition also includes a teacher's guide with resources including lecture materials, additional assignments, and in-class activities. This makes adoption in a course easy. Overall, *Writing Science in Plain* English offers a high-impact, easy-to-use guide for anyone who desires to make their scientific writing more approachable, concise, and effective.— *Royce Dansby-Sparks, University of North Georgia.*