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Reviews

Finding Their Own Way: A Phenomenological Study of Academic Librarians' Experiences with Tenure

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This article examines the advantages and disadvantages of the tenure system in academic libraries and the perceptions of tenured and tenure-track librarians regarding their professional identities in relation to tenure. Utilizing the participants' descriptions of their professional experiences, the study aims to (a) critically examine the advantages and disadvantages of the tenure system and (b) understand how the status of tenure impacts librarians' professional identities within their respective institutions.

Introduction

Universities across the country are reporting internal and external threats to tenure (Craft et al., 2016; Greenwald, 2019; Pettit, 2022). As higher education stakeholders debate the value of tenure and what it means to be a tenured professor, one group of faculty is less frequently considered as part of the conversation: academic librarians. Academic librarians often do not fit the mold of traditional teaching faculty. They typically work 12-month contracts, have set schedules, may not be eligible for sabbaticals or other research opportunities on campus, and may not be eligible to participate in shared governance. At some institutions, librarians do not hold faculty status, let alone tenure. In 2008, Bolin noted that among land-grant universities, 42% of academic librarians had "professorial" status, 28% held other ranks with tenure, 10% held other ranks without tenure, and 28% were considered non-faculty (staff). Increasingly, some institutions are actively eliminating librarians' faculty status, along with tenure. For example, Texas A&M University recently announced that librarians had two options: "[to] either remain as faculty and seek a new department to hold their tenure and tenure-track status or convert ... to staff, [a process which would revoke] their tenure and tenure-track status" (Maclaurin, 2022, para. 10). This process would also place libraries within a "service unit," rather than as part of the research community. As a result, 53 librarians converted to staff in the reorganization with only 24 librarians maintaining tenure by joining other departments on campus (Moody, 2022).

Library faculty have struggled for decades to define their roles in an ever-changing higher education landscape. As evidenced by the changes at Texas A&M University, on-campus librarians are frequently considered as part of student support services, rather than as aligned

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with research and teaching faculty. In some institutions, library faculty are not part of the shared governance process and lack the opportunity to have research sabbaticals. This lack of consensus about the role of librarians in academia may be the greatest hurdle to tenure (Dunn, 2013). Nevertheless, few studies have examined how librarians perceive their professional roles in relation to tenure.

Concerning the issue of professional identity, Bosseau and Martin (1995) termed librarianship an "accidental profession," a profession full of individuals who "discovered it while detouring from some other planned career" (p. 198). As a result, librarians often feel "invisible, overlooked, and underestimated," particularly in academia (Preer, 2006, p. 489). This lack of a stable identity is compounded by a promotion and tenure process that has been designed for faculty in other disciplines. Most academic literature has focused on such issues as the personnel status of librarians and overall institutional quality (Bolger & Smith, 2006), overall job satisfaction (Horenstein, 1993), and the debate on faculty status for academic librarians (Applegate, 1993; Fleming-May & Douglass, 2014; Nolan, 2004). Hence, the scholarly literature related to faculty status for librarians is ample, but literature focused specifically on the topics of tenure and academic librarianship is rather limited. This gap in our understanding is especially problematic at a moment when librarians are being compelled to give up their identities as faculty and are often the first group to relinquish tenured status.

Literature Review

Over the last century, higher education institutions developed a variety of statuses for academic librarians. Attempting formalize expectations, the ACRL formally established the "Standards for Faculty Status for College and University Librarians" in 1971. The standards underwent various revisions throughout the decades, with the last revision approved in April 2021. The current standards include eight recommended conditions for faculty status for librarians (Joint Committee on College Library Problems, 2006):

1. Faculty librarians perform professional responsibilities.
2. College and university librarians should adopt an academic form of shared governance similar in manner and structure to other faculties on the campus.
3. All library faculty should have comparable compensation and contracts as non-library faculty.
4. Library faculty should be promoted in rank based on their professional proficiency and effectiveness and be covered by a state tenure policy.
5. Library faculty should have comparable access to professional development and research/scholarship funds.
6. Faculty librarians are entitled to the protection of academic freedom.
7. Dismissal or termination of an appointment may be made by the institution for just cause and through academic due process.
8. Faculty librarians should have access to the same grievance/appeals process as other faculty which include a list of grievable issues, procedures to be completed within specified time limits, safeguards against reprisal by the institution, and abuse of the procedures by the grievant (para. 8).

These conditions are best-case scenarios for academic librarians; however, few institutions manage to implement all eight conditions (Hosburgh, 2011). Bolin (2008) has shown an

attempt to add a description and categorization to librarian status at American land-grant universities. Bolin (2008) categorized librarians into four typologies:

a. Professorial
b. Other ranks with tenure
c. Other ranks without tenure
d. Non-faculty (staff) (p. 22)

Bolin noted that 80% of librarians at land-grant institutions were faculty members, with 68% of that population on the tenure track system. Nevertheless, Bolin reports that a "strong model of faculty status is pervasive" in the land-grant universities, possibly more so than in other academic institutions (p. 227). This ambiguity among statuses can often lead to confusion among university administrators and outside faculty. Institutions may even see the inconsistency of status within one institution, as some librarians may start positions on the tenure track while others will start with just faculty status or no faculty status.

In 1940 the American Association of University Professors (AAUP) released the "Statement of Principles on Academic Freedom and Tenure," which called for the endorsement of tenure for academic librarians. The statement was followed shortly by the American Library Association, which officially endorsed tenure for academic librarians in 1946. In 1971 the membership of the Association of College and Research Libraries (ACRL) adopted the "Standards for Faculty Status for College and University Librarians." A joint committee prepared a 1972 statement on "College Library Problems," which consisted of committee members from the ACRL, the Association of American Colleges (now the Association of American Colleges and Universities [AACU]), and the AAUP. The joint statement spoke to the vital component academic libraries play in higher education and officially promoted faculty status for librarians. However, not all institutions chose to follow these recommendations.

Despite these endorsements by the AAUP and ACRL, many universities have begun to curtail the number of tenure appointments for librarians. In 2013, the University of Virginia (UVA) transitioned its librarians from faculty to staff. According to Ridley (2018), the UVA library administration "no longer viewed librarians as distinct from other library staff positions with advanced qualifications and not sufficiently aligned with faculty to support academic (faculty) status" (p. 4). Other universities such as Alamo Community College, East Carolina University, and Mt. Hood Community College have all considered, attempted to, or successfully eliminated faculty status for their librarians (Dunn, 2013). Librarians interviewed from these institutions questioned the need for the status change. The librarians felt overall devalued and frustrated. University faculty senates also opposed the change in status of their library faculty (Dunn, 2013). Unfortunately, even with these reservations librarians faced the elimination of tenure.

The Professional Identities of Academic Librarians in Higher Education

The professional identity of academic librarians seems to be in a constant state of flux. Coker et al. (2010) grappled with the issue of professional identity, noting that "the modern profession of academic librarianship ... is still in the midst of birthing pangs and need of clear direction and definition" (p. 407). According to Garcia and Barbour (2018), professional identity can serve as a "powerful resource" for individuals. Individuals who possess a strong notion of professional identity can more easily manage workplace frustrations and stress of the job. Unfortunately, the identity of an academic librarian can be hard to define due to the stereotypes that prevail in the popular culture of librarians. These stereotypes and misconceptions follow

librarians into classrooms and among the teaching faculty of their institutions. Even teaching faculty familiar with academic librarians' work will still ask library colleagues "if they enjoy the ability to read books all day" or some other variation of this misconception. It is a harsh reality that, although librarianship has continued to change and form a unique discipline, professors and university administrators still do not perceive librarians as "true teachers" (Reale, 2018). Scholars in librarianship, such as Reale (2018), acknowledge that even among librarians, current library faculty may not consider themselves teachers or part of the core of instruction on campus. Reale goes on to raise concern for the term "faculty librarian," which "in and of itself is a confusing term because it implies that librarians are not *part* of faculty but instead exist solely *for* faculty" (p. 2). Griffin (2013) suggests that much of this confusion stems from the fact that "the work carried on in academic libraries tends to be invisible ... and much of what is visible ... is clerical in nature and infrequently performed by librarians" (Oberg et al., 1989, p. 215). When everyone behind the desk in a library is considered a librarian, the fundamental role of librarians can become blurred and easily questioned.

The professional identity of the academic librarian is covered only by a few studies (Antonesa, 2007; Freedman, 2014; Gonzalez-Smith et al., 2014; Sare & Bales, 2014; Deitering et al., 2017). Reale argues that this is because librarians allow others to define who we are as a profession rather than reaching a consensus among librarians themselves. Reale shared that, although they tried not to care about others' perceptions of their work, it affected their identity and confidence, especially as young, professional librarians. Developing a professional librarian identity has been hampered by internal structures, including library administrators who do not support certain types of identity, such as faculty status among librarians. One example of this lack of library administrative support is the opinion piece by Blasé Cronin (2001), previous dean and professor of information science at Indiana University, Bloomington. Entitled "Mother of All Myths," Cronin frames the idea of faculty status as "cringe" worthy and argues that librarians are professional employees there to serve the university, nothing more. Commenting on library faculty research and scholarship, Cronin argues that librarian research "does, on occasion, invite the quiet mockery of the professorate" (p. 144). The lack of library administrative support is supported by Freedman (2014), who found that library administrators and librarians held very different views regarding faculty status and tenure. Freedman's study found library administrators to be "neutral" or "against" tenure and faculty status, while librarians marked these items "extremely important" or "very important."

Others argue that the LIS profession is changing so rapidly, as well as expanding its boundaries, that professional identity is even harder to achieve for LIS professionals (Fraser-Arnott, 2019b). According to Fraser-Arnott (2019a), the changing nature of job responsibilities and LIS graduates serving outside the traditional library may even be considered a threat to professional identity as librarians have rarely seen their identities outside the context of the library. Fraser-Arnott states that professional identity changes as one moves through their career trajectory and is not limited to those early in their career. Individuals experience professional growth, engage in professional development, and have unique socialization situations, and these experiences all lead to changes in one's professional identity. Unfortunately, these experiences can lead to conflicting professional identities. As individuals interact with members of their professional community who differ or interact with external individuals who hold certain stereotypes and misconceptions, these conflicting ideas can influence the development of one's professional identity.

Purpose and Methodology

This study explored the topics of academic librarianship and tenure by presenting and analyzing the lived experiences of tenured academic librarians within a public university system in the southeast United States. The study was approved by the Institutional Review Board (IRB) of the University of North Georgia, ensuring compliance with ethical standards for research involving human participants. It is also worth noting that this study does not intend to answer the ongoing debate of whether tenure is appropriate for academic librarians. Rather, this study aimed to use tenure-track and tenured academic librarians' descriptions of their professional experiences as a lens to (a) critically examine the advantages and disadvantages of the tenure system and (b) understand how the status of tenure impacts librarians' professional identities within their institution. Two research questions follow from this perspective:

- How do tenure-track/tenured academic librarians describe the benefits and disadvantages of tenure in their professional field?
- How do tenure-track/tenured librarians perceive their professional identities within their university and professional community?

Within the university system at the center of this study, more than 90% of institutions offer faculty status for their librarians, whereas approximately only 12% of institutions offer faculty status with tenure for academic librarians. The university system is home to more than five Research 1 and Research 2 institutions (following the Carnegie Classification System). In total, 14 academic librarians participated in one-hour long one-on-one interviews from across the university system. These interviews included three library faculty currently on the tenure track and 11 library faculty who already obtained tenure. Participants worked in all areas of academic librarianship including access services, technical services, and instruction and reference departments. Coding of the interviews primarily consisted of a mix of in vivo coding and a set of pre-determined attribute codes interrelated to identity. To protect participant identities, pseudonyms were used throughout the study, ensuring confidentiality and privacy in the reporting of findings. Once all data were collected, another analysis of the findings occurred, and the results were subject to additional edits and revisions. Themes developed out of the analysis of interviews and prior research.

To establish trustworthiness, the study followed the four techniques set forth by Lincoln and Guba (1985), which include credibility, transferability, dependability, and confirmability. To establish credibility and confirmability, the study triangulated data through multiple data collection methods, including interviews and fieldnotes. Triangulation allows the case to be viewed and explored from multiple perspectives. If triangulation of the data can confirm or disprove the data collection, the results can have greater credibility and confirmability (Johnson et al., 2020). However, triangulation within this study is not necessarily to cross-validate results but, rather, to capture different dimensions of the same phenomenon. This approach is congruent with a social constructivist epistemology that views knowledge as situated within society and jointly constructed through individual interactions. As Gergen (1997) argues, many realities can exist at the same time, and individuals create their own meaning through social interactions, relationships, and experiences. These realities are therefore constantly in flux, and individual's social interactions continuously frame and influence individual realities, including how individuals interpret their own identities. The social constructivist approach aligns nicely with the conceptual framework of sensemaking in which "individuals' interpretations of the environment give the environment structure and purpose, which in turn affect

individuals' mental scripts of reality" (Suspitsyna, 2013, p. 1353). Therefore, in evaluating the data for this study, the researcher needed to consider the possibility that as participants make sense of their tenure experience, their social identities (i.e., the identity that society gives) and participants' personal identities (the identity individuals hold in their own mind) may have been in conflict (Snow & Anderson, 1987).

Credibility was also established by utilizing a member checking process so that the participant's experiences were accurately captured and represented. According to Johnson et al. (2020), member checking is a common standard of rigor that enables participants to verify the accuracy of the transcription and that the transcript accurately represents the participant's beliefs and intent. The above verification checks ensure the validity of the overall study.

Lastly, to establish transferability, the study implemented thick description. According to Creswell (2013), thick description "allows readers to make decisions regarding transferability because the writer describes in detail the participants or setting under study" (p. 252). Connections and shared characteristics are described using rich descriptions and inter-connected details and themes.

Findings

Findings were grouped into four major themes: (a) the perceived benefits of tenure for academic librarians, (b) the perceived disadvantages of tenure for academic librarians, (c) the professional identity of academic librarians on the tenure track, and (d) the obstacles related to the tenure process for academic librarians. The themes illuminated within the study highlight the diverse experiences of the tenure process for academic librarians, revealing its merits, shortcomings, and challenges. Codes associated with each of these themes are presented in Table 1.

TABLE 1
Summary of Themes and Codes

Themes	Codes

Perceived Benefits of Tenure for Academic Librarians	1. Professional Focus and a Sense of Fulfillment
	2. Higher Pay
	3. Validation
	  a. External Validation
	  b. Internal Validation
	4. Job Security
	5. Academic Freedom

Perceived Disadvantages of Tenure for Academic Librarians	1. Limited Academic Freedom 2. Additional Responsibilities 3. All the Requirements, Few Perks
Professional Identity of Academic Librarians on the Tenure Track	1. Greater Involvement in Professional Activities 2. Limited Understanding of Tenure 3. Questioning the Importance of Tenure
Obstacles Related to the Tenure Process	1. Subjective Standards 2. Burnout 3. Outside Commitments 4. Lack of Respect 5. Lack of Organizational Support 6. Lack of Professional Preparation in MLIS Programs

The study revealed that academic librarians perceived several benefits and disadvantages to the tenure process. All participants articulated some level of benefits mixed with what they considered the disadvantages of tenure, while very few participants felt overwhelmingly negative or positive about the tenure process.

Discussion

Discussion of Theme 1: Perceived Benefits of Tenure for Academic Librarians

As the participants reflected on their time on the tenure track, the following beneficial themes emerged: (a) gives focus and a sense of fulfillment; (b) higher pay; (c) validation; (d) job security; (e) and academic freedom, specifically the ability to pursue their passions.

A common view among interviewees was that the tenure process gave participants the opportunity to focus on their overall career goals. As librarians progressed through the tenure process, they planned their career paths to meet the guidelines of tenure and promotion. This extra professional focus was considered a benefit of the tenure process that may not exist in academic libraries and institutions where tenure is not an option.

Another recurrent theme in the interviews was a sense among interviewees that the awarding of tenure gave participants a sense of fulfillment. When asked whether they felt they had the necessary skill set for tenure, Ben responded,

> I got tenure and all and then I think that I did actually do work that was, you know, valid for receiving tenure. I'm proud of what I've done. I think I take a little bit of pride in that I have, you know, gone through and become a you know, a full professor and gone through the tenure process.

Tenure serves as a milestone for many academics; even those who were not fond of the process felt that tenure offered a crowning moment or at the very least a sense of accomplishment. Although guidelines for tenure and promotion varied among institutions, participants recognized the added benefit of planning out how to meet the needed qualifications such as librarianship, academic achievement, and service to the profession.

In addition, participants considered higher pay part of the advantages of tenure for academic librarians. Typically, librarians, like most tenure-track professors, are eligible for tenure and promotion at the same time; therefore, librarians attribute the bump in pay as part of the tenure process even though the bump in pay is attached to promotion and not necessarily due to tenure. Participants perceived the bump in pay due to promotion and tenure as a benefit because it recognized their increasing expertise and contributions to the institution over time. It also helped to compensate for the additional work and responsibilities that came with tenure, such as research and service activities. Additionally, a higher salary provided financial stability and security for the librarian and their family, which can be especially important during economic uncertainty or budget cuts.

Several interviewees mentioned that validation is an advantage of the tenure process for academic librarians. The feeling of being recognized for work and being respected by faculty members who have gone through the same academic rigor was mentioned by many participants. Some interviewees felt that it gave them a sense of being part of the whole university. This enhanced sense of being a part of the university community was described as having

"street cred." Others hoped that it gave librarians more weight with academic faculty. While a few participants enjoyed the prestige that came with being tenured faculty, others noted that academic librarians who are also tenured faculty are considered slightly different from traditional academic faculty but still receive respect for their instructional and research work.

In addition, there was a sense amongst interviewees that job security was a major benefit to the awarding of tenure for academic librarians. Without being specifically prompted on job security, 13 of the 15 interviewees expressed how important it was to their tenure experience and professional perception. For example, Ava said, "it was great to get tenure, because again, it's like ... I have it. And, you know, their reductions of force or anything like that. I'm not on the chopping block ... I'm safe, you know, knock on wood." Ava goes on to add, "I guess I'm very happy. I'm tenured. Because obviously you need it if you want to keep the job. I do like the security aspect." Another interviewee, Ben, alluded to the notion of budget cuts and the threat of job losses: "I think maybe the good thing perhaps about tenure track is, is maybe a little bit more of a protected position in terms of when budget cuts hit." Mazie added that job security eased the professional anxiety for individuals who are not "big risk [takers]":

> Then just personally, you know, the security is really important to me, I'm not a big risk taker. You know, I guess it was kind of a risk to take a tenure track job to begin with. But beyond that, I'm not a big risk taker. So, it's nice not having to worry from year to year about whether I'll have a job or not.

Academic librarians who do not secure tenure may face the risk of job loss due to the competitive nature of the profession, as tenure offers job security and long-term career prospects within the academic institution. Without tenure, librarians may be more susceptible to budget cuts and restructuring efforts that prioritize tenured faculty positions, making their positions vulnerable to elimination or downsizing.

Early in its existence, the AAUP developed an official statement on academic freedom within higher education. The statement, first drafted in 1915, was known as the "Declaration of Principles." The statement has since been edited and reconfirmed in additional statements, including the update known as the "Statement of Principles on Academic Freedom and Tenure" (AAUP, 1940). This document states that "freedom in research is fundamental to the advancement of truth" and that "academic freedom in its teaching aspect is fundamental for the protection of the rights of the teacher in teaching and the student to freedom in learning" (para. 2).

When participants were asked about their own definition of academic freedom, they spoke specifically to a number of benefits of academic freedom including (a) freedom to question authority in top-down organizational environments, (b) freedom to publish, (c) freedom to teach, (d) freedom to pursue institutional committee work, (e) freedom to suggest resources, and (f) freedom to pursue professional passions. Participants acknowledged that academic freedom provided them a sense of feeling relatively unrestricted in terms of publishing and pursuing research topics of their choosing. When it comes to expressing negative opinions or criticisms of the administration, however, there is a degree of caution or reluctance. This may indicate a dread of potential repercussions or a desire to maintain a positive relationship with the administration, emphasizing the delicate balance between academic freedom and maintaining a harmonious working environment within the institution. With regard to academic freedom and teaching, Tia concluded,

> I think academic freedom should be that you can teach how you want to teach, that ... you can incorporate topics that might be a little controversial as long as you're still like focused on the student learning outcomes. And that you can research and write about things that maybe are not in alignment with the local, state, and national politics. And as long as your scholarship is sound, and you know ... you're communicating clearly that you have the freedom to do that, and to express those ideas without fear of repercussions.

Sara alluded to the notion that academic freedom allowed her to pursue committee work at the institution that could be perceived as highly political:

> Right now, we're kind of spearheading a project, me and an English professor, where we're talking about land and labor acknowledgments and trying to get one at [my institution], since we're a land-grant institution ... We're currently just in the very beginning stages, and we haven't faced any pushback. But I foresee a lot of uncomfortable conversations in the future surrounding this idea. And it's absolutely a project I never would have undertaken last year, like when I didn't have tenure yet. So, I do feel like tenure does give us a chance to take on more audacious projects, I guess that we wouldn't be able to consider otherwise, especially like, you know, the political climate in [my institution] is pretty touchy.

Several participants also indicated that the essence of academic freedom allowed them to pursue professional passions and research topics that were within their areas of expertise but might be in underexplored fields of research and teaching.

Participants noted the unique opportunity that tenure provides to pursue individual interests and passions. The participants highlighted different aspects of academic freedom, including autonomy in publishing and conversing with the administration, the ability to teach and research controversial topics, and the freedom to develop collections that may be controversial. While some participants believed that academic freedom is inherent in the nature of the librarian profession, others questioned whether tenure is necessary to protect it. An understanding and appreciation of these advantages can provide valuable insights into the experiences and motivations of academic librarians seeking tenure and contribute to ongoing discussions regarding the significance of tenure in the ever-changing higher education landscape.

Discussion of Theme 2: Perceived Disadvantages of Tenure for Academic Librarians

Theme 2 highlighted the negative aspects of tenure that participants witnessed, concentrating on three major concerns: limited academic freedom, the burden of additional responsibilities, and the many requirements of tenure with few benefits.

Two divergent and often conflicting discourses emerged regarding academic freedom. On the one hand, the librarians in this study felt tenure offered them the protection of academic freedom. On the other hand, many reported being skeptical of the efficacy of the protection that tenure could provide due to the top-down nature of their institutional and state environments.

The topic of academic freedom among academic librarians was discussed in the interviews, with some participants expressing skepticism or outright criticism of the extent to which

tenure provides protection. Some interviewees were cautious in their responses, acknowledging political realities that limit their ability to speak out, while others were more critical. One participant stated that academic freedom is no longer guaranteed, and another felt that they could not fully express themselves without fear of consequences.

The overwhelming majority of interviewees were particularly critical of the additional requirements tenure added to the daily plate of academic librarians. Interviewees expressed concerns about the time and energy needed to meet tenure criteria, such as publishing research, engaging in scholarly activities, and serving on committees. These often came at the expense of other essential responsibilities like providing quality services to library users, staying updated with emerging technologies, and collaborating with faculty and students. The sentiment of the interviewees highlighted the challenges and tension that tenure expectations can impose on the daily responsibilities and work-life balance of academic librarians. Emma, in particular, was concerned with the amount of required work the tenure process can add to already full plates:

> It's a lot of extra work, even outside of your general 40 hours that you do here ... I've got to be very, very mindful of my time, just because I've got a lot going on. And I'm not even talking about personally, I'm just talking about professionally, like at work, when I come to work, I've got various things that I need to do. And then also extra responsibilities.

Frequently, librarians are expected to engage in research and scholarly endeavors, such as publishing articles, presenting at conferences, and contributing to professional publications. Librarians on the tenure track are also encouraged to actively pursue professional development opportunities to enhance their expertise and remain up to date on evolving trends and technologies in the field. Attending workshops and training programs or pursuing advanced degrees or certifications may also be required, depending on the institution. Within their institution, librarians are frequently expected to serve on various committees or task forces. Participating in governance bodies, contributing to strategic planning, or representing the library's interests in campus-wide initiatives are examples of how this can be accomplished. These additional responsibilities require significant time and effort, often alongside the core duties of providing library services, supporting research and teaching, and assisting library users. These examples illustrate how the pursuit of tenure introduces additional demands and responsibilities that can place additional stress and strain on academic librarians who are already engaged in a variety of essential tasks related to supporting teaching, research, and the overall operation of the library.

The majority of participants also reported the need to jump through hoops to achieve tenure while receiving few of the traditional perks of academic tenure. Other academic faculty tend to have a great deal of flexibility in their daily work schedules and are traditionally not maintaining active service points for students. However, academic librarians do not traditionally build in time to dedicate to research and scholarship because of the daily duties of the job, like keeping the library open. Although the reality of the situation may be very different for academic faculty, it is obvious that academic librarians perceive this disconnect as an issue facing the library profession. Multiple participants expressed the opinion that academic librarians must "jump through hoops" in addition to fulfilling their regular job responsibilities to obtain tenure. Rather than being able to define their own professional identity, the participants felt they had to prove themselves based on external standards. They acknowledged the necessity of demonstrating

their ability to navigate the expectations but also emphasized the significant effort and burden required to meet these requirements, emphasizing the arduous nature of the tenure journey.

The additional requirements of tenure were seen as a headache, a lot of work, and just a line for a CV. Some librarians desire to be "just librarians." Tenure is not the end goal for them; they do not see research as a part of what it means to be a librarian. However, other participants argued that research is essential for librarians and that they should have the option to pursue tenure if they choose to.

Discussion of Theme 3: Professional Identity of Academic Librarians on the Tenure Track

Research question 2 asked the following: How do tenure-track/tenured librarians perceive their professional identities within their university and professional communities? Participants' responses to professional identity included (a) greater involvement in professional activities, (b) limited understanding of tenure, and (c) questioning the importance of tenure.

Despite the fact that librarians might not always fit the traditional profile of teaching faculty, their scholarly activities are equally important and influential. Each participant spoke at length about their scholarly contributions and support of teaching. They all conducted research, contributed to academic publications and journals, and/or presented their findings at conferences. Participants researched and investigated topics such as information literacy, collection development, and information management, producing new knowledge and advancing library and information science.

Academic librarians' scholarly pursuits are comparable to those of traditional faculty because they conduct original research, contribute to scholarly discourse, collaborate with faculty, and partake actively in professional development. Their expertise and contributions enhance the scholarly endeavors of the academic community, thereby supporting faculty and students' research and information requirements. Recognizing and valuing the scholarly activities of academic librarians strengthens their position within the institution and acknowledges their integral role in advancing knowledge and supporting higher education's overall mission.

Another persistent problem that develops as academic librarians move into tenure-track positions is their incomplete knowledge of the nuances and requirements surrounding the tenure process. Although librarians have an essential understanding of information resources, research assistance, and information literacy, it is possible that they do not know enough about tenure. For example, when asked if they sought out a tenure track position after graduation, Lucas replied, "No, it actually wasn't a big concern for me, I wasn't really that familiar with what it meant or the importance of it." In addition, James also admitted to not understanding all the options for academic librarian employment:

> So no, I didn't exactly know what the options were. And I sort of just took a job that came along. That was at the right spot, which would have been at [a small private university], which was not tenure track.

This knowledge gap may make it difficult for them to manage the tenure track, which may jeopardize their prospects of getting tenure and have a detrimental influence on their overall career trajectory.

Academic librarians frequently join the tenure track with a strong dedication to their field and the desire to make a difference in the scholarly world. Yet numerous participants felt that they stumbled into the tenure role. They ended up finding that the specifications and complexities of the tenure process were very different from anything they had previously seen in their professional careers. The distinct qualities and expectations inherent to librarianship may not have been sufficiently communicated or appreciated, even though librarians may have watched their faculty colleagues going through the tenure process.

Participants spoke to their doubts about whether tenure was a worthwhile process for academic libraries. The librarians wondered whether the traditional tenure model may not be compatible with the changing nature of librarianship, which places a greater emphasis on collaboration, technology integration, and information literacy instruction. The limited availability of tenure-track positions in the field of librarianship is another factor. As the number of tenure-track positions decreases and job insecurity increases, some librarians question the value of pursuing tenure in the face of uncertain prospects. The participants seemed to prioritize professional development, employment satisfaction, and work-life balance over the demanding and time-consuming tenure process.

Additionally, the effect of tenure on the daily work and autonomy of academic librarians should be considered. The tenure process may introduce additional administrative burdens, such as preparing extensive portfolios and meeting stringent research expectations, which can divert time and energy away from core library duties. Overall, these factors caused some academic librarians in the study to question the significance of tenure and suggest that libraries seek alternative models of evaluation and professional recognition that are more aligned with the changing roles and requirements of librarianship in the 21st century.

Discussion of Theme 4: Obstacles Related to the Tenure Process

Additional themes emerged from the interviews that were interrelated to each of the research questions. The main emerging theme concerned the concept of perceived obstacles which library faculty see as part of the overall tenure process. Six detailed themes emerged from the interviews regarding obstacles academic librarians face on the tenure track: (a) subjective standards, (b) burnout, (c) outside commitments, (d) lack of respect, (e) lack or organizational support, and (f) lack of professional preparation in MLIS programs.

The path to tenure is not without obstacles, and librarians may face a range of challenges throughout the process. These obstacles include the subjective nature of tenure evaluations, leading to inconsistencies and bias. Additionally, the pressure to meet tenure requirements can contribute to burnout, and librarians who do not fit the traditional mold of academic scholarship may struggle to demonstrate their value. There were also some suggestions that outside commitments contributed to the stress of the tenure process. These concerns are not necessarily specific to academic librarians but to academia in general; however, librarians are not immune to these concerns. Despite the challenges, academic librarians continue to take on multiple responsibilities, such as scheduling and running library instruction programs, which can make finding time to meet tenure requirements challenging.

Another recurrent obstacle in the interviews was a sense among interviewees that academic librarians do not fit the mold of traditional faculty. Interviewees repeatedly shared examples of traditional faculty being surprised to know librarians are tenure-track faculty. Other participants overwhelmingly felt a sense of being different and sometimes struggled to articulate their

worth to their institutional faculty colleagues. Some participants shared that faculty sometimes need clarification about why librarians are considered faculty and what they do to deserve to be faculty. The participants felt that most outside faculty need to be made aware of academic librarians' tenure track status and that there is a misunderstanding or lack of understanding of what librarians do. While academic librarians must follow the same promotion and tenure guidelines as traditional faculty, some faculty may not respect or recognize the importance of librarians' jobs. Some academic librarians even feel the pressure to be like conventional faculty but struggle with being categorized as staff by outside colleagues. These perceptions provide a picture of how academic librarians perceive their position in academia and how others perceive it.

Furthermore, budget threats can make it challenging to maintain the necessary support and resources for staffing, research and publishing. At the same time, a lack of support from colleagues and administration can also hinder progress toward tenure. These obstacles can be daunting, but with awareness and strategic planning, librarians can navigate them successfully and achieve their professional goals.

Perhaps one of the most significant findings was the realization of how little tenure, as a tenet of scholarly life, and the tenure process was discussed in MLIS programs. This lack of discussion resulted in some participants demonstrating a limited understanding of the tenure process, even as they applied to tenure-track positions within academic libraries. For example, Brooke stated, "I don't even remember talking (about tenure) because I took a class about academic librarianship. But I don't even remember talking about the tenure process in that class. But maybe we did but I don't have any memory of it."

Noah recalled a similar experience to Brooke's:

> I don't think we prepare ourselves well for that academic process. And I don't know if that's because at least ... the program I was in, was very generic. And most of the people that came out of there went on to be school media specialists. So not many of those folks at all went on to be academic librarians. So, we didn't talk about tenure, the tenure process, or how any of that worked.

Saunders (2015) states, "as transformations occur in the field, it is incumbent on schools of library and information science (LIS) to ensure that they are developing curricula that are responsive to current needs of the profession and that effectively prepare graduates to be successful in the workplace."

MLIS programs must effectively prepare and socialize graduate students to meet institutional and disciplinary expectations for academic librarianship. These programs play a crucial role in shaping the future professionals of the field by providing them with the skills, knowledge, and dispositions necessary to excel in their roles. Overall, professional preparation and socialization within MLIS programs are crucial for producing competent and self-assured academic librarians who can adapt to the changing requirements of their institutions and achieve tenure with limited issues. However, the interviewees of the study overwhelmingly felt unprepared leaving their MLIS programs and entering tenure-track positions. One of the least surprising findings from the interviews was that participants were highly self-conscious about how they were perceived on campus, a theme that aligned with the existing literature on librarian identity.

Even interviewees who took classes on academic librarianship did not recall discussing the role tenure would play for those that enter the world of higher education. It is worth

noting that the broader implications of this finding could be limited due to the specific group of graduate programs in which these participants attended, or even the years in which they attended their programs. However, little can be found in the literature regarding these conversations or lack thereof within MLIS programs. Additional research is needed to better understand whether MLIS programs could stand to improve their preparation of academic librarians entering tenure-track positions.

Conclusion

This study's findings have three main implications for academic librarianship. First, the identified benefits of tenure for academic librarians, such as the ability to focus library faculty efforts, higher pay, validation, job security, and academic freedom, demonstrate the significance of the tenure system in fostering librarians' career paths and contributions to the field. These insights can inform discussions and policies concerning the role of tenure in academic libraries, highlighting its importance beyond simply receiving faculty status.

Second, the perceived disadvantages of tenure identified in this study—such as limited academic freedom, additional responsibilities, and the burden of additional requirements with few benefits—pose important issues for academic librarians and administrators. Understanding these obstacles can aid institutions in addressing potential problems with their tenure processes, such as by providing more precise guidelines, enhancing support systems, and reassessing the balance between requirements and rewards.

Third, this study casts light on the need for ongoing conversations regarding tenure and the changing expectations and responsibilities of academic librarians in a higher education landscape that is constantly evolving. The investigation of the professional identity of academic librarians on the tenure track provides insight into their distinctive experiences and challenges. The presence of imposter syndrome, questions regarding the significance of tenure, and the need for librarians to forge their own path contribute to a deeper comprehension of the complexities of professional identity formation in this context. This knowledge can inform professional development initiatives and mentoring programs, thereby assisting librarians in navigating the tenure process and fostering a sense of belonging and confidence in their professional positions.

It is recommended that academic libraries and institutions promote open and ongoing conversations about the role of tenure in librarianship to capitalize on this study's findings. In addition, professional development programs and mentorship initiatives should be implemented to support librarians on the tenure track, addressing challenges associated with professional identity, imposter syndrome, and the unique requirements of tenure. In addition, academic libraries and institutions can foster professional development and contribute to the advancement of the field by understanding and addressing the perceptions, challenges, and needs of academic librarians on the tenure track.

In conclusion, the decline in tenured positions and the evolving perspectives on their value in higher education have raised significant concerns regarding the future of tenure. While these discussions predominantly center on traditional teaching faculty, academic librarians should be more frequently addressed. Academic librarians need help defining their roles in the changing higher education landscape. Rather than being acknowledged for their contributions to research and instruction, librarians are sometimes relegated to student support services. This lack of agreement on the function of academic librarians is a significant barrier to their pursuit of tenure. Ideally, this study contributed to our understanding of the difficulties and nuances academic librarians confront in their pursuit of tenure.

Appendix A

Interview Protocols

Interview Protocol for Tenure-Track Librarians

1. Briefly describe your educational background (e.g., when you received your degree, how long you have worked at your current institution, and how long you have worked in an academic library setting).
2. How do you identify and introduce yourself on campus?
    a. What are your primary job responsibilities?
3. Why did you choose to enroll in a Master of Library and Information Sciences (MLIS) program?
4. Do you believe an MLIS is sufficient preparation for the tenure process? Why, or why not?
5. Did you seek a tenure-track position after completing your MLIS?
6. Were the expectations for tenure clear when you began your position?
7. What does being a tenured professor mean to you professionally?
8. Do you believe that you have the time and necessary skill set to fulfill the required research responsibilities related to your position? Why or why not?
9. How has your bid so far for tenure impacted you professionally or your professional activity?
10. Which resources are available to you on campus to support your bid for tenure?
    a. Examples: Research Funding, Options for sabbatical, Funding for professional development
11. If you had the opportunity to choose whether your library hired librarians on the tenure track, would you continue to do so? Or abandon the practice? Why or why not?
12. How has your racial identity, gender identity, or ethnic identity impacted your experience as you work your way through pre-tenure and beyond?
13. As a tenure-track librarian, which professional activities do you currently engage in?
14. Please describe your participation in institutional affairs (e.g., university committees, university, or faculty senate, etc.). Do you feel that tenure enables librarians to participate in the shared governance of your institution? (Why, or why not?)
15. How has your personal identity (related to gender, ethnicity, or other factors) impacted your experiences during the tenure process?
16. How do you contribute to teaching and learning at your institution?
17. Please describe your experiences working with faculty outside the library. Do you feel that faculty across your institution recognize your tenure-track status?
18. What does academic freedom mean to you? Do you feel that tenure protects your academic freedom, especially in regard to librarianship? Can you give an example?
19. Have you or have you witnessed new librarians rejecting the idea of tenure?
    a. If so, or if not, why do you think some librarians may reject the idea of tenure for librarians?
20. Are you aware of anyone who failed to get tenure? Why do you think that was the case?
21. What are your future aspirations? Do they require additional experience or education?

Interview Protocol for Tenured Librarians

1. Can you briefly describe your educational background, when you received your degree, how long you have worked at your current institution, and how long you have worked in an academic library setting?
2. Why did you seek out the MLIS program that you did?
3. What are your thoughts on whether an MLIS is sufficient preparation for the tenure process?
4. Did you seek out a tenure-track positions after completing your MLIS?
5. What advice might you give an early-career librarian entering the profession?
    a. Would you suggest they only apply to tenure-track positions? If they were already on the tenure track, how might you advise them in terms of earning tenure?
6. What does being a tenured professor mean to you professionally and personally?
7. How do you identify and introduce yourself on campus?
8. Do you believe that you have the time and necessary skill set to fulfill the required research responsibilities related to your position? Why or why not?
9. Were the expectations for tenure clear when you began your position?
10. Which resources were available to you on campus to support your bid for tenure?
    a. Examples: Research Funding, Options for sabbatical, Funding for professional development
11. How has your personal identity (related to gender, ethnicity, or other factors) impacted your experience during the tenure process or after tenure?
12. As a tenured librarian, which professional activities do you currently engage in?
13. Please describe your participation in institutional affairs (university committees, university, or faculty senate, etc.)
14. How do you contribute to teaching and learning at your institution?
15. What does Academic Freedom mean to you? And do you feel that tenure grants you academic freedom in regard to librarianship?
16. Please describe your experiences working with faculty outside the library. Have you experienced any resentment from faculty regarding your faculty status?
17. Now that you received tenure, how would you describe your overall job satisfaction? Do you believe tenure status plays a role in overall job satisfaction?
18. If you had the opportunity to choose whether your library hired librarians on the tenure track, would you continue to do so? Or abandon the practice? Why or why not?
19. Have you or have you witnessed new librarians rejecting the idea of tenure?
    a. If so, or if not, why do you think some librarians may reject the idea of tenure for librarians?
20. Are you aware of anyone who failed to get tenure? Why do you think that was the case?
21. What are your future aspirations? Do they require additional experience or education?

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Interventions for Reducing, Preventing, or Overcoming Librarian Burnout: A Scoping Review

Natalie Logue, Jessica C. Garner, and Stephanie Hendren*

This scoping review categorizes the interventions discussed or explored among academic librarians to address the issue of burnout. Through a scoping review of the literature going back as far as 1982, the pattern of interventions suggests a strong emphasis on the individual managing their burnout through personal actions. However, in more recent years there has been a significant increase in the suggestion of organizations taking responsibility to reduce rates of burnout. More quantitative research is needed before specific interventions can be identified as effective.

Background

Job burnout is a phenomenon that describes the culmination of three psychological symptoms: exhaustion, cynicism, and lacking professional efficacy (Maslach, 2001). These symptoms can rise from job duties or personal relationships that are a necessity to be successful in a certain position. Since the development of the Maslach Burnout Inventory (MBI) and other tools to measure burnout, there have been many explorations of burnout in the library literature (Bartlett, 2018; Cameron et al., 2021; Casucci et al., 2020; Dixon, 2022).

Several survey studies have examined the frequency and causes of job-related burnout in academic librarians. A survey of 176 liaison librarians who were members of the Association of Research Libraries (ARL) discovered that length of time as a librarian or length at a single organization did not have a direct correlation to burnout scores (Nardine, 2019). Shupe et al. (2015) conducted a survey of 282 respondents that looked at important workplace factors such as role ambiguity and role overload, which are known role-related stressors that may contribute to job burnout. Their mean levels of both contributors were found to be similar to the levels reported in populations such as nursing executives and social service employees. Several other studies have also examined general demographic details, level of job burnout, and results of job burnout (Martin, 2020; Matteson, 2016; Matteson & Miller, 2013; Wood, 2020).

However, fewer narrative review papers examine or evaluate interventions to reduce, prevent, or overcome burnout. To date, a scoping review or other comprehensive review has not been identified in the library literature though there have been several narrative reviews that

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discuss burnout and interventions in general. Additionally, discussed interventions cover a significant number of suggestions that range from person-focused interventions to organizational interventions. We therefore sought to systematically categorize all the current literature that proposes an intervention for reducing or preventing burnout to better understand what solutions are most recommended and which interventions have been studied through original research.

Objectives

The objective for this scoping review is to identify and categorize all suggested or studied interventions in library literature hypothesized to prevent, reduce, or overcome burnout for library professionals working within the United States. Additionally, the scoping review will answer the following questions:

1. What library settings or library workers are represented or underrepresented in the literature?
2. Who is expected to perform the burnout interventions (i.e., the library worker, the supervisor, the university)? For the purposes of this review, we will consider any intervention the person experiencing burnout implements as a personal intervention and any intervention implemented by someone or something other than the person experiencing burnout (such as a supervisor, a library, or a university) an organizational intervention.

Methods

The authors conducted a scoping review in accordance with the methods outlined in the *JBI Manual for Evidence Synthesis*, Chapter 11.3: "Scoping Reviews" (Peters et al., 2020). The project also follows the PRISMA-ScR reporting guidelines (Tricco et al., 2018). This project and its protocol were registered through the Open Science Framework (OSF) Registries on February 22, 2021, after the searches were run and before data extraction began (Hendren et al., 2021). All final work, including the supplements and data extraction results for this project, can be found on the project page hosted on the Open Science Framework (https://osf.io/j3ew6/).

Eligibility Criteria

Our eligibility criteria included publications that: 1) are written in English and had a setting or focus on libraries or librarians within the United States (we chose to limit to the United States due to differing cultures and work-related resources worldwide [e.g., vacation time, maternity/paternity leaves, etc.] that could impact the findings); 2) discuss or evaluate interventions relating to workplace-related burnout (this could include articles whose study focus was not burnout interventions [e.g., measuring the prevalence of burnout in academic librarians] but that made recommendations in their discussions or conclusions. Publications that made general recommendations for all library types and were feasible for an academic library setting were also considered); 3) had an audience or study population that included academic librarians in some capacity (for the purposes of this scoping review, we defined academic librarians and settings in our protocol); 4) discuss any intervention in relation to workplace-related burnout, which could include interventions to prevent burnout from occurring or reduce existing burnout.

Exclusion criteria included a non-English language or settings outside of the United States, no mention of a burnout intervention, or a burnout discussion that is not centered from the library workplace (e.g., personal or familial burnout), or studies that were exclusively focused on an audience or population that included no librarians. Publication types of books,

book chapters, and conference abstracts were excluded. Book reviews and dissertations were additional publication types excluded after the registration of the scoping review protocol but were added to the exclusion criteria due to their similar nature to books. An additional exclusion criteria for satirical papers was added during the screening process.

Search

A comprehensive search was developed around the two main concepts for analysis: librarians/libraries and burnout. Keywords were not limited to "academic librarianship" in order to capture literature that might generally speak about multiple types of libraries. Additional keywords for burnout, such as "chronic stress" and "mental exhaustion," were also included. The search was developed and peer reviewed by all authors before it was translated to each database, adding in appropriate controlled vocabulary as available.

The databases Medline (OVID), Web of Science (Clarivate), LISTA with Full Text (EbscoHost), Library Science Database (Proquest), and PsycInfo (EbscoHost) were searched on November 23, 2020, with no date limitations or other filters, then updated on July 28, 2022. Ovid and PsycInfo were chosen to insure coverage the mental health topic side in addition to acknowledging the number of librarians who work as medical librarians or work in medical settings, such as hospital librarians. Web of Science was utilized to provide a broad, catch-all coverage due to the multidisciplinary coverage and size of the database. All citations were imported into Covidence for de-duplication and screening (Covidence systematic review software, Veritas Health Innovation, Melbourne, Australia. Available at www.covidence.org). These databases include two changes from our original protocol: Ovid was chosen over PubMed to utilize the database's adjacency search function, and PsycINFO was selected over Academic Search Complete to ensure we included a database that heavily focused on psychological science. All reproducible search strategies are available on the OSF project page (https://osf.io/f8np4).

Study Selection and Data Extraction

Two authors independently reviewed all articles at both the title/abstract and full-text levels by using Covidence. Any disagreements in voting were broken by the third author. Articles that made it to inclusion had data extracted via a standard template developed by the authors and uploaded into Covidence's Data Extraction, version 2.0. The types of information extracted from each article included: 1) study title, authors, and journal title; 2) the aim or purpose of the publication; 3) the population that served as the main focus of the publication, including sample size and methodology if applicable; 4) specific interventions identified in the literature, either verbatim or as a summarized concept; 5) and the measured outcomes, if applicable, or general key findings. All data extraction was conducted independently by two authors and discrepancies in responses were arbitrated by the third author within Covidence. Extracting the methodology used in each included article was done in lieu of critical appraisal to quantify the number of original research papers vs. opinion papers. The broad variety of papers and intervention types meant the pool was too heterogeneous to allow for proper critical appraisal.

Charting and Synthesis of Results

The authors began by charting the interventions identified during the data extraction into conceptual categories and intervention type (i.e., personal versus organizational). The conception

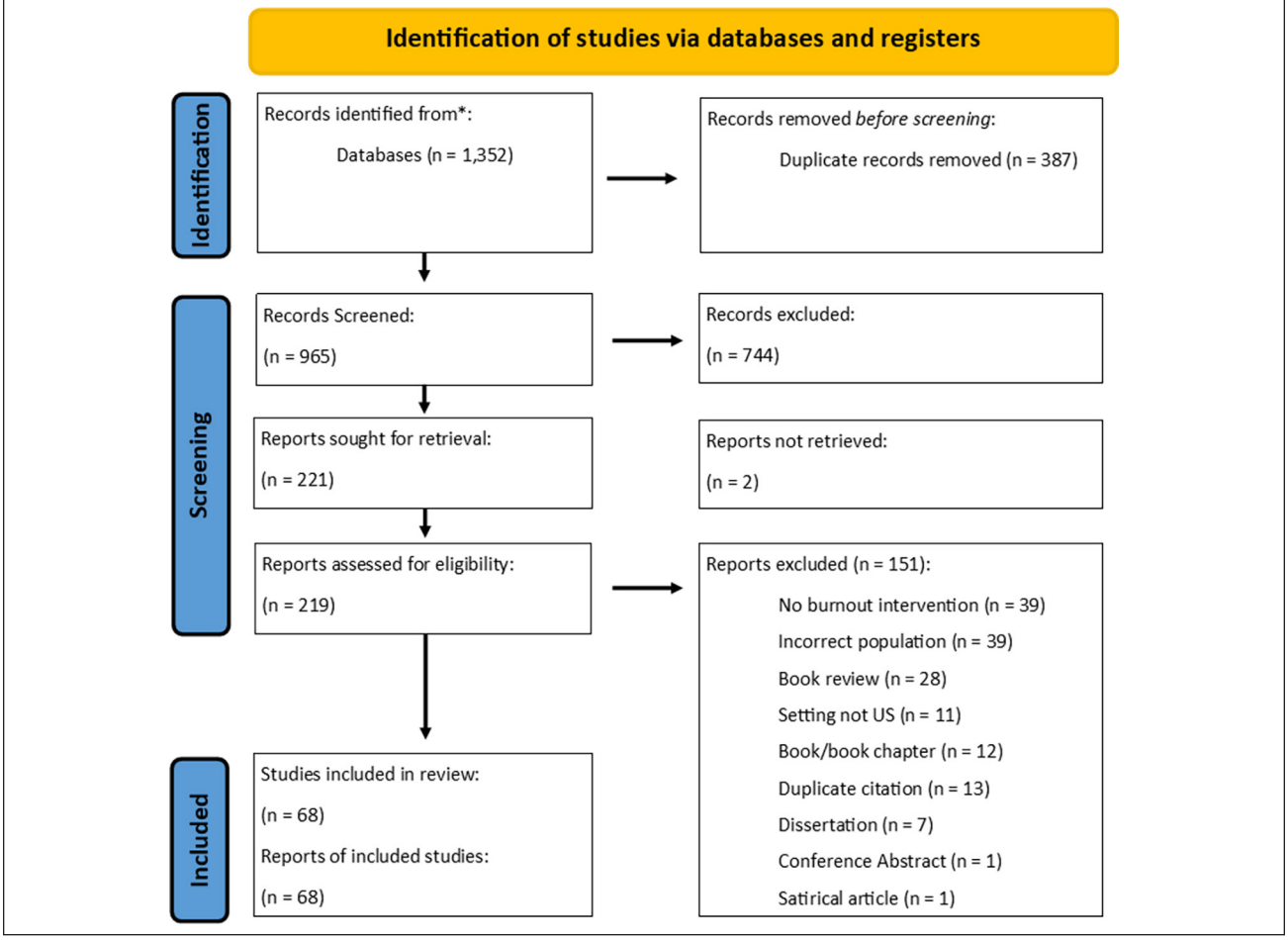
categories were identified by all three authors and included, but were not limited to, "Professional Development," "Exercise," and "Change of Attitude." The authors each sorted a third of the interventions identified from the literature into conceptual categories. Additional categories were added as necessary through a discussion and unanimous agreement of the authors. It was determined the interventions could exist in more than one category and that categories should be split between "Organizational" and "Personal" intervention types, based on how the intervention was discussed in the article. The resulting chart of categories and intervention types was translated into a simple list of every intervention included on the chart, meaning some interventions appeared multiple times. The identifying article number attached to each intervention ensured that even if interventions appeared in the exact same language on multiple papers, those would remain distinguishable. The final results were entered into PowerBI to develop a report that allowed for close investigation of each category and to sort based on Organizational or Personal responsibility. Narrative summary was utilized for all other data categories.

Results

Search and Study Selection

The comprehensive search produced 1,352 references, 387 of which were identified via Covidence as duplicate citations. The remaining 965 were screened for eligibility and resulted in the inclusion of 68 publications (see Figure 1). Two publications could not be retrieved:

FIGURE 1
PRISMA 2020 Flowchart of All Citations



both were connected to an online archive that had since shut down and no longer provided the full text or any contact information to try and obtain the papers. Thus, these two could not be considered further even though the titles and abstracts met the inclusion criteria. The reasons for exclusion for all citations evaluated at the full text level are available on the OSF project page (https://osf.io/8bu4q).

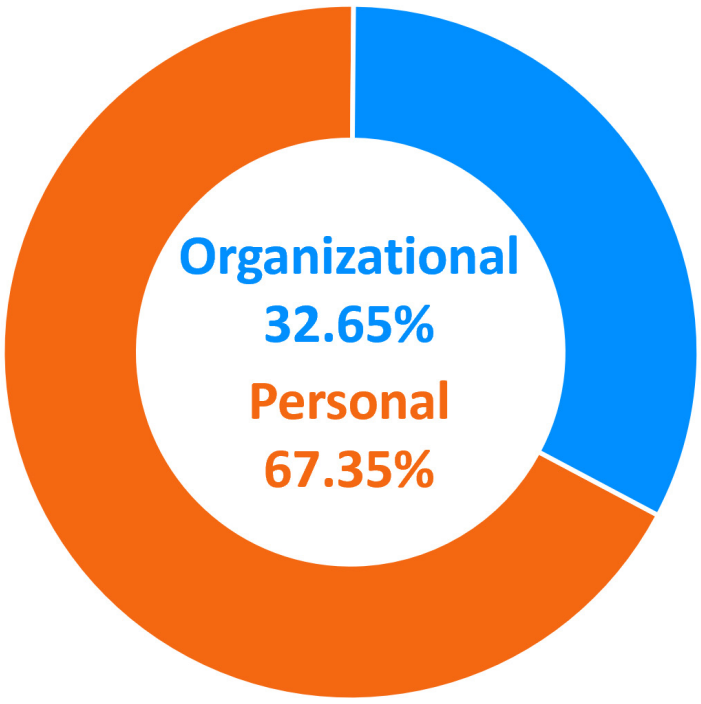
Study Characteristics

All included studies and their characteristics can be viewed in Appendix III (on https://osf.io/j3ew6/). The publication date of included studies ranged from 1982 to 2022; however, there were several years within that range that did not produce any included studies. There was a significant increase in studies published between 2015 and 2020. Twenty-one studies focused directly on the impact of burnout interventions on academic libraries. Four publications focused on, were written by, or included public library workers in some capacity. Three publications highlighted special librarians such as archivists and hospital librarians. Only 17 were original studies that focused on evaluating a specific implemented intervention; most were surveys, and one was a mixed methods study that used a survey and qualitative data analysis. Most publications were otherwise narrative reviews or opinion papers that discussed potential solutions and individual experiences.

Intervention Characteristics

A total of 517 interventions were identified across all included articles. Seventeen of the 517 interventions were duplicated into two intervention categories. This was most often because the intervention was too vague to be narrowed down to one category (e.g. "self-care" can refer to both physical and mental care, so it was sorted into both). Each intervention was

FIGURE 2
Percent of Organizational Versus Personal Interventions



identified as either an organizational intervention or a personal intervention. Organizational interventions are defined as an intervention provided or supported by the employer/library. Personal interventions are defined as employee/librarian initiated. Some categories are duplicated to make a distinction between organizational responsibility and personal responsibility. For example, Support Networks (Professional) appears as both a personal and an organizational intervention. But some interventions, such as Sleep, which was identified as a personal intervention, did not have a corresponding organizational category. Ultimately, we ended with 533 interventions sorted into 34 intervention groups, with six duplicated as both Organization and Personal depending on how the author referred to the intervention (see Appendix III).

Personal interventions categories made up 67.35% of all the interventions as compared to 32.65% of the interventions being supported by organizations (see Figure 2). The top four personal intervention categories were General Care of the Mind (41), Professional Development (28), and Support Network (Professional) (25). General Care of the Body and Self-reflection were close behind with 24 mentions each. General Care of the Mind was the third overall most common intervention. Although personal interventions were suggested more often than organization interventions, the type of interventions were more varied for personal than for organizational. The top three organizational intervention categories focused on the workplace as a whole, rather than providing support to individuals. These included Improve Work Culture (47), Improve Communication (33), and Professional Development (22).

The most common types of interventions mentioned overall were in the categories of Improve Work Culture (organizational intervention) (8.8%), General Care of the Mind (personal intervention) (7.7%), and Improve Communication (organizational intervention) (6.2%). Meditation, mindfulness, and yoga were the most common interventions mentioned regarding the care of the mind. The interventions categorized under Improve Work Culture (organizational intervention) were significantly more varied; however, a few themes did repeat. The most notable of which were participatory management and general non-specific calls for improvement to the culture or help from management or organizations. Improve Communication (organizational intervention) had a similar pattern to Improve Work Culture, with many unique interventions identified. The themes visible throughout included hearing more often from library leadership and expectations around receiving specific details such as deadlines and task responsibilities.

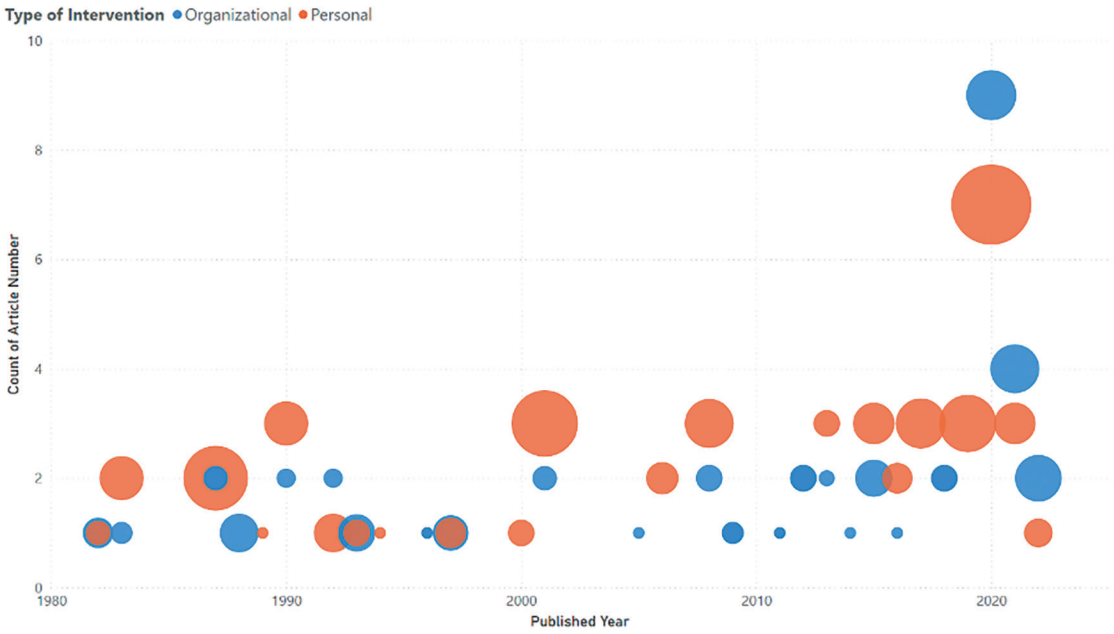
Among the least common interventions Job/Task Restructuring (organizational intervention) and Job Reinvention (personal intervention), with two mentions each. Cross train, as a personal intervention, also had only two mentions in the literature.

One of the most interesting trends in the literature is seen in Figure 3. In this chart the Y axis represents the number of publications in a year that provided each type of intervention. The size represents the number of individual interventions mentioned in those papers. Between 2010 and 2020, there is a significant uptick in the number of organization interventions and the number of papers of that discuss organizational interventions.

Study Outcomes

Early research into burnout among librarians indicated a low level of burnout and risk of burnout within the profession (Smith & Nelson, 1983). From 262 responses, Smith and Nelson (1983) concluded the primary factor causing burnout was an inability of the individual to relax and have a solid self-awareness. This trend of placing the burden to identify and solve the issue on the individual experiencing burnout was repeated across the literature, as indicated by the

FIGURE 3
Trends in Intervention Type in the Literature Over Time



percent of interventions recorded as personal compared to those recorded as organizational. However, as Dixon quotes in her article, "You can't self-care your way out of systemic issues" (Jensen, as cited in Dixon, 2022). Colon-Aquirre and Kavanagh's study in 2020 was one of the most comprehensive quantitative studies measuring burnout among academic librarians since Smith and Nelson's study (1983). Colon-Aquirre and Kavanagh identified several factors outside of individual intervention that showed a clear impact on burnout and risk of burnout. Specifically, this paper identified that librarians who self-identified as LGBTQIA+, though a small part of the overall study population, indicated significantly higher rates of exhaustion, ineffectiveness, and cynicism (Colon-Aguirre & Kavanagh, 2020). Several studies performed after Smith and Nelson's (1983) survey reported positive impacts of organizational interventions (Barr-Walker et al., 2020; Demetres et al., 2020; Dickinson & George, 2005; Martin, 2020; McHone-Chase, 2020). Where the organization set specific tasks and expectations, these studies reported workers had an increased sense of empowerment and were able to dedicate their efforts to a single focus. Often, these organizational interventions were paired with individual strategies and interventions to combat burnout as a targeted approach, rather than a sweeping solution. Organizational interventions were not universally positive. Matteson and Miller (2013) found organizational interventions correlated to increased emotional labor in the form of false positivity which counter-productively increased rates of burnout. Casucci et al. (2020) also found that gamified interventions did not impact burnout among their employees. While no decisive solution was presented in any given paper, the research demonstrates an ongoing challenge for librarians and organizations to measure and intervene burnout among the profession.

Discussion

This scoping review focused on categorizing and quantifying burnout interventions suggested in library literature. Results showed an emphasis on personal interventions versus organizational ones. Just over 65% of the interventions identified were expected to be carried out by

the individuals. This phenomenon was noted in a few of the included papers as well (Duffy et al., 2021; Johnson, 2018; Tolley, 2020).

This scoping review also found significant under-representation of some groups in the study population. While the focus limited results to those papers that included academic librarians, public librarians were found to be significantly represented in the results. The results included a surprising diversity of library types and job titles. However, librarians from cultural and racial minority groups were conspicuously absent. The lack of representation in the literature by members of the LGBTQIA+ and librarians of color fails to present the struggle of identity and addressing burnout among individuals who may also be facing equity and inclusions concerns in their lives.

A significant weakness of this review comes from the lack of quantitative studies on this topic related to libraries, despite employing a comprehensive search. This scoping review found that the majority of the literature on library burnout was presented in case studies, narratives, self-reflections, and think pieces (Corrado, 2022; Dixon, 2022; Ewen, 2022; Johnson, 2018). Qualitative studies that dominated the literature lack the formality of structured studies as well as any assessment of the intervention success rates. The absence of a substantial representation of quantitative studies has created a void in the literature. Formal quantitative studies exist for fields that are considered at a high risk for burnout, such as nursing, healthcare, and legal work. The same model should be applied to a library space and would provide concrete evidence on how burnout impacts the field. Due to this weakness in the literature, this review was only able to categorize the types of burnout interventions discussed and not assess any potential effectiveness. Future research should focus on interventional studies to evaluate the effectiveness of the suggested interventions cataloged by this scoping review.

This review excluded self-identified humor or satire publications, conference abstracts, book chapters, and book reviews. Self-identified humor or satire publications were excluded because these types of literature did not seriously address the issues at the focus of this study. Conference abstracts were excluded because they are not always published or easy to retrieve. Conference abstracts also do not provide the full body of work. Book reviews were not included because only a brief review of the book is provided and this study focused on identifiable results. Book chapters were not included because we originally thought that they would lean more toward a philosophical review and would lack intervention recommendations or quantitative studies. During the screening period, 12 books or book chapters were discovered to be potentially relevant to the topic but were not fully screened due to publication type. In future instances of this review, it would be recommended to include book chapters as they may go into more detail on how and where burnout interventions were implemented and evaluated.

Future Research Considerations

Based on the results found in this scoping review, recommendations for future research focus on increasing the diversity of populations, obtaining more measurable results, and identifying new sources. The absence of underrepresented librarians in the literature limits the use and applicability of any conclusions drawn from this study. Future research should deliberately include publications that focus on representing underrepresented voices and experiences in the United States. In the September 2018 issue of *Forum Magazine*, the article "The Value of Equity, Diversity, and Inclusion" by Brooke Morris states that

> Having a well-represented, diverse, inclusive staff also increases productivity, as diverse, inclusive staff also increases productivity, as diverse groups of problem

> solvers offer different opinions and viewpoints, making them better equipped at solving problems than groups made up of individuals who are all the same. (2018, p. 40)

While this article discusses library staff as a whole, the message of having a diverse group of problem solvers is also needed when addressing the large issue of librarian burnout. Including underrepresented librarians' experiences and perspectives would bring a different lens to the problem of librarian burnout that is missing from the current literature.

In addition, future research needs to focus on empirical evidence of recommended interventions by organizations. This scoping review had 174 interventions that originated within organizations. However, organizations rarely assessed the intervention that was provided to library employees. As noted previously, the most notable organizational interventions were participatory management and general non-specific calls for improvement to the culture or help from management or organizations. Our recommendation is that organizations include a plan for assessing the interventions that are provided to librarians and all library employees. For future research, we recommend a focus on quantitative research with an emphasize on assessment. While think pieces, narratives, and listicles have their place within the literature of librarian burnout they rarely provide true assessment of the outcome.

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Appendix I

Final Search Strategies

Librarian: Steph Hendren, MLIS; Duke University Medical Center Library & Archives, Duke University School of Medicine

Search Peer Reviewed By: Natalie Logue, MLIS; Savannah River National Laboratory and Jessica Garner, MLIS; Georgia Southern University

Date of original conducted searches: November 23, 2020

Date of updated conducted searches: July 28, 2022

Database: Web of Science (Clarivate)

Specific Indexes included from the Core Collection: Science Citation Index Expanded: 1900–present; Social Sciences Citation Index: 1900–present; Arts & Humanities Citation Index: 1990–present; Emerging Sources Citation Index: 2015–present.

Concept	Search String	Original Results (Nov. 23, 2020)	Updated Results (July 28, 2022)
1. *Library/ Librarian Terms*	TS = (librarian OR librarians OR librarianship OR "information professional" OR "information professionals" OR "information specialist" OR "information specialists" OR informationist OR informationists OR "media specialist" OR "media specialists" OR archivist OR archivists OR library OR libraries OR archive OR archives) OR SO = (librarian OR librarians OR librarianship OR "information professional" OR "information professionals" OR "information specialist" OR "information specialists" OR informationist OR informationists OR "media specialist" OR "media specialists" OR archivist OR archivists OR library OR libraries OR archive OR archives)	443,140	497,131
2. *Burnout terms*	TS = (burnout OR burn-out OR "burn out" OR "burned out" OR "burning out" OR ((chronic OR chronically OR mental OR mentally OR occupation OR occupations OR occupational OR job OR jobs OR emotional OR emotionally) NEAR/3 (stress OR stressed OR stressing OR stressful OR exhaustion OR exhausted OR exhausting)))	84,789	103,336
3.	1 AND 2	290	393
4.	Date filter: 2020–present	NA	150

Database: Library Science Database (ProQuest)

Concept	Search String	Original Results (Nov. 23, 2020)	Updated Results (July 28, 2023)
1. *Library/Librarian Terms*	MAINSUBJECT.EXACT("Library staff") OR MAINSUBJECT.EXACT("Libraries") OR NOFT(librarian OR librarians OR librarianship OR "information professional" OR "information professionals" OR "information specialist" OR "information specialists" OR informationist OR informationists OR "media specialist" OR "media specialists" OR archivist OR archivists OR library OR libraries OR archive OR archives)	923,391	969,414
2. *Burnout terms*	MAINSUBJECT.EXACT("Burnout") OR MAINSUBJECT.EXACT("Occupational stress") OR NOFT(burnout OR burn-out OR "burn out" OR "burned out" OR "burning out" OR ((chronic OR chronically OR mental OR mentally OR occupation OR occupations OR occupational OR job OR jobs OR emotional OR emotionally) NEAR/3 (stress OR stressed OR stressing OR stressful OR exhaustion OR exhausted OR exhausting)))	488	678
3.	1 AND 2	252	314
4.	Date filter: 2020–present	NA	77

Database: Medline (OVID)

Concept	Search String	Original Results (Nov. 23, 2020)	Updated Results (July 28, 2022)
1. *Library/Librarian Terms*	(exp Librarians/ OR exp Information Centers/ OR exp Libraries/ OR exp Libraries, Special/ OR exp Archives/ OR (librarian OR librarians OR librarianship OR "information professional" OR "information professionals" OR "information specialist" OR "information specialists" OR informationist OR informationists OR "media specialist" OR "media specialists" OR archivist OR archivists OR archive OR archives OR library OR libraries OR archive OR archives).ti,ab,kw,jn.)	197,312	227,843
2. *Burnout terms*	(exp burnout, psychological/ OR exp burnout, professional/ OR (burnout OR burn-out OR "burn out" OR "burned out" OR "burning out"). ti,ab,kw,jn. OR ((chronic OR chronically OR mental OR mentally OR occupation OR occupations OR occupational OR job OR jobs OR emotional OR emotionally) ADJ3 (stress OR stressed OR stressing OR stressful OR exhaustion OR exhausted OR exhausting)). ti,ab,kw,jn.)	54,132	65,065
3.	1 AND 2	152	152

Database: LISTA with Full Text (EbscoHost)

Concept	Search String	Original Results (Nov. 23, 2020)	Updated Results (July 28, 2022)
1. *Library/ Librarian Terms*	DE "LIBRARIES" OR DE "ACADEMIC libraries" OR DE "ARTISTS' libraries" OR DE "ASSOCIATION libraries" OR DE "BIBLIOGRAPHICAL libraries" OR DE "BOOKBINDING libraries" OR DE "BRANCH libraries" OR DE "CARNEGIE libraries" OR DE "CENTRAL libraries" OR DE "CHILDREN'S libraries" OR DE "DATA libraries" OR DE "DEPOSITORY libraries" OR DE "DESIGN libraries" OR DE "DIGITAL libraries" OR DE "HYBRID libraries" OR DE "JOINT-use libraries" OR DE "LGBTQ libraries" OR DE "PRIVATE libraries" OR DE "PROPRIETARY libraries" OR DE "PUBLIC libraries" OR DE "RENTAL libraries" OR DE "RESEARCH libraries" OR DE "SCHOOL libraries" OR DE "SMALL libraries" OR DE "SPECIAL libraries" OR DE "LIBRARIANS" OR DE "LIBRARY administration" OR DE "LIBRARY personnel" OR TI(librarian OR librarians OR librarianship OR "information professional" OR "information professionals" OR "information specialist" OR "information specialists" OR informationist OR informationists OR "media specialist" OR "media specialists" OR archivist OR archivists OR library OR libraries OR archive OR archives) OR AB(librarian OR librarians OR librarianship OR "information professional" OR "information professionals" OR "information specialist" OR "information specialists" OR informationist OR informationists OR "media specialist" OR "media specialists" OR archivist OR archivists OR library OR libraries OR archive OR archives) OR JN(librarian OR librarians OR librarianship OR "information professional" OR "information professionals" OR "information specialist" OR "information specialists" OR informationist OR informationists OR "media specialist" OR "media specialists" OR archivist OR archivists OR library OR libraries OR archive OR archives)	215,381	355,528

Concept	Search String	Original Results (Nov. 23, 2020)	Updated Results (July 28, 2022)
2. *Burnout terms*	TI(burnout OR burn-out OR "burn out" OR "burned out" OR "burning out" OR ((chronic OR chronically OR mental OR mentally OR occupation OR occupations OR occupational OR job OR jobs OR emotional OR emotionally) NEAR/3 (stress OR stressed OR stressing OR stressful OR exhaustion OR exhausted OR exhausting))) OR AB(burnout OR burn-out OR "burn out" OR "burned out" OR "burning out" OR ((chronic OR chronically OR mental OR mentally OR occupation OR occupations OR occupational OR job OR jobs OR emotional OR emotionally) NEAR/3 (stress OR stressed OR stressing OR stressful OR exhaustion OR exhausted OR exhausting))) OR SO(burnout OR burn-out OR "burn out" OR "burned out" OR "burning out" OR ((chronic OR chronically OR mental OR mentally OR occupation OR occupations OR occupational OR job OR jobs OR emotional OR emotionally) NEAR/3 (stress OR stressed OR stressing OR stressful OR exhaustion OR exhausted OR exhausting)))	182	508
3.	1 AND 2	127	203
4.	Publication date filter: 2020–present	NA	42

Database: PsycInfo (EbscoHost)

Concept	Search String	Original Results (Nov. 23, 2020)	Updated Results (July 28, 2022)
1. *Library/Librarian Terms*	DE "Libraries" OR DE "Digital Libraries" OR DE "School Libraries" OR DE "Information Specialists" OR DE "Librarians" OR TI(librarian OR librarians OR librarianship OR "information professional" OR "information professionals" OR "information specialist" OR "information specialists" OR informationist OR informationists OR "media specialist" OR "media specialists" OR archivist OR archivists OR library OR libraries OR archive OR archives) OR AB(librarian OR librarians OR librarianship OR "information professional" OR "information professionals" OR "information specialist" OR "information specialists" OR informationist OR informationists OR "media specialist" OR "media specialists" OR archivist OR archivists OR library OR libraries OR archive OR archives) OR SO(librarian OR librarians OR librarianship OR "information professional" OR "information professionals" OR "information specialist" OR "information specialists" OR informationist OR informationists OR "media specialist" OR "media specialists" OR archivist OR archivists OR library OR libraries OR archive OR archives)	56,640	60,797

Concept	Search String	Original Results (Nov. 23, 2020)	Updated Results (July 28, 2022)
2. *Burnout terms*	DE "Occupational Stress" OR DE "Compassion Fatigue" OR TI(burnout OR burn-out OR "burn out" OR "burned out" OR "burning out" OR ((chronic OR chronically OR mental OR mentally OR occupation OR occupations OR occupational OR job OR jobs OR emotional OR emotionally) NEAR/3 (stress OR stressed OR stressing OR stressful OR exhaustion OR exhausted OR exhausting))) OR AB(burnout OR burn-out OR "burn out" OR "burned out" OR "burning out" OR ((chronic OR chronically OR mental OR mentally OR occupation OR occupations OR job OR jobs OR occupational OR emotional OR emotionally) NEAR/3 (stress OR stressed OR stressing OR stressful OR exhaustion OR exhausted OR exhausting))) OR SO(burnout OR burn-out OR "burn out" OR "burned out" OR "burning out" OR ((chronic OR chronically OR mental OR mentally OR occupation OR occupations OR occupational OR job OR jobs OR emotional OR emotionally) NEAR/3 (stress OR stressed OR stressing OR stressful OR exhaustion OR exhausted OR exhausting)))	26,271	29,865
3.	1 AND 2	130	162
4.	Publication date filter: 2020–present	NA	39

The State of Funding for Curriculum Materials Centers and Collections

Caitlin Stewart and Jenelle Jensen*

Using Spearman's rank correlation coefficient, researchers analyzed whether there was a correlation between education student enrollment and curriculum materials center/collection (CMC) budget across eighty universities in the United States. Findings indicate that there is a positive correlation between those variables, although the relationship is weak. Universities with large education programs tend to have better-funded CMCs; however, variability across institutions is still significant. Findings suggest that many university CMCs may be comparatively underfunded based on student enrollment in education and historical trends.

Curriculum Materials Centers and the University

Curriculum materials centers and collections (CMCs) collect P-12 classroom resources—such as children's and young adult literature, textbooks, and more—to be used by pre-service and current educators in lesson planning, curriculum exploration, and clinical experiences. CMCs are "essential to the instructional and research needs of students and faculty in programs preparing educators for preschool through 12th grade (P-12) schools" (Pauly et al., 2017, p. 2). CMCs may self-identify under different terminology, such as curriculum laboratories, if they fulfill this role or function. Despite the user overlaps, CMCs have some distinct characteristics from education libraries.

CMCs first rose in popularity in the 1920s and 1930s as key educator preparation universities opened centers (Attebury & Kroth, 2012; Kohrman, 2012b). Early scholars (Drag, 1947; Leary, 1938) commented on the muddiness of the then more common terminology, "curriculum laboratory," which led to inconsistent usage and is sometimes misaligned with modern understandings of CMCs. In the following decades, a more consistent definition was established: "[t]o serve the needs of all students and faculty in the undergraduate teacher education programs, by providing print and non-print resources and support methods courses, by allowing students to examine and evaluate materials they will be using in practice teaching and future classrooms" (Mace, 1993, p. 23). For our purposes, all centers and collections affiliated with institutions of higher education serving teacher education programs in this way are considered a CMC.

This study investigates the statistical relationship between undergraduate education student enrollment, graduate education student enrollment, and total education student enrollment with funding levels of CMCs across the United States. The authors also explored the extent to which

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CMC funding has increased (or not) with inflation over time. Although relevant national research is available, it is outdated or does not fully address these research questions. Specifically, much of the literature has focused on characterizing factors such as CMC holdings, location, and staffing (Godbey & Melilli, 2021; Kohrman, 2015; Osa, 2003; Teel, 2008; Williams, 2011). Catalano (2015) remarked on the difficulty of statistically interpreting data from Strnad et al. (2009) because CMC budgetary information was collected as ordinal variables (e.g., $1,001–$3,000) rather than continuous variables (e.g., $2,987.54) which made institutional comparisons more complicated. Our study provides a methodology to better use and interpret ordinal variables in existing national CMC data sets such as Strnad et al. (2009) and Kogut et al. (2023).

Literature Review

Value of Curriculum Materials Centers

It is important to first establish why CMCs are a crucial resource for teacher education students and hold enduring value for their users. On educational resources for teacher preparation, Witt (1963) suggested that "Materials cannot be studied in the abstract. … One learns to use materials by using them. Consequently, students who are studying to be teachers need to have quick and easy access to a generous supply of materials of all types" (p. 46). It is vital that, during teacher preparation programs, future teachers have hands-on experience with curriculum materials so they are prepared for their future classroom work (Alteri, 2012; Kohrman, 2012; MacVean, 1958). Kohrman (2012) found that "[a]s educators, community leaders, and national leaders realized the need for well-trained and certified teachers, they called for laboratories, centers, or libraries at teacher training institutes" (p. 17). Grossman and Thompson (2008) argued, based on a longitudinal study of recent graduates turned teachers, that "new and aspiring teachers need opportunities to analyze and critique curriculum materials" (p. 1). Gelber and Uhl (2013) concurred, stating "[T]he quality of teacher education must not be compromised by the absence of necessary teacher education components, such as specific library resources and services, which directly support educational courses" (p. 64).

The value of CMCs is also demonstrable through their high usage. Tillman (2001) found that "CMC materials, services, and facilities are used far more than typical library materials, services, and facilities. … It is not unusual for a CMC to account for 20% of a library's circulation and receive 1% of the materials budget" (p. 32). Ultimately, CMCs are highly used collections (Catalano, 2015; Meyer 2012; Teel, 2008). Ideally, they provide future teachers with the necessary education resources to examine, analyze, and use, so that they are better prepared for the curriculum materials landscape. While curriculum materials held by CMCs may also be located at local schools or public libraries, Gallinger (1974) stated, "The needs of college faculty and students are too immediate and demands too heavy to make it practical for them to be served except locally in-house" (p. 3). Ellis (1969) moved that CMCs are of "inestimable value to teacher education programs" (p. 13) with Alteri (2012) echoing the significance of CMCs for future teachers (p. 33). While the value of CMCs is well-established, their positive outcomes for teacher educators can be compromised by outside factors such as funding.

Curriculum Materials Centers Nationally

Many researchers have conducted national surveys to gain insight into CMCs and their role in the United States (Drag, 1947; Ellis, 1969; Flandro, 1957; Gregor et al., 2014; James, 1963; Johnson, 1973; Kogut et al., 2023; Leary, 1938; Lehman & Kiewitt, 1985; Strnad et al., 2009; Toifel, 1992). According to Gregor et al. (2014), Leary (1938) produced the first significant

national study to survey the prevalence of CMCs. In that 1936–1937 survey, Leary (1938) found 35 institutions of higher education with CMCs. Subsequently, other early scholars of CMCs conducted surveys to account for CMCs occurrences while seeking to better define their natures and offerings (Drag, 1947; Flandro, 1957). The unavoidable reality of scholars using varied sampling approaches and divergent qualifying criteria for CMCs leads to shortcomings in understanding the popularity and rise of CMCs nationally that persist to this day.

Regardless, the number of CMCs recorded nationally increased significantly by 1965, when 443 CMCs were identified in the 1965–1966 NCATE Annual Report, and 303 institutions confirmed their CMC in 1969 (Ellis, 1969). Beginning in 1981, the Association of College and Research Libraries (ACRL) Education and Behavioral Sciences Section has periodically published a directory of known CMCs (Table 1) and their key features (Kogut et al., 2023). Subsequently, the various editions of the *Directory of Curriculum Materials Centers and Collections* will be referred to as *Directory,* indicating the appropriate edition(s) as needed.

TABLE 1
Number of CMCs Included in Each Edition of the Directory

Year Published	Edition	Number of CMCs
2023	8th	112
2015	7th	161
2009	6th	204
2001	5th	203
1996	4th	278
1990	3rd	272
1985	2nd	175
1981	1st	189

Note. Adapted from "Directory of Curriculum Materials Centers and Collections 8th Edition," by A. Kogut, C. Stewart, A. Dovydaitis, C. Boff, J. Johnson, N. Grimes, T. Fontno, L. Cameron, and K. Hangauer, 2023. https://alair.ala.org/handle/11213/20091. Copyright 2023 by the EBSS Curriculum Materials Committee. National surveys of CMCs provide the best contemporary insight into the prevalence of CMCs in the United States. They are frequently used as benchmarks for peer institutions to evaluate staffing, resources, and more at their own institution. Of most relevance to this study are those that tracked education student enrollment and/or CMC budgets.

CMC Funding Levels

Tillman (2001) asserts that "In many cases, CMCs are highly used, historically underfunded, and politically powerless" (p. 30). This perception has remained, with adverse circumstances heightened after the financial crisis and the 2007/2008 Great Recession. In the years following, academic libraries were broadly and deeply impacted by state budget cuts to public universities (Guarria & Wang, 2011), which significantly reduced spending per student (Mitchell et al., 2016). These choices at the state level impacted the academic library funding and materials budgets of CMCs. Catalano (2015) interviewed CMC librarians at public institutions and found reports of significant resulting budget cuts, which were especially hard given "an increase in education reform [following the adoption of Common Core and Next Generation

Science Standards] requiring an abundance of newly published materials" and the decline of vendor-supplied free resources or cost-effective negotiated collections (p. 13). CMC budgets were not the only casualty during this time, as CMCs also closed or operationally changed to work within leaner means. Kohrman (2015) found that, of 10 Michigan CMCs that had closed, shrunk, or merged between 2005 and 2014, 80% attributed it to budget costs. Comparing institutional reports in the 6th, 7th, and 8th editions of the *Directory* reveals that while select CMCs' budgets have increased, many others have experienced flat or declining funding over the last 15 years (Gregor et al., 2014; Kogut et al., 2023; Strnad et al., 2009).

The unique mission of these special collections means CMC librarians often need to transition collections quickly, modernize, and keep pace with changing educational standards and approaches (Catalano, 2015; Kohrman, 2015). As a result, there is a higher turnover of materials in most CMCs, including more frequent weeding and higher demand for new purchases (Lare, 2004). Williams (2011) notes that even CMCs with substantial funding have under-resourced collection areas as needs develop and emerge. Given the long-held perception of CMCs being under-funded (Attebury & Kroth, 2012; Tillman, 2001), researchers have proposed methods for stretching a CMC budget to purchase or strategically provide materials (Carr, 2001; Catalano, 2015; Godbey & Melilli, 2021; Kohrman, 2015; Lare, 2004; Meyer, 2012; Miller & Meyer, 2008; Osa, 2003; Tillman, 2001; Williams, 2011).

CMC Funding Given Education Student Enrollment

Researchers have suggested that CMC funding levels should be reflective in some way of education student enrollment (Catalano, 2015; Fabbi et al., 2007; Lare et al., 1992; Melilli et al., 2018; Pauly et al., 2017) even if they recommend alternate strategies for precise budget allocation. Allen and Dickie (2007) tested the hypothesis that a positive relationship exists between academic library funding and enrollment (in addition to other variables such as Ph.D. fields) and found from a sample of 113 libraries "a modicum of correlation" (p. 174). The proposed interrelatedness of education student enrollment and CMC budgets is not new. In an article chronicling the history of the Education Library at Wayne State University, Alteri (2009) shared evidence of faculty members' "deep anxiety over the inability of the library to purchase enough materials for the students in the College of Education" (p. 14). The report exemplifies the long-held perception that CMCs must be able to fiscally provide *enough* materials for the student population.

In *A Guide to Writing CMC Collection Development Policies,* Melilli et al. (2018) asserted that the "Funding level for collection materials should reflect the enrollment of education majors and pre-service teachers in comparison to other majors within the institution" (p. 26). This is consistent with Fabbi et al.'s guide from 2007. Tillman (2001) suggested that "Enrollment and course-offering tallies should include students and courses from all departments that use CMC materials. Some of the departments may be located outside of the College of Education" (p. 27). Lare et al. (1992) go further—as an ad hoc committee of the Curriculum Materials Center Interest Group of the Academic Libraries Association of Ohio—by creating guidelines for established CMC collections and recommending the annual expenditures for CMC resources should be based on full-time equivalent teacher education enrollment, rather than just being enough to support enrolled students adequately. They proposed a system for calculating CMC budgets based on education student enrollment.

Having enrollment as a factor for library budget has also been cautioned, as it is a "lagging indicator" (FuLong Wu & Shelfer, 2007, p. 180) and makes library funding "vulnerable to stable or declining enrollment" (Cooper, 1986, p. 1). As a result, while enrollment should be considered, it may not be preferable to use it as a variable when allocating a budget. For example, the current edition of the *Guidelines for Curriculum Materials Centers* (2017) suggests that funding "should be reflective of the college of education or department of education enrollment" not necessarily calculated based upon it, while also prioritizing other factors, such as "compliance with state department of education and other accrediting bodies' standards, college/department of education program needs, as well as guidelines in this document in the areas of collection, facilities, services, and personnel" (Pauly et al., 2017, p. 3). Although some fixed costs may not change much based on the number of CMC users, at other times, more extensive programs likely require more resources for student use, such as more copies, more titles, and higher e-resource fees.

National Studies on CMCs Including Budget as a Factor

The question then emerges: Are the budgets of CMCs sufficient to support education programs? The depth or scope of analysis widely varies among national studies in the United States that consider budgets of CMCs. Johnson (1973) simply asked, "Do you have a separate budget for curriculum materials? Yes/No" (p. 51). Flandro (1957) included a report of the operating budget of surveyed CMCs, focusing on the agency setting the budget (i.e., education department, library) and annual budget allocation in intervals (p. 67–70). The most current data on national funding of CMCs exists in the recent editions of the ACRL *Directories*. The different editions of the *Directories* include budget information but often suffer from time-consuming survey instruments (Kogut et al., 2023) or lead to trouble analyzing findings if funding intervals were used (Catalano, 2015).

Toifel (1990, 1992) did not use ranges for the budget data collected, which allowed that author to calculate the mean annual book/media budget for 172 CMCs (representing 32.8% of teacher education institutions contacted) between 1986 and 1989. Toifel also grouped institutions into three categories by enrollment to determine differences in funding for CMCs based on university size. Toifel (1990, 1992) determined there was a positive relationship between enrollment and CMC funding. While still relevant, his findings are over 30 years old and compare CMC budgets to total student enrollment rather than education student enrollment. The authors of this study were unable to find more recent research that accomplished this; they therefore seek to address the gap in the literature. As a result, a modern national study focusing on the relationship between education student enrollment and CMC budgets is needed.

Method

This study on the relationship between education student enrollment and funding in CMCs uses quantitative research methods. The authors tested three null hypotheses in this investigation, and therefore, three paired variables.

1. No correlation exists between undergraduate education student enrollment and CMC collection budget.
2. No correlation exists between graduate education student enrollment and CMC collection budget.

3. No correlation exists between combined education student enrollment (graduate and undergraduate) and CMC collection budget.

The alternative hypothesis for each is that there is a monotonic increasing relationship between the variables, which would be a single right-tailed relationship.

The authors used pre-existing data from the 8th edition of the *Directory of Curriculum Materials Centers and Collections* (Kogut et al., 2023). The authors verified that all CMCs identified in the *Directory* had complete information on university name, collection budget, undergraduate education student enrollment, and graduate education student enrollment. Universities that omitted fields, stated data were unavailable, or answered with non-comparable free text were removed from the eventual research dataset. Given these disqualifications, the final statistical analysis included 80 CMCs from the same number of universities.

The survey design in the 8th edition of the *Directory* asked respondents to select one of the following for the CMC collection budget: $0–$1,000; $1,001–$3,000; $3,001–$5,000; $5,001–$10,000; $10,001–$20,000; $20,001-$30,000; $30,000+. Survey participants also reported undergraduate and graduate education enrollment, with the choices limited to: <100; 101–500; 501–1,000; 1,001–3,000; 3,001–5,000; >5,000 education students (Kogut et al., 2023). The survey methodology provided more than two ranges that could be ranked for these categories but did not have a consistent scale of increasing correlation; therefore, the data was captured as ordinal variables (Chen & Popovich, 2002, p. 35).

The dataset from the 8th edition of the *Directory* met the assumptions for Spearman's rank correlation coefficient, which is best for variables lacking absolute measurement, because it relies on comparison rather than measurement (Spearman, 1987). This approach "is a measure of correlation that captures the strength of association between two variables without making any assumptions about the frequency distributions of the underlying variables" (Spearman, 2008, p. 46). In other words, it is a nonparametric measure that looks at the "interrelatedness of the ranks of two variables" (Darity, 2013, sec. C2). Although this approach is less powerful than the Pearson correlation coefficient, the assumptions for that test are violated by the dataset, namely that there is not an obvious linear relationship.

Responses for each university identifying CMC collection budget, undergraduate education enrollment, and graduate education enrollment were ranked based on which range was selected and how that range compared to the other possibilities (i.e., was the range chosen bigger or smaller?). Due to the nature of the data, there were many occurrences of universities sharing a rank for a given variable. In those cases, rank was determined by the average rank those values would occupy. For example, the six universities with the lowest CMC collection budget rank shared the rank of 3.5 out of 80. Although the Kendall rank correlation coefficient could be a methodological alternative to the Spearman rank correlation coefficient for interpreting ordinal data, Puth et al. (2015) determined "if there are any ties in the data, irrespective of whether the percentage of ties is small or large, Spearman's measure returns values closer to the desired coverage rates, whereas Kendall's results differ more and more from the desired level as the number of ties increases, especially for large correlation values" (p. 1). As this dataset held many ties, Spearman was deemed more appropriate for analysis.

A monotonic relationship is not clearly identifiable in the two scatter plots (see Figures 1 and 2), which consider just undergraduate education enrollment or graduate education enrollment as separate factors to compare with budget.

FIGURE 1
Relationship Between Undergraduate Education Enrollment Rank and CMC Collection Budget Rank

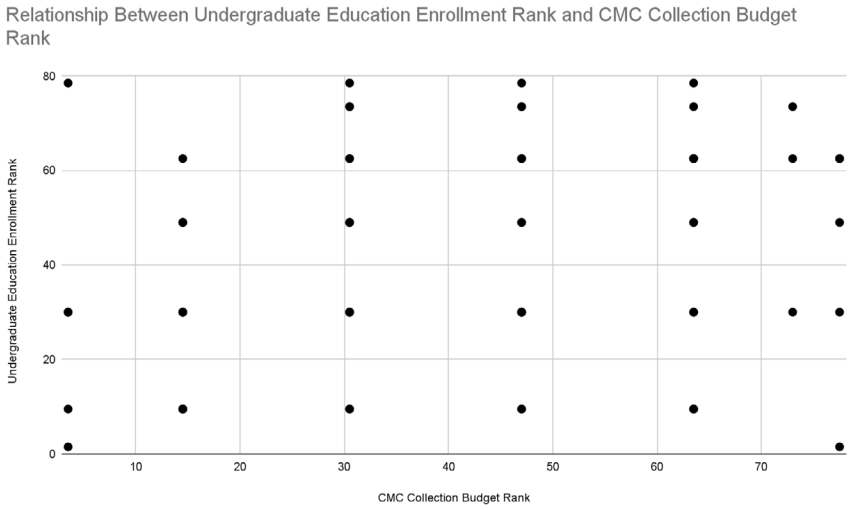
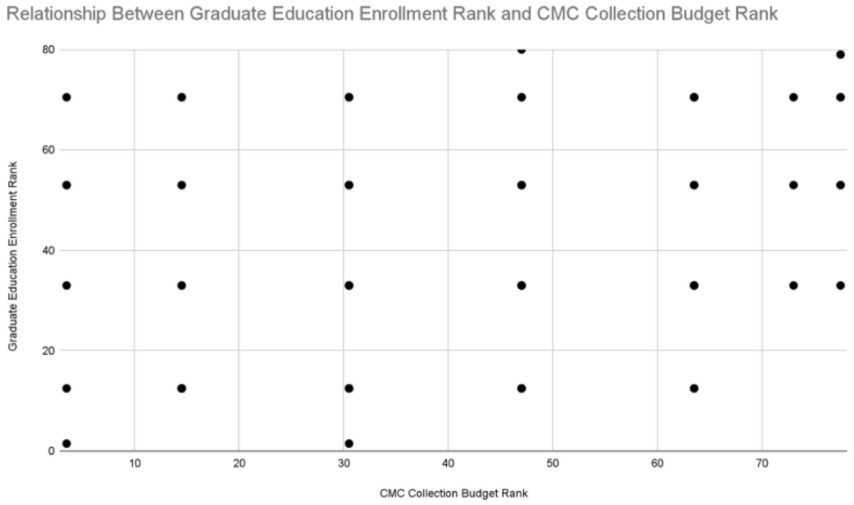
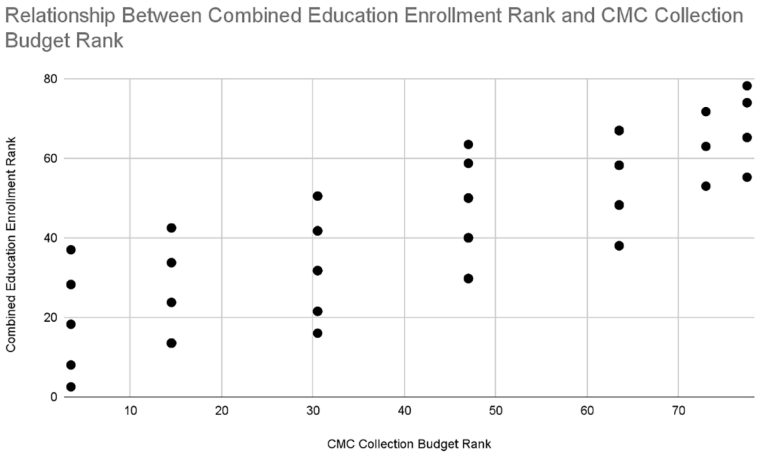


FIGURE 2
Relationship Between Graduate Education Enrollment Rank and CMC Collection Budget Rank



However, a possible positive monotonic relationship is suggested in Figure 3, which reflects a university's combined education enrollment rank determined by the average of the university's undergraduate education enrollment rank and graduate education enrollment rank. Each of these three measures of education enrollment was compared to CMC collection budget rank as paired variables.

FIGURE 3
Relationship Between the Combined Education Enrollment Rank and CMC Collection Budget Rank



The CORREL function was used to calculate the Spearman rank correlation coefficient (r_s) due to the tied ranks in the dataset. The formula used in the function is:

$$r_s = \frac{n(\Sigma x_i y_i) - (\Sigma x_i)(\Sigma y_i)}{\sqrt{(n\Sigma x_i^2 - (\Sigma x_i)^2)(n\Sigma y_i^2 - (\Sigma y_1)^2)}}$$

The formula finds the Spearman rank correlation coefficient, r_s, which suggests the strength and direction of the correlation between two variables in the sample. Three statistical analyses were completed, one for each null hypothesis. If the Spearman rank correlation coefficients are zero, there is no monotonic relationship between the paired variables.

Due to the relatively large sample size, the *t*-statistic rather than a set chart was used to determine the *p*-value. The formula for the *t*-statistic used was:

$$t = \frac{|r_s| \times \sqrt{n-2}}{\sqrt{1-|r_s|^2}}$$

Using the *t*-statistic, the *p*-value could be calculated with the TDIST function, with the variables being the *t*-statistic, degrees of freedom (*n*-2), and a single-tailed distribution. The sample or *n*, is 80 universities, which means the degree of freedom is 78. The *p*-value communicates the statistical significance of the findings. A 1% level of significance was used ($\alpha = 0.01$). The median for each variable was also identified, as it is the traditional measurement used for ordinal variables where calculating a mean is impossible.

As a secondary analysis, researchers also compared the collection budget range identified for a given university's CMC in the 8th edition of the *Directory* (Kogut et al., 2023) to the budget the same university supplied in the 2nd edition of the *Directory* (Lehman & Kieweitt, 1985). Twenty-one universities, when considering name changes, participated in both directories, and provided budgetary information in each response. The U.S. Bureau of Labor Statistics' CPI Inflation Calculator was used to account for inflation between January 1985

and December 2022 to better compare purchasing power trends over time. When adjusted for inflation, the budget shared in 1985 was compared with the budget range identified in 2022 to determine if the most recently shared budgetary information suggested growth, decline, or mostly stable funding.

Results

When looking at the data generally, the median for both undergraduate education enrollment and graduate education enrollment is between 101 and 500 education students. The median CMC collection budget falls between $5,000 and $10,000. However, this fails to provide insight into the relationship between education enrollment and CMC collection budget. Following the procedures above, findings will be outlined for each of the three paired variables (i.e., CMC collection budget and three metrics of education student enrollment). This includes whether the null hypothesis is rejected for each and the strength of the positive monotonic relationship, should there be one. The paired variables include:

1. Undergraduate education enrollment rank and CMC collection budget
2. Graduate education enrollment rank and CMC collection budget
3. Combined education enrollment rank and CMC collection budget

The calculations without interpretation are represented in Table 2.

TABLE 2
The Spearman Rank Correlation Coefficient, *t*-Statistic, and *p*-Value Found for the Three Paired Variables Tested

	Spearman rank correlation coefficient (r_s)	*t*-statistic (*t*)	*p-value* (*p*)
Undergraduate Education Enrollment Rank and CMC Collection Budget	0.30	2.72	0.004
Graduate Education Enrollment Rank and CMC Collection Budget	0.35	3.29	0.001
Combined Education Enrollment Rank and CMC Collection Budget	0.37	3.55	0.000

The authors found a positive monotonic relationship between undergraduate education student enrollment and CMC collection budget, $r_{78} = 0.30$, $p = .004$. Because the *p*-value is less than 0.01, we reject the null hypothesis and conclude that there is a positive monotonic relationship between undergraduate education student enrollment and CMC collection budget. At the 1% level of significance, we conclude that more undergraduate education students tend to co-occur with a higher CMC collection budget. However, the Spearman rank correlation coefficient represents the strength of that relationship, with zero indicating no correlation. As a result, a Spearman rank correlation coefficient of 0.30 still suggests a weak but increasing monotonic relationship.

Researchers also found a positive monotonic relationship between the paired variables, graduate education student enrollment and CMC collection budget, $r_{78} = 0.35$, $p = .001$. Because the *p*-value is less than 0.01, we reject the null hypothesis and conclude that there is a positive monotonic relationship between graduate education student enrollment and CMC collection budget. At the 1% level of significance, we conclude that more

graduate education students tend to mean a higher CMC collection budget. Although a Spearman rank correlation coefficient of 0.35 still suggests a weak positive relationship, there is a slightly stronger relationship between graduate education student enrollment and CMC collection budget than undergraduate education student enrollment and CMC collection budget.

Finally, when looking at the relationship between combined education student enrollment and CMC collection budget, there is still evidence of a positive monotonic correlation, $r_{78} = 0.37$, $p = .000$. With a p-value less than 0.01, we reject the null hypothesis and confidently conclude that there is a positive monotonic relationship between combined education student enrollment and CMC collection budget. At the 1% level of significance, we conclude that universities with higher numbers of undergraduate and graduate education students tend to have a higher CMC collection budget. Because the Spearman rank correlation coefficient is only slightly higher than with the previous pair, the 0.37 result still suggests a weak positive relationship. However, the relationship is stronger between combined education enrollment rank and CMC collection budget than either type of education enrollment. Therefore, the three alternative hypotheses are statistically compelling, and we suggest that there is a correlation between education student enrollment and CMC collection budget. Universities with more education students tend to have a larger CMC collection budget.

Discussion

Interpretation of Findings

There were discrepancies and broad differences in funding for CMCs with education enrollment numbers within the same range. The variation is represented in Table 3 (for undergraduate education enrollment) and Table 4 (for graduate education enrollment).

TABLE 3
Comparing Undergraduate Education Student Enrollment with CMC Collection Budget by the Number of Universities

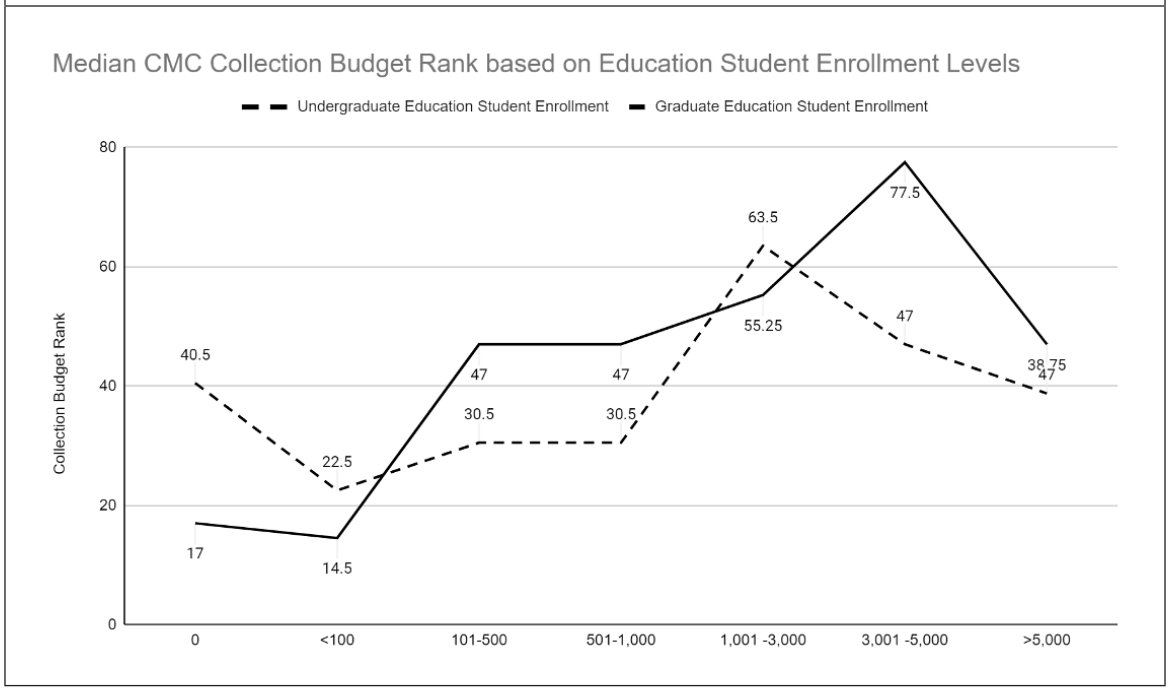
	$0 - $1,000	$1,001 - $3,000	$3,001 - $5,000	$5,001 - $10,000	$10,001 - $20,000	$20,001 - $30,000	$30,000+	Grand Total
0	1						1	2
<100	1	6	2	2	3			14
101-500	3	6	6	7	3	1	1	27
501-1,000		3	3	2	2		1	11
1,001-3,000		1	2	3	6	1	3	16
3,001-5,000			2	2	1	1		6
>5,000	1		1	1	1			4
Grand Total	6	16	16	17	16	3	6	80

TABLE 4
Comparing Graduate Education Student Enrollment with CMC Collection Budget by the Number of Universities

	$0 - $1,000	$1,001 - $3,000	$3,001 - $5,000	$5,001 - $10,000	$10,001 - $20,000	$20,001 - $30,000	$30,000+	Grand Total
0	1		1					2
<100	1	10	3	4	2			20
101-500	1	2	5	6	5	1	1	21
501-1,000	2	2	4	4	4	1	2	19
1,001-3,000	1	2	3	2	5	1	2	16
3,001-5,000							1	1
>5,000				1				1
Grand Total	6	16	16	17	16	3	6	80

Although there is a statistically significant yet slight correlation between education student enrollment and CMC collection budget, budgets still varied between $0.00–$1000.00 and $30,000+ for universities with the median number of undergraduate and graduate students. The median CMC collection budget rank for a given undergraduate and graduate education student enrollment range is provided in Figure 4.

FIGURE 4
Median CMC Collection Budget Rank Based on Education Student Enrollment Levels



Ultimately, this further depicts that there is not a clear pattern of increasing median collection budget rank when looking at either undergraduate or graduate education student enrollment. This reinforces the significant variation among CMCs and how outlier institutions may influence findings when using this type of analysis. The variation could possibly be explained by elements not controlled for, such as location, institution type, or library budget allocation formulas. For public universities, total student enrollment and university funding are often strongly related based on state funding trends; this is not necessarily true for education student enrollment and CMC materials budget.

Implications of Findings

To a limited extent, these findings can be used in conversation with Toifel's study (1992), which found that as total student enrollment increases, so do CMCs' budgets on average. Directly comparing median and mean with non-normal distributions across studies is not valid. However, Toifel's findings can provide a comparison point for modern CMCs (i.e., in which category does their institution fall and what was the mean for their institution size thirty years ago). Among the 172 CMCs who responded to Toifel's (1992) national survey, the mean annual book/media budget was $10,317.96. Large institutions (12,000+ student enrollment) had an average budget of $18,313.90, whereas medium-sized institutions (7,000–11,999 student enrollment) had $8,863.16, and small institutions (1–6,999 student enrollment) only $3,767.81 (pp. 5–8). Toifel (1992) compared his findings to James (1963) and reinforced that at these funding levels "There seems little indication that the budgetary constraints mentioned by James in 1963 have improved significantly twenty years later" (p. 17).

Additionally, based on the 2022 *Directory* dataset, it is likely that many CMCs' budgets have not significantly changed in the last 30 years, continue to be constrained, and have failed to keep up with inflation (Kogut et al., 2023). As one example, Sacramento State University (previously California State University, Sacramento) was identified in the 1985 *Directory of Curriculum Materials Centers* 2nd edition as having a materials budget of $7,300 (Lehman & Kieweitt, 1985). When adjusted for inflation, this is roughly $21,250 in 2024 (U.S. Bureau of Labor Statistics, n.d.). However, in the 8th edition of the *Directory*, this same CMC indicated that their collection budget fell within the $3,001–$5,000 range (Kogut et al., 2023). Examples like this reinforce concerns about flagging funding levels and decreased purchasing power of CMCs.

Of the 21 CMCs that participated in both the 2nd and 8th editions of the *Directory* and provided collection budget information in each, 11 reported in 2022 budget ranges which, when adjusted for inflation, were lower than their budget in 1985. Seven CMCs reported a materials budget in 1985, which, when adjusted for inflation, fell into the budgetary range they indicated in the 2022 *Directory*. Only three CMCs reported 2022 budget ranges larger than the adjusted budget in 1985 (Kogut et al., 2023; Lehman & Kieweitt, 1985), suggesting stronger funding than in the past. These trends have widespread implications for the availability of current and historic resources for future educators.

Pauly et al. (2017) established that the funding level of a CMC should be such that the institution's educational curriculum, the diverse research needs of stakeholders, and the mission of the CMC are well supported. The funding of CMCs has been impacted by state funding (Johnson, 1973; Mitchell et al., 2016), e-resources cost inflation (Tillman, 2001), university and department enrollment (Alteri, 2012; Toifel, 1992), support from university administration

(Alteri, 2012), and other factors which may influence academic library funding and budget allocation. When compared with the findings from Toifel (1992), our study reinforces Alteri's (2012) claim that CMC budgets continue to become increasingly restricted while holding less purchasing power on a broad level. This pattern of decline is not necessarily true institution by institution.

Troublingly, this trajectory is often misaligned with assumptions of education faculty, staff, and students. As one example, Flandro (1957) cites a University of Connecticut School of Education 1951 bulletin, which expresses both "considerable interest and expectation for expansion in terms of larger quarters, larger budget, and extended services" (p. 22). Teclehaimanot and Patterson (1992) compared the perceptions of the CMC coordinators and college executives at 103 colleges regarding the functions and value of the CMCs in the present and future. The authors' survey found, "The college executives predicted that the CMC of the future will be provided with appropriate funding and instructional support to carry out the mission of this support center" (Teclehaimanot & Patterson, 1992, p. 4). At the same time, "The coordinators, on the other hand, were pessimistic about funding and instructional support in the present and the future" (Teclehaimanot & Patterson, 1992, p. 4).

The implications of this are clear. Many CMCs have operated below adequate funding levels in the past; trends show that the purchasing power of CMCs continues to abate despite users expecting an increase in future services. Considered together, these trends suggest that CMCs may be under-resourced to the extent that their mission to support future and current teachers is compromised. Ultimately, budgets must be sufficient to support education programs; however, there is a pervasive and decades-long pattern of CMC personnel advocating for more funding and support while their resources are stretched to a breaking point. Doing more with less has become so entrenched in the tradition of CMCs that it can be hard to imagine what a sufficiently funded CMC could provide for teacher education programs at institutions that have been underfunded since conception. The authors feel strongly that systemically CMCs have not been provided the resources needed to fully realize their mission as a partner and core tenant of teacher preparation. The work that CMC personnel have done is a testament to their flexibility, creativity, and drive to serve users despite resource gaps.

Study Limitations

Despite the conclusions that can be drawn, certain limitations exist for this study. The dataset from the *Directory of Curriculum Materials Centers and Collections*, 8th Edition (Kogut et al., 2023) upon which this study relies, acknowledged a few key limitations of data collection including that: 1) Convenience sampling was used when contacting participants via professional listservs and based on prior *Directories* and does not reflect all CMCs in the United States; 2) Institutions shared that in some cases their answers were best estimates; 3) Information shared such as education student enrollment and CMC budget was not individually verified by surveyors; and 4) The information collected is not stagnant, and the numbers may not be representative of the institution outside of the data collection period.

Additionally, because our study answered new research questions using existing data, the appropriate methods were always dictated by the nature of the pre-existing dataset. This prevented deeper or more precise methods tailored to the research questions possible with original surveying. For example, the 8th edition *Directory* survey did not ask participants to speak about the ramifications or implications of their materials budget on their CMC users,

most specifically education students, which would have helped to better represent the relationship between the two. Additionally, there was no way to discern the number of education students who were likely to be users of a CMC based on institutional differences in programs housed in a college or department of education or specific curricular requirements. With a new survey, specific questions could have been added to 1) control for variables such as donations or vendor samples that may alter the ideal operating budget of CMCs; 2) explicitly connect materials budgets to gaps in collections, especially as they pertain to issues of inclusion, equity, diversity, or access; and 3) analyze active or high potential users of a CMC.

Finally, although this study proposes a method to interpret the data captured as ordinal variables in the 8th edition of the *Directory* (Kogut et al., 2023), which could be applied to other existing data sets, it lacks the specific analysis possible with data collected as continuous variables. Despite this limitation, revisiting existing data sets for more in-depth analysis could add nuance to our current understanding of the contemporary and historical conditions of CMCs in the United States.

Future Areas of Study

A recommended future area of study would be collecting information on exact funding levels and education student enrollment nationally related to CMCs, allowing for a different statistical method for identifying and interpreting more precise trends. Including other variables—such as university budget, library budget, total student enrollment, and location—would add precision and additional context to the analysis. Although this study relies on data from the 8th edition of the *Directory* (Kogut et al., 2023), it could be worthwhile to also compare enrollment and funding variables at the same institution over time in a longitudinal study. Additionally, Toifel (1992) completed a twofold descriptive and attitudinal survey which found a wide margin between the existing and desired state of the budget according to CMC personnel based on indicators such as "the curriculum materials center is a fully recognized budgetary item" and "the budget adequately supports the number and range of programs served by the curriculum materials center's collection" (p. 13). A follow-up attitudinal survey of CMC personnel could be used to gauge satisfaction with revenue sources and amounts while making the implications of the CMC budgets more transparent. An example could be asking whether respondents feel their CMC budget allows them to meaningfully and broadly purchase authentic, culturally responsive texts that deepen education students' proficiency with topics of equity, diversity, inclusivity, and accessibility. Given national trends of declining CMC funding, researching if CMC personnel and their users expect funding levels to rebound and show growth in the future could be compelling. The authors also found a lack of modern research on student perceptions of the value of CMCs and would favor future research addressing this perspective.

Conclusion

This study found strong evidence of a statistically significant monotonic relationship with a positive correlation between education student enrollment (undergraduate and graduate) and CMC materials budget. The correlation between these variables was weak due to wide disparities among institutions, highlighting some CMCs as incredibly under-resourced based on historical trends. CMCs that support comparable numbers of education students may have hugely different materials budgets and, therefore, may offer vastly different collections

for future educators to use when building their pedagogical repertoire. The materials budget of CMCs determines the resources available for users of CMCs, especially future teachers. Given the mission of CMCs, the need for current, authentic, high-quality titles for CMC users to investigate, critically engage with, and use seems paramount. CMC collection budgets must keep pace with the needs of the university and the number of enrolled students. Teacher preparation and quality may be regionally or nationally impacted if they do not.

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Search Data Privacy in Academic Libraries: Qualitative Perspectives of Members of Marginalized Groups

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This article examines undergraduate students' attitudes towards search data privacy in academic libraries, with a focus on the experiences and perspectives of members of underrepresented groups. Using the qualitative framework of interpretive description and constant comparative analysis, 27 undergraduate students at Virginia Commonwealth University—an urban research institution in the southeastern region of the United States—were interviewed. Most students were comfortable with search data collection if it benefited them; however, a notable number of those who opposed it expressed strong concerns about potential harm to vulnerable or underrepresented groups. These privacy concerns were primarily voiced by members of marginalized groups, emphasizing the importance of considering student perspectives, especially those who may be most vulnerable to adverse effects of data use as academic libraries increasingly employ learning analytics and individual-level data. The purpose of this article is to amplify those voices.

Introduction

To fulfill requirements for accountability, demonstrate value, and effectively cater to users, libraries must embrace the practice of assessment and evaluation (Oakleaf, 2010; Prindle & Loos, 2017). Data about how individual students interact with library resources and services can facilitate the implementation of evidence-based assessment techniques. Nevertheless, librarians' longstanding commitment to user privacy has resulted in limited collection of search-related data, including information about users' search queries, borrowing patterns, and downloads (Malinconico, 2011; Town & Matthews, 2012; Shuler, 2004). This well-meaning reluctance to collect such data has constrained the range of evaluation strategies employed by libraries in the past. However, more libraries have recently begun incorporating student data into learning analytics models that establish direct connections between library usage and indicators of student success (Jones, 2021; Jones et al., 2020b; Oakleaf, 2010; Oakleaf, 2018b). Learning analytics can be described as the utilization of student data to enhance student learning, student success, or institutional effectiveness and efficiency (Jones et al., 2020b).

Although many publications address librarians' views on the importance of search data privacy for library users, studies focused on users are less present in the literature. For

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the purposes of this article, "library search data" is information about what a user consults, searches for, downloads, reads, or uses in library settings. A few studies examine student attitudes about search data privacy in libraries in the United States (Asher et al., 2022; Gariepy 2019, 2021; Johns & Lawson, 2005; Jones et al., 2019; Jones et al., 2020a), and the results paint a mixed picture of student perspectives.

At the same time, libraries' commitment to social justice and equity has increased in the past decade, as evidenced by the burgeoning library and information science (LIS) literature focused on inclusion, diversity, social justice, and equity (Jones et al., 2022), including some publications focused specifically on equity and justice in assessment work (Magnus et al., 2018). This article seeks to contribute to a body of literature that advances libraries' ability to balance their need to demonstrate the impact of services and collections on student achievement while also respecting the preferences and concerns of students, particularly those whose voices may not have been prioritized in the past.

Literature Review

Statements from professional organizations affirm the importance of privacy in libraries (American Library Association, 1986, 2019a, 2019b, 2021; International Federation of Library Associations and Institutions, 2015; National Information Standards Organization, 2015). Additionally, the LIS literature reflects librarians' continued interest in safeguarding user privacy: over 1,000 articles were published between 2013 and 2023 with "privacy" and "librar*" in the subject terms in a combined search of Library Literature and Information Science Index and Library, Information Science, and Technology Abstracts databases. It is not uncommon for libraries to retain minimal data about what their users are searching for and reading in an effort to guarantee unfettered access to information, and to prevent the scrutiny of library users' search habits by third parties (Malinconico, 2011; Shuler, 2004; Town & Matthews, 2012). There have been some exceptions, such as librarians' analysis of anonymized user search logs for the purpose of understanding user search behavior or systems' search performance, a practice which has been undertaken by some researchers for nearly as long as libraries have had online catalogs (Peters, 1993). However, more generally, prevailing philosophy in librarianship has been that users cannot search freely for information if their searches are accessible to others, and thus libraries often endeavor to minimize the amount of data they have about user search data (American Library Association, 1986, 2019a, 2019b, 2021; International Federation of Library Associations and Institutions, 2015; Malinconico, 2011; Town & Matthews, 2012; Shuler, 2004).

In recent years, however, some librarians' perspectives on how search data might be collected and used have evolved. Some support de-identifying and protecting the privacy and confidentiality of students' search data instead of deleting it, enabling evaluation approaches aligned with increasingly prominent learning analytics models on university campuses (Brown & Malenfant, 2015, 2016, 2017; Davidson et al., 2013; Oakleaf, 2010; Oakleaf, 2018a; Oakleaf, 2018b; Town & Matthews, 2012). Standards documents from some professional organizations expressly support the thoughtful collection, retention, and protection of library user data to improve services and collections (National Information Standards Organization, 2015).

Although the literature abounds with articles about user privacy in libraries, including librarians' efforts to navigate the ethics of use of student data (Jones, 2021), relatively few studies address user perspectives about this topic in the United States. Johns and Lawson

(2005), surveying undergraduate students, reported that few respondents felt it was appropriate for university libraries to use students' private online data to enhance library services. Some indicated that it may be acceptable for libraries to view private online information, but only with informed consent, for a clearly stated purpose, and with the understanding that it would not be disseminated to third parties. In recent years, several qualitative studies have made important contributions to the literature regarding student perspectives on privacy in libraries. Jones et al. (2019, 2020a) published findings about student perspectives on privacy and learning analytics, including an emphasis on data collection in academic libraries. In addition, I conducted interviews with undergraduate students about their perspectives on search data privacy in academic libraries (Gariepy, 2019, 2021).

In these studies (Gariepy, 2019, 2021; Jones et al., 2019; Jones et al., 2020a), students were generally accepting about data collection in academic libraries if it benefited them, and they saw potential advantages of using data to improve access to resources and provide personalized search results (Jones, 2019, 2020a). Students expressed trust in libraries and universities and believed libraries' usage was well-intentioned. They assumed that their institutions collected data about them and expected that it would only be used within the institution in ways that would advance student success. They opposed the idea of universities or libraries sharing any data about them with third parties, excepting vendors such as learning management systems, or library databases. Overall, students favored de-identifying data or using it in aggregate to protect privacy (Gariepy, 2019, 2021; Jones et al., 2019, 2020a).

Similarly, Jones et al. (2019, 2020a) found that students viewed learning analytics in higher education to be useful if the focus was on educational purposes and helping students. However, students were unable to detail specific practices that might achieve this purpose, given their limited familiarity with learning analytics. In my research (Gariepy, 2019, 2021), I found more mixed responses from students about their perspectives on learning analytics as it relates specifically to libraries, with some study participants suggesting that library use is a shoddy indicator of students' academic success.

Jones et al. (2019, 2020a) and I (Gariepy, 2019, 2021) both found that most students expressed general trust and comfort with libraries' use of their search data in order to improve services, collections, and/or the student experience; however, some students stated that their relaxed privacy attitudes should not outweigh perspectives of peers who may feel differently, and acknowledged that students in vulnerable groups may have may have greater concerns about data collection. In addition, I found that students who had the greatest concerns about library search data privacy were usually focused on potential harm to vulnerable groups. Similarly, more recent quantitative work by Asher et al. (2022) revealed that while most students were unbothered about use of their search data for learning analytics in academic libraries, a consistent minority expressed concern about this practice. Non-White students expressed less trust in academic libraries than their White peers.

This is consistent with some findings in broader information privacy research. For example, Auxier et al. (2019) found that Black Americans express more concern than their White peers about the information that friends, family, colleagues/employers, and the government may be able to access about them. Black and Hispanic Americans are more likely to express concern about what law enforcement knows about them than their White counterparts and are also more likely to believe that the government is tracking them. In addition, research suggests that cultural factors and the regulatory environment in which

people live or have lived may influence individuals' perceptions about data collection and surveillance (Bellman et al., 2004; Cho et al., 2009; Milberg et al., 2000; Thompson et al., 2020). These findings demonstrate the importance of understanding the perspectives of students who are members of underrepresented groups as related to search data privacy in academic libraries.

Purpose

The purpose of this article is to present rich, detailed qualitative findings about undergraduate students' perspectives about academic library search data privacy as they pertain to vulnerable or marginalized groups. Findings presented in this article are derived from a larger dissertation research study (Gariepy, 2019) that examined other facets of student perceptions about search data privacy in academic libraries. The two research questions that revealed the themes shared in this article were:

1. What are undergraduate students' attitudes about whether academic libraries should collect and maintain user search data, and why?
2. What are acceptable and unacceptable uses of students' library search data according to undergraduate students, and why?

I detailed findings of these two questions, articulating major themes that emerge from the data, in a previous article (Gariepy, 2021). In this article, I expound on participants' responses that address membership in or awareness of marginalized or underrepresented groups, providing rich detail on students' perspectives. While there has been growth in recent years in the number of publications addressing student perspectives on search data privacy in academic libraries, including how perspectives vary by race/ethnicity (Asher et al., 2022), none provide the depth and nuance offered in this article.

Methods

Additional detail on the methods of this study can be found in my prior article (Gariepy, 2021), which details all themes and subthemes that emerged from the study.

Interpretive Description

This study was conducted using the qualitative approach of interpretive description, a methodology developed by Sally Thorne (Thorne, 2016; Thorne et al., 1997, 2004). Interpretive description, introduced in LIS literature by Gariepy (2021), is a framework for gaining in-depth understanding of a phenomenon and/or subjective knowledge in clinical or applied disciplines. Interpretive description is not a discrete method, but rather an overall approach. It encourages the thoughtful utilization of methods from various qualitative traditions to answer specific research questions, which are posed in a way that allows answers to be resituated within the context of the applied field.

In this study, I conducted in-depth, semi-structured interviews with undergraduate students at Virginia Commonwealth University (VCU), a diverse, public, doctoral university in Richmond, Virginia, with approximately 29,000 students. Data collection took place in 2019.

Recruitment and Sampling

Study participants were recruited through emails to faculty and students, posts in the VCU daily newsletter, social media posts, and flyers. A $15 Amazon gift card incentivized participation. Convenience sampling was the initial sampling method for the study (Creswell, 2013),

and 53 students expressed interest in the study. Students completed a screening survey to ensure they had used academic libraries before and to provide demographic information.

I scheduled interviews on a rolling basis over several months. Twenty-seven students were selected for interviews based in part on how their individual characteristics and demographic traits diversified the interview pool. As a result, the study participants represented a level of diversity that exceeded my expectations for a convenience sample. However, findings from this study are not intended to be generalized. The goal of including heterogeneous students was to increase the richness of the data and findings.

Characteristics of the students interviewed included:

- More than half of the students interviewed indicated that they were members of underrepresented racial or ethnic groups.
- Nearly half of the students were members of families with immigrant parents, and two participants were immigrants themselves.
- Most participants were women, but there were several men as well as two transgender/nonbinary students.
- Students from all undergraduate ranks were represented, from first-year students to seniors, but the highest proportion were first-years.
- Many participants were honors students. The high concentration of first-year students and honors students was largely a result of faculty members in the Honors College enthusiastically encouraging participation in the study.
- All participants were between the ages of 18 and 24.

The rich diversity of the interview participants allowed in-depth themes regarding library search data retention's potential impact on underrepresented groups to emerge. For the purposes of this article, a member of an underrepresented group includes individuals who are any of the following: non-White, non-Christian, a member of the LGBTQIAA+ community, or living with a disability or chronic illness. The phrase "underrepresented group" is used interchangeably throughout this article with other phrases such as "nondominant group," "oppressed group," and others.

Figure 1 provides a detailed summary of each student's reported demographics, to demonstrate the rich ethnic and racial diversity that enhanced this study. Each participant has been assigned a pseudonym.

As articulated in the methods section, some of this information, such as race/ethnicity and gender, were disclosed in the screening process for participants. Others, such as sexual orientation or disability status, were self-disclosed by students in the interview process. It is important to note that many participants held intersectional identities, in which they identified as members of multiple underrepresented groups.

Data Collection and Analysis

Data collection and analysis occurred simultaneously using the constant comparative method (Glaser & Strauss, 1967). Interviews were held in person and audio-recorded and then professionally transcribed. The semi-structured interviews (Guest et al., 2013; Roulston & Choi, 2018; also see Appendix I) were composed of both questions and vignettes (Finch, 1987). The inclusion of vignettes, defined by Finch (1987, p. 105) as "short stories about hypothetical characters in specified circumstances, to whose situation the interviewee is invited to respond," enabled participants to respond to concrete situations to elicit more abstract ideas and attitudes (Hazel, 1995). Using ATLAS.ti (ATLAS.ti, 2019), I employed Miles et al.'s (2014) approach of First Cycle and Second Cycle Coding to develop themes.

FIGURE 1
Study Participants' Pseudonyms and Demography

Name	Gender	Race/Ethnicity	Enrollment Status	Immigrant Parents
Yoofi	Male	Black/African	Junior	No
Chandler	Female	White/Caucasian	Junior	No
Angelica	Female	Black/African	First Year	No
Galina	Female	Black/African	First Year	Yes
Corey	Female	White/Caucasian	Junior	No
Abeo	Male	Black/African	Sophomore	Yes
Kavya	Female	Asian	Sophomore	No
Ava Grace	Female	Asian	Sophomore	Yes
Clayton	Male	White/Caucasian	First Year	No
Raelyn	Female	White/Caucasian	First Year	No
Selena	Female	Hispanic/Latinx	First Year	Yes
Maria	Female	Hispanic/Latinx	Sophomore	Yes
Stephen	Male	Asian	Sophomore	Yes
Tahmina	Female	Asian	First Year	Yes
Eliza	Female	White/Caucasian	First Year	No
Robert	Male	Asian	First Year	Yes
Savannah	Female	White/Caucasian	First Year	No
Lakshmi	Female	Asian	First Year	Yes
Cameron	Female	White/Caucasian	First Year	No
Samaira	Female	Asian	First Year	Yes
Alexandra	Female	White/Caucasian	First Year	No
Erica	Female	Asian	First Year	Yes
Erin	Trans/ Nonbinary	White/Caucasian	Sophomore	No
Phillip	Male	White/Caucasian	Senior	No
Rashid	Male	Asian	First Year	Yes
Spencer	Trans/ Nonbinary	White/Caucasian	Junior	No
Elliott	Male	White/Caucasian	First Year	No

Findings

Many themes emerged from the dissertation research study from which this article stems. To contextualize student attitudes about search data privacy in academic libraries as they relate to members of underrepresented groups, I present a brief summary of the major themes of the larger study (Gariepy, 2019, 2021), as they provide an important contextual backdrop for the additional findings presented in this article and, in some cases, are inextricably linked. The themes are broken into two categories: foundational themes and participant attitudes about library search data collection and privacy.

FIGURE 2
Summary of Themes from Original Dissertation Research Study (Gariepy, 2019, 2021)

Foundational Themes
First-time/Evolving Thoughts and Limited Awareness of Library Practices
Many students stated they were considering library search data privacy for the first time. Some participants' perspectives evolved, grew more nuanced, or changed completely over the course of the interview as they learned more about the topic through the vignettes and questions presented.
Academic Libraries are Mostly Used for Academic Assignments
Most students indicated that the information they searched for in academic libraries was solely to support their assignments and academic work. Many participants felt that the research they conducted for academics was impersonal and did not reflect their whole selves. Thus, they did not feel that their library search data would be especially sensitive.
Acknowledgement of Different Privacy-Related Perspectives and Experiences
Study participants assumed that many perspectives existed among their fellow students. This awareness was most prevalent when a student expressed low levels of concern about privacy themselves but acknowledged that others may feel differently. Participants noted that privacy may be more important for students who are members of underrepresented populations, or who are researching controversial or taboo topics. Some students shared their firsthand experiences with bias as members of underrepresented groups and described an increased need for privacy as a result.
Participant Attitudes About Library Search Data Collection and Privacy
Comfort with Libraries Using Search Data to Benefit Students or Improve Services and Collections
Participants were mostly comfortable with academic libraries using search data in ways that benefitted students. This trust stemmed from a combination of factors, including their general confidence in libraries' altruistic motives and a sense of being accustomed to online data collection due to social media and internet use. However, some expressed discomfort with this practice. Their perspective was often linked to being part of an underrepresented group or fearing potential misuse of data for such groups.
Views on Use of Search Data for Individually Tailored Search Results Varies
Students held a variety of perspectives about using library search data for individually tailored search results based on users' previous search history. While some saw it as a benefit, others questioned its usefulness, especially for undergraduate students who may be searching on a wide variety of topics depending on the classes they are enrolled in.
Use of Library Search Data for Learning Analytics Initiatives is Controversial
Participants were skeptical of library-focused learning analytics and learning analytics in general. Some felt that their library use would be invasively monitored in such a model and had particular concerns about academic advisors being alerted when students had low library use. However, some students did acknowledge the potential for these models to be helpful.
Varied and Ambivalent Views on Search Data for Preventing Bad Behavior
Questions around using library search data for government investigations—including crime prevention and national security—exposed a range of perspectives among participants. Some prioritized public safety, arguing that the potential to save lives justifies sacrificing some privacy. Others held a firm stance on privacy protection, even if it meant hindering efforts to prevent negative outcomes. Participants on both sides sometimes expressed their views with strong conviction. In several cases, students expressed general wariness of the government having access to search data.

Because my 2021 article was intended to offer an overview of the findings of the full research study—aiming for breadth more than depth—I did not provide an in-depth account of every theme in that publication. For example, the article only briefly addressed the fact that students who were most privacy-concerned often spoke of the need to be mindful of the experiences of members of underrepresented groups (see Figure 2, theme Acknowledgement of Different Privacy-Related Perspectives and Experiences). I also only briefly addressed a perspective that was passionately held by a faction of study participants:

> Although most students felt comfortable with the idea of academic libraries using search data if the intent was to benefit students, this was not universal. Some students favored routine data purging—or never collecting it to begin with—in order to protect academic freedom and the ability to search without interference. *Participants who had the most fervent opinions about maintaining user privacy in libraries often spoke of their experiences as members of minoritized or oppressed groups, or similar experiences of others, which significantly contributed to their perspectives on search data privacy*. (Gariepy, 2021, p. 30, emphasis added)

In my dissertation (Gariepy, 2019) that served as the basis for the 2021 article, this finding was presented as a subtheme under the larger "Comfort with libraries using search data to benefit students or improve services and collections" theme. The subtheme was titled: "Preferences for privacy are infrequent but strong and often relate to concerns about bias and oppression" (Gariepy, 2019, p. 126). Threads of this type of thinking also emerged in relation to other major themes identified in the study.

In this article, I highlight participants' perspectives that speak to the relationship between library search data privacy and potential impact on members of underrepresented groups. I present numerous quotes from students who expressed such attitudes to achieve the "thick description" (Geertz, 1973; Lincoln & Guba, 1985; Ryle, 1949) that is a key aim of qualitative research.

Preferences for Privacy

Preferences for privacy are infrequent but strong and often relate to concerns about bias and oppression. Despite many students' general comfort with some or all the ways academic libraries might collect search data, there were strong dissenting voices. Although the view that academic libraries should purge search data was not held by many participants, those with that perspective held it with a level of conviction that exceeded that of their peers who were unconcerned or even positive about academic libraries collecting search data. One student referred to her desire to have "just one place" (Selena) where her search data was not being tracked. Others directly expressed their preference that library search data should be purged: "I would like to see the purging of information. I would also like to see that that's made widely available that you do that" (Spencer).

All the students who preferred an approach in which libraries do not collect or maintain search data were members of underrepresented groups (although not all participants who identified as members of underrepresented groups were concerned about library search data privacy). They also expressed heightened awareness of bias-related issues as compared to other students who were interviewed.

De-Identification of Search Data

Many students expressed a preference for de-identification of search data. They felt that separating users' identities from their library search data would strike a good balance, allowing the library to maintain search data that could be used to enhance students' experiences, while still protecting academic and intellectual freedom. Some students referenced their own need for that type of protection due to their affiliation with an underrepresented group or their awareness that others may need that protection.

When asked if they preferred if their name was or was not attached to their search data, one transgender/nonbinary participant shared the following:

> I personally don't mind that much, but I can see where people would mind. So ... I err on the side of, like, separate the information, if not for my sake then for theirs. Because ... while I have a very accepting family and things like that, there are people in my community who do not, so I just sort of feel like sometimes privacy is more important for them than it is for me, and it's good to sort of consider that. (Erin)

Transparency and User Control of Data

Some participants recommended models of search data collection that center on library users' ability to control their own data. They suggested opt-in or opt-out models in which students either consent to data collection or, if the default is to collect data, allow people the option to request to be omitted from that process. One student with an intersectional identity associated with multiple underrepresented groups said:

> I think this [transparency and user control of data] is the best route to go, and I think that there are other ways to design those tools to inform what people need that's actually consensual ... that whole fully informed, freely giving kind of thing. Instead of just, you know, check the box of "we collect cookies" or whatever, because I don't think that's consent. Which I think is what a lot of the user agreements at VCU do: like they don't really give you an option to not consent, which isn't consent anymore. (Spencer)

Third-Party Access

The most passionately held convictions were shared when students were asked about the potential use of library or internet search data to protect public safety or for other potential third-party uses (whether authorized or unauthorized).

Specifically, participants were asked about their perspectives on library search data potentially being used by the government or law enforcement to prevent "bad behaviors" such as crime and terrorism. Opinions varied significantly on the use of library search data for this purpose. One student with strong preferences for privacy described:

> My understanding of how these things work is that ... the whole Patriot Act thing is like "but we're trying to catch the bad guys," but like the people who end up being the bad guys are, you know, people of color, queer people, disabled people, you know, all that stuff. So really, I—Fuck that. And so, I'd rather you just not have the information. (Spencer)

This same student, and some others, favored non-collection and/or routine purging of library search data to protect academic freedom and the ability to search without interference, especially regarding research that may touch on controversial topics, particularly as they pertain to underrepresented or vulnerable groups.

A Muslim study participant of Middle Eastern descent revealed his concerns about the assumptions people or agencies might make about him based on search history, particularly if the content of searches in any way related to terrorism, violence, or national security. To express his concern about bias based on his religion and race/ethnicity, he simply said: "I'm just a guy, you know?" (Rashid).

Similarly, another student of Middle Eastern descent shared that her similar concerns affect her searching:

> Well, I know Muslim communities have faced a lot of monitoring, especially in a post-9/11 America. So sometimes I will not Google a recent terrorist attack that has happened or like, I don't know—I just always stay aware of like my ethnicity, my background, and what I'm searching, and how it may connect me to certain events. (Tahmina)

One participant who immigrated to the United States when she was 5 years old shared the following when asked about search data collection for the purposes of maintaining public safety:

> And of course, let's say someone who's Muslim does search up information about ... past terrorist attacks, just for a pure curiosity, and the federal government was observing that person and realized who they are, what their ethnicity is, what their religion is. They're definitely more inclined to consider that individual as a dangerous person. (Galina)

Not all these students' comments pertained exclusively to library search data privacy as opposed to other types of information privacy such as internet searching. However, their comments reveal the students' awareness of how their identity might influence the way third parties view their search habits in various environments, including libraries.

Other Potential Misuse of Library Search Data

Although some participants acknowledged that learning analytics approaches could be helpful to students, many felt that such models could be invasive, viewing the entire learning analytics movement with skepticism. One student specifically acknowledged how such a model could be inaccurate or harmful to students with disabilities:

> Absolutely not. That's not okay. … That's absolutely inappropriate. If someone has a disability, they could be using other resources. And that would be putting them under scrutiny with their advisors where they would be forced to disclose, which is not okay. (Corey)

She also indicated that she would drop out of VCU if such a model were implemented, given her perception that it would place students with disabilities at particularly high risk for privacy violations.

Along the same lines, another participant revealed that they had been uncomfortable, and at times cautious, about what they searched for at VCU Libraries because they did not know the extent to which VCU Libraries collected search data, and were concerned about third-party access. It stands to reason that if VCU Libraries was ever in a situation in which library search data was being routinely monitored by government agencies that this individual may cease their use of VCU Libraries.

Additionally, participants were cognizant of the risks of stereotyping or oversimplifying certain user groups in models relying on quantitative data alone, even when the intent is well-meaning. For example, one participants stated: "Like you kind of have to be careful with the groups because there is that like sort of tendency that we have as humans to generalize and stereotype" (Erin).

Discussion

Study participants expressed the particular importance of protecting library search data privacy for students who are members of underrepresented groups. This finding is consistent with Asher et al.'s (2022) work, which showed that non-White students were less trusting of librarians and libraries, and were more likely to have concerns about use of data for library learning analytics. Some of the perspectives expressed by students also align with evidence that nationality, cultural values, and the regulatory environment in specific municipalities are related to attitudes about privacy (Bellman et al., 2004; Cho et al., 2009; Milberg et al., 2000). In addition, the participants who held the most conservative privacy views in this study, while not ethnic/racial minorities nor children of immigrant parents, were members of other minoritized groups, such as the LGBTQIAA+ or disabled communities. This is a new contribution to the literature.

The findings of the study, combined with other literature, can be useful in shaping library policies that respect user privacy as we also seek to develop effective assessment and evaluation strategies that may rely on individual-level user data. Several of the concerns that study participants raised are consistent with concerns that underpin librarians' historical commitment to privacy, such as guaranteeing unfettered access to information and preventing the scrutiny of library users' search habits by third parties (Malinconico, 2011; Shuler, 2004; Town & Matthews, 2012). However, many—although not all—of the students who expressed concerns about search data privacy for members of underrepresented groups also recommended strategies such as increased transparency, opt-out options, and anonymization of data to mitigate some of these concerns. These views are consistent with shifting perspectives over the past decade in librarianship regarding thoughtful, intentional, collection of data (Brown & Malenfant, 2015, 2016, 2017; Davidson et al., 2013; Oakleaf, 2010; Oakleaf, 2018a; Oakleaf, 2018b; Town & Matthews, 2012).

These findings invite librarians to develop appropriate data collection and retention policies that are respectful of students who express the most desire and most need for privacy or confidentiality. Even if the students who hold this view do not constitute a quantitative majority, it is an important consideration especially given the finding that some people who hold the most passionately held privacy-related attitudes are members of vulnerable or minoritized groups. Librarians should seek ways to enhance transparency and user control of what data

is collected about them and how it is used. We should also advocate that third-party library vendors adopt privacy practices consistent with what our users need.

The findings presented in this article set forth many potential paths for future research. Studies focused on the perspectives of individuals associated with underrepresented groups—such as LGBTQIAA+ students, students with disabilities, students of color, and/or students who are children of immigrant parents—could add great value to the literature. Qualitative studies would allow for in-depth exploration of these groups' attitudes about search data privacy in academic libraries. Asher et al.'s (2022) survey and findings on student trust related to library learning analytics is a tremendous contribution, but it is also important to engage qualitative methods that privilege the complexity, nuance, and depth of students' perspectives, in addition to serving as a springboard for future quantitative research that may focus on specific user groups and result in generalizable results. A limitation of this study was the use of convenience sampling, which resulted in a particularly "young" sample of undergraduate students, most of whom were first-years and none of whom were older than 24. Accordingly, future studies might seek the perspective of older students and/or employ other sampling strategies to do so.

Conclusion

The intent of this article is to amplify voices of those from marginalized groups who were most privacy concerned about library search data. It makes an important contribution to the small body of literature about user perspectives on search data privacy in academic libraries. The findings add to the rigorous scholarship that has been published in recent years (Asher et al., 2022; Gariepy, 2021; Jones et al., 2019, 2020a) both by deepening the library profession's nuanced knowledge about student perspectives through qualitative research, and especially by elevating the perspectives of students who express concerns about the implications of search data practices on members of underrepresented groups.

As new methods emerge to study students' perspectives on this matter quantitatively, qualitative data adds richness, deepened understanding, and a whole-person view of students' attitudes and experiences as they use libraries. Given libraries' and higher education's histories of exclusion—and our current focus on equity and belonging—it behooves librarians to place special importance on the voice of members of marginalized groups, even if those voices are fewer than those of the dominant group. Their perspectives about search data privacy should be critical components of how balance our need for data with user preferences for privacy and confidentiality.

Library workers must think about the ways we can be the best possible stewards of the data we collect or could collect, while simultaneously respecting people who are most concerned about their privacy. These concerns are sometimes rooted in the lived experiences and/or well-reasoned perspectives of members of underrepresented communities. To ensure that libraries facilitate the ability to search for information without interference, we must prioritize efforts to protect the privacy and confidentiality needs of users, while equally supporting efforts to ensure that users are aware of our privacy-related practices.

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Appendix I

Interview Guide

Since semi-structured interviews are intended to be flexible and evolving, the questions below are tentative. They exemplify the nature of questions that will be asked of study participants, but the questions themselves may change and evolve over the course of participant interviews. Although questions are loosely ordered by domain, both the interviewer and the participants will be free to be responsive to the discussions the interview facilitates, and questions may be asked in a different order.

Throughout the interview, probing questions will be used as appropriate in which participants are invited to further explain their answers. Frequently used follow-up questions will include:

- Could you tell me more about that?
- Why do you think you feel/think that way?

Introduction

- Introductions; small talk to establish rapport.
- Researcher seeks permission to record the interview.
- "This study is about understanding students' perceptions about privacy when it comes to searching for data and checking things out in academic libraries. You'll hear me refer to that throughout the interview as "search data privacy"—the things you search for, download, or borrow from academic libraries. Although the focus is on searching for information in an academic library environment, I might also ask some questions about your attitudes on searching for information in other environments, like on the internet, in order to contextualize the conversation."
- "There are no right or wrong answers to any of the questions; your perspective is what I'm interested in! And there's no such thing as talking too much; I'm interested to hear what you have to say."
- "I'm interested in this research because I think it will be helpful for libraries to understand student perspectives on this issue when developing policies on search data privacy, and to help us use data to improve our services appropriately."
- "Throughout the interview, I will make reference to 'using academic libraries' and being 'in academic libraries.' However, academic libraries are not limited to physical locations, so experiences you have related to searching academic libraries' websites, for example, are equally relevant."
- "I'll also ask you to share some information about yourself with me, such as where you and your parents or family grew up. I'm interested in this because there's some indication that people's nationality or cultural background might help shape their views on privacy, and I'd like to better understand that."
- Offer a brief overview of privacy and libraries, acknowledging that many students haven't had a chance to think about this.

Questions About the Participant

- What year are you at URU?
- What's your major?

- Where did you grow up? Tell me a little bit about the place you lived.
  - Diversity
  - Political climate
  - Overall experience
- Where did your parents/family grow up?
  - What brought you to [where they grew up]?
  - Did you visit there often?

Domain 1: Experiences with Searching for Information

- Tell me a little bit about your experiences using academic libraries. How have you used them?
  - What kinds of information are you looking for when you search academic library resources?
  - Describe academic and/or personal uses of academic libraries.
- How do your experiences searching at an academic library differ from your experiences searching elsewhere, like on the internet?
  - Do you search for different types of information?

Domain 2: Perceptions of and Expectations for Privacy When Searching for Information

- Have you ever thought about whether your search habits were being monitored either in an academic library or in another search environment like the internet? If so, please describe how that made you feel.
  - If you assume that your search habits are being monitored, does it affect the way you search? In what ways?
  - Do you use any other strategies to further protect privacy of your search activities?
- Who do you feel should or should not have access to data about what you search for, both on the internet and in academic libraries?
- Scenario A: For this question, I'm going to present a scenario, and then I would like you to share your reaction with me about how it makes you feel about privacy in that particular context. "An academic library wishes to improve its search features. To do so, they decide to collect and maintain data about what individuals search for, so that when that person logs into the library system, their results will be tailored based on their previous searches. An undergraduate student who uses the library regularly notices that when she searches for books and articles on the library website, that some of the results seem related to things she's downloaded in the past."
  - How do you feel about this scenario?
  - Can you think of benefits or risks of this scenario?
  - Have you had any experiences that affect the way you think about this scenario?
  - If you were to consider privacy and convenience on a spectrum of importance, with each at oppose ends, please talk about where you would fall on the spectrum. Do you value privacy, convenience, or both?
- Scenario B: For this question, I'm going to present a scenario, and then I would like you to share your reaction with me about how it makes you feel about privacy in that particular context. "An academic library wishes to use data about what students search for,

check out, and borrow to assess use of the collection and ways we might improve it. The library maintains a record of each student's search data so that librarians can do data analysis by individual and group (for example, biology majors) about library use. This allows the library to make adjustments to the collection and to the services offered like teaching and outreach to serve students as effectively as possible."
    - How do you feel about this scenario?
    - Can you think of benefits or risks of this scenario?
    - Have you had any experiences that affect the way you think about this scenario?
    - How would you feel if your search data were de-identified from your name and other identifying information?
- Scenario C: An academic library maintains a record of each student's search data. The library uses the data to explore the relationship between use of library materials and academic success (like GPA and grades). When students have not used the library at all but are enrolled in courses that usually necessitate library use, librarians notify those students' academic advisors as an early warning that the student could have academic issues.
    - How do you feel about this scenario?
    - Can you think of benefits or risks of this scenario?
    - Have you had any experiences that affect the way you think about this scenario?
- Please describe feelings of trust or distrust you have for academic libraries, if any, and why you feel that way.
- Does the level of trust you have for libraries differ from the degree to which you trust Google or other internet search engines? Why?
- Scenario D: For this question, I'm going to present a scenario, and then I would like you to share your reaction with me about how it makes you feel about privacy in that particular context. "An academic library elects to routinely purge any data about what library users search for, and what they check out, as soon as items are returned. The decision to do so was made because many librarians believe that people can only search freely for information if there is no possibility of someone else (be it the library or a third party) having access to what they search for. In routinely purging records, libraries forego data that could be useful in helping them design search tools and purchase collections that would serve library users' needs."
    - How do you feel about this scenario?
    - Can you think of benefits or risks of this scenario?
    - Have you had any experiences that affect the way you think about this scenario?
    - What do you think the right balance is between libraries collecting data about students' search habits in order to improve services and protecting user privacy?

Domain 4: Concerns About Access to Search Data/Borrowing Histories From Third Parties

- Scenario E: For this question, I'm going to present a scenario, and then I would like you to share your reaction with me about how it makes you feel about privacy in that particular context. "Google maintains data about what people search for in order to better understand user search habits in order to improve the search experience and provide targeted advertisements. In an effort to prevent terrorism, the federal government begins routinely monitoring Google search data to look for suspicious searching behavior."

- How do you feel about this scenario?
- Can you think of benefits or risks of this scenario?
  - Are there particular circumstances you can imagine in which it would be appropriate for third parties to access data about what people have searched for?
- Have you had any experiences that affect the way you think about this scenario?
- Would your perspective be different about this scenario if we replaced Google search data with library search data/records?

Closing Questions

- We've talked about a lot of things today. Can you offer me a quick summary of your views on privacy of search data in academic libraries as they are right now?
- Do you think any of your life experiences or influences to date have shaped your views about how your search data should be handled when searching online or at the library?
  - Ask for expansion of previously mentioned influences
  - Are you on social media? Do you feel that your use/non-use of social media has affected your views on privacy in general?
- Is there anything else you would like to share with me that you think would be important to this study?

Publication Patterns of U.S. Academic Librarians and Libraries, 2018–2022, with Comparison to Previous Studies

Sandra L. De Groote, Felicia Barrett, Paula R. Dempsey, Carl A. Lehnen, and Jung Mi Scoulas*

This study continues a series on publication patterns of refereed library and information science journal articles by United States academic librarians (USALs). Following previous studies conducted in 5-year increments starting in 1993, this study covers 52 journals from 2018 to 2022. The proportion of USAL-authored articles decreased despite an overall increase in USAL publications. Coauthorship and the percentage of USALs who publish three or more articles in 5 years increased. Large public research universities remain the most productive. The change in percentages of USAL and non-USAL articles in the studied journals points to differences in growth among journals. COVID-19 appeared to impede USAL productivity.

Introduction

The field of library and information science (LIS) informs library practice. Faculty employed in LIS education are one group of contributors to the research field. Another group is academic library practitioners, often with faculty status, who apply the field's knowledge in their practice and contribute through their own scholarship. Practitioners offer a perspective unique from LIS educational faculty and information scientists, as they are more likely to address practical issues that directly impact the library setting and facilitate evidence-based decision-making. Thus, it is important to understand the extent to which both individual practitioners and their institutions contribute to the field and if or how these contributions may change.

The present study of publication patterns of United States academic librarians (USALs) is the fifth in a series conducted by researchers at the University of Illinois Chicago University Library. Each study in the series has covered five-year periods (Blecic et al., 2017; Weller et al., 1999; Wiberley et al., 2006, 2023). The present study continues the preceding studies by

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examining the next five-year span, 2018 to 2022. It covers all refereed journals from the preceding studies that are still being published (two have ceased) and adds two journals that meet the study criteria. Comparing the current findings with previous studies in this series, particularly the previous five years, provides a longitudinal perspective, while additional metrics allow further exploration of current trends.

This study addresses findings from previous iterations and explores additional areas, with the following research questions:

1. Is the proportion of USAL articles larger or smaller compared to previous years, particularly in the most recent previous iteration of the study (2013–2017)?
2. Has coauthorship by USALs continued to increase? Who are USAL collaborators?
3. What percentage of USALs met the productivity benchmark of three articles in five years?
4. How did the COVID-19 pandemic impact productivity?
5. How have the journals covered by these studies changed over time?

Literature Review

As the literature reviews in the preceding studies from this series have covered much of the literature relevant to USAL publication patterns, most of the literature reviewed in this study discusses the relevant literature of USAL publication patterns published since 2018. This includes literature exploring coauthorship, factors affecting the productivity of librarians, LIS journals in which librarians are most likely to publish, and the impact of the COVID-19 pandemic on publishing productivity.

Productivity and Coauthorship of Librarians

The research productivity of academic librarians has been studied for decades. A recent study examining academic librarians' reasons for publishing in peer-reviewed journal articles included gaining tenure and/or promotion at their academic institutions as research success is typically measured through productivity and output (Hoffman et al., 2017). Logically, it follows that the productivity of U.S. research librarians has also been found to correlate with faculty status (Hoffman et al., 2017; Wiberley et al., 2023). Factors that can increase librarian productivity include time management, awareness of the current literature and trends, confidence in research methods, and collaboration with coauthors (Crampsie et al., 2020).

Productivity in relationship to coauthorship has also been explored. In general, academic researchers have become more productive over time, and they also have become more collaborative (De Groote et al., 2024). A positive correlation exists between the number of articles written by an author and the number of coauthors on the publications. Within the field of library sciences, similar findings are reported. Researchers have become increasingly collaborative in library and information science (Owens, 2023), and collaboration has positively affected researcher productivity (Kong et al., 2019). When highly productive librarian-researchers were surveyed about their professional training, research environment, research networks, and views on the research process, a key finding was that having a large number of interconnected individuals in their networks who collaborate on research is significantly linked to higher research output (Kennedy et al., 2020).

Collaboration and coauthorship among librarians on an international level appear less common. Kozlowska and Scoulas surveyed U.S. librarians about their collaboration with

international librarians to explore the publications and other forms of scholarship generated from these partnerships. The results showed that 83.15% reported never collaborating with an international librarian, and only 16.85% reported publishing with an international collaborator (2020).

LIS Journals and LIS Authorship

Several studies have explored the contributions of non-LIS authors and LIS authors (including library practitioners) in LIS journals. One study examining LIS journals indexed in Web of Science between 2005 and 2014 found that 46.6% of articles in LIS journals had at least one non-LIS author (Chang, 2018). Non-LIS authors are likely interested in LIS research topics given that LIS is a broad topic that merges with many disciplines, including education, medicine, computer science, and communication. Another study explored the contribution of LIS authors to 75 LIS journals (Chang, 2019). In only 25 of the 75 journals studied did the LIS author contribute to more than half of the articles. When the researchers looked at the sub-categories (e.g., library science, information science, interdisciplinary, non-LIS) of the LIS subject category journals, they noted substantial differences in the percentage of LIS-authored journals. In the 13 library science-oriented journals, LIS authors contributed to more than 75% of the articles. Wiberley and colleagues reported similar findings when examining USAL contributions to library science journals; certain journals were more oriented towards academic librarians and a greater percentage of USALs published in them, compared to those not oriented towards academic librarianship (2023). This study also reported a decline in academic librarian authorship in journals that were not oriented toward academic librarianship and an increase in academic librarian authorship in academic librarian-oriented journals. Gender differences have also been found in the authorship of LIS publications, where men are likelier to be the authors of LIS publications despite more women in the LIS field (Monroe-Gulick et al., 2024). These findings highlight the complex nature of LIS journals and authorship.

Impact of COVID-19 Pandemic

The outbreak of the COVID-19 pandemic caused many disruptions to the work of librarians. Librarians quickly responded to the circumstances and developed plans to continue services in light of changed needs and expectations during the pandemic. These changes also impacted librarian research productivity. Key challenges during the pandemic included increased workload, increased childcare and family responsibilities, and diminished mental health and wellness (e.g., stress, isolation, guilt, and uncertainty). Other emerging themes related to COVID-19 and libraries included learning new technologies such as virtual meetings and conferences, online learning such as remote teaching and learning, fake news, information literacy, and knowledge management (Berg et al., 2021). Sheikh et al. (2023) note that a substantial amount of research on COVID-19 was published in LIS journals. One study exploring life sciences publication output using the PubMed database found that as COVID-19-related research increased, publications using unrelated MeSH terms had decreased by 10% to 12% (Riccaboni & Verginer, 2022). However, the authors acknowledge that COVID-19 publications may have been fast-tracked, which could have impacted the balance of non-COVID articles that appeared. Demographic changes related to productivity were also observed. For example, significant disparities in scholarly

productivity by gender and child age were noted, as well as a "decrease in senior- and coauthor's articles submitted and grants submitted relative to pre-pandemic productivity" (Krukowski et al., 2021). It was speculated that increased childcare responsibilities among parents with very young children contributed to this group's reduced productivity.

Methods and Data

The present study focuses on the contributions of USALs to the LIS journal literature. As noted above, the study builds on previous iterations back to 1998 (Blecic et al., 2017; Weller et al., 1999; Wiberley et al., 2006, 2023). The goal of each study has been to investigate the extent to which USALs contribute to core research journals in LIS. As publications appear, evolve, and cease over time, the set of journals has changed.

Journal Inclusion and Data Collection

This study included all still-published journals covered in preceding studies, except for two titles that ceased, and it added two titles. *Library Collections, Acquisitions, & Technical Services* and *Behavioral & Social Science Librarian* both ceased and were dropped from the study. The authors explored LIS journal titles for potential journals to add to the study. Two titles were added based on criteria described in the 2013–2017 study (Wiberley et al., 2023): *Journal of Access Services* and *Journal of Information Literacy*. The journals needed to 1) be listed in UlrichsWeb Global Serials Directory with the subject heading *library and information science* and be identified as refereed or 2) be either covered by *Journal Citation Reports* (JCR) or have a percentile ranking of 40th or higher in Scopus's CiteScore.

The authors examined each journal issue from 2018 to 2022 for each of the journals included in the study. The total number of refereed articles, the number of refereed USAL articles, the total number of authors for each refereed article, and the number of USAL authors per issue was recorded. For each USAL author article, the name(s) of the USAL authors and their affiliations were recorded. For coauthors on these publications that were USALs, their names and affiliations were recorded in a separate column. Editorials, columns, book reviews, news notes, and non-peer-reviewed articles were excluded. Conference proceedings and articles on special theme issues were also excluded unless there was evidence that the articles were peer-reviewed.

Similar data were collected for the 2013–2017 period for the two journals added to the current study so that comparisons and changes between identical journal title lists were possible between 2013–2017 and 2018–2022. Similar updates were made to the institutional data for the two journals that were dropped and the two that were added. Individual author data for 2013–2017 were not updated elsewhere in the datasets due to the complexity of the task and because the overall averages of combined data were unlikely to make significant differences in the reported percentages. Based on the two journals dropped from the current study, 81 peer-reviewed articles (57 by USALs) were published between 2013 and 2017 compared to 83 peer-reviewed articles (70 by USALs) studied in the newly added journals. The overall percentage of USAL-authored articles remained at 35% between 2013 and 2017 despite the change in the two journal titles.

As in previous studies in this series, the authors defined USALs as persons who held an MLS or equivalent degree and worked or had emeritus status in a library in a U.S. institution listed in the Carnegie Classification of Institutions for Higher Education. As needed, the

authors searched the internet for data to confirm whether someone had an MLS. However, because of the evolving nature of academic librarianship, not all professionals hired in academic libraries have an MLS. In a shift from past studies in this series, the definition of USALs was expanded to include other practitioners with advanced degrees employed in academic libraries due to their engagement as library practitioners. MLS holders who worked for an academic unit other than the library were not counted as USALs.

Data Coding and Analysis

Affiliations and author names were standardized in the same way as outlined in Wiberley et al. (2023). The data were analyzed using Excel. The distinct count feature was used in Excel to count the number of articles per academic library. Hence, an article only counts once for a library, even if it is counted individually when multiple authors are on an article from the same institutional library. If USALs coauthored an article and they were from more than one library, the article counted for each library represented.

Results and Discussion

USAL articles and authors

A total of 52 journals were examined for the current study; a summary of the journal and peer-reviewed articles' attributes are presented in Table 1. In 1,160 discrete issues of the 52 library literature journals, 8,007 peer-reviewed articles published between 2018 and 2022 were identified. This illustrates an overall increase in publications compared to the previously studied period, with 6,874 articles in 1,104 issues in the same 52 journals between 2013 and 2017. Of those 8,007 peer-reviewed articles, 2,484 (31%) were authored by at least one USAL. Proportionally, this is a decrease of 11.4% compared to the USAL articles published in the same journals from 2013 to 2017 (35% authored by USAL). However, the actual number of peer-reviewed articles and USAL peer-reviewed articles increased from 2013–2017 to 2018–2022. The average number of authors per article also increased (2.3 to 2.61), as did the number of USAL authors per article (1.75 to 1.95). However, in 2018–2022, only 23% of the authors were USALs compared to 2013–2017, when 30% were USALs. The number of libraries where USALs contributed to the body of literature increased compared to previous years.

The number of sole-authored USAL articles also decreased compared to the previous study. In 2018–2022, 909 articles (36.6%) were sole-authored by a USAL compared to 2013–2017, when 943 (39.2%) were sole-authored by a USAL. In contrast, 1,575 (63.4%) USAL articles were written with at least one other author. Of the USAL articles written in collaboration with others (1,575), 505 (32.1%) were written by coauthors who were not USAL. Conversely, 1,328 (84.3%) USAL collaborative articles were written with at least one other USAL. Of these (1,328), 863 (65%) were collaborations with USALs only at their institution, and 465 (35%) were with at least one other USAL at another U.S. academic library. Only 1.6% of articles were collaboratively written by at least one U.S. academic librarian and an academic librarian not in the United States. Compared to Kozlowska and Scoulas (2020), who looked more broadly at international librarian-author collaborations, the current study illustrates even smaller international collaborations in the context of U.S. academic libraries.

TABLE 1
Contributions of United States Academic Librarians (USALs) to Journals, 1993–2022

	1993–1997	1998–2002	2003–2007	2008–2012	2013–2017	2018–2022
Number of journals studied	32	32	41	39	52	52
Number of issues in journals studied	703	716	855	843	1,104	1,160
Number of refereed articles	3,624	3,488	5,038	5,537	6,874	8,007
Refereed articles per issue (mean)	5.16	4.87	5.89	6.57	6.23	6.90
Number of USAL articles	1,579	1,380	1,997	1,916	2,406	2,484
% of USAL articles	43.57	39.56	39.64	34.60	35.00	31.00
USAL articles per issue (mean)	2.25	1.93	2.34	2.27	2.18	2.14
Instances of authorship of refereed articles	5,477	5,834	9,372	11,451	15,841	20,898
Instances of authorship of refereed articles per issue (mean)	7.79	8.15	10.96	13.58	14.35	18.01
Instances of USAL authorship	2,032	2,003	3,120	3,188	4,206	4,856
% of instances of USAL authorship	37.10	34.33	33.29	27.84	26.55	23.23
Instances of USAL authorship per issue (mean)	2.89	2.80	3.65	3.78	3.81	4.19
Authors per refereed article (mean)	1.51	1.67	1.86	2.07	2.30	2.61
USAL authors per USAL article (mean)	1.29	1.45	1.56	1.66	1.75	1.95
Number of sole-authored USAL articles	869	893	1,026	890	943	909
Number of coauthored USAL articles	710	567	971	1,026	1,463	1,573
% of USAL articles that are coauthored	44.97	41.09	48.62	53.55	60.81	63.38

	1993–1997	1998–2002	2003–2007	2008–2012	2013–2017	2018–2022
Unique USAL names	1,515	1,487	2,182	2,268	2,877	3,143
Unique USAL names per issue	2.16	2.08	2.55	2.69	2.61	2.71
Unique USAL names per refereed article	0.42	0.43	0.43	0.41	0.42	0.39
Unique USAL names per USAL article	0.96	1.08	1.09	1.18	1.20	1.27
Unique libraries	386	379	515	511	593	609
Unique libraries per issue (mean)	0.55	0.53	0.60	0.61	0.54	0.53
Unique libraries per refereed article (mean)	0.11	0.11	0.10	0.09	0.09	0.08
Unique libraries per USAL article (mean)	0.24	0.27	0.26	0.27	0.25	0.25
Published source	Weller et al., 1999	Wiberley et al., 2006	Blecic et al., 2017	Blecic et al., 2017	Wiberley et al., 2023	Current study

As noted above, the percentage of USAL articles published in 52 journals between 2018 and 2022 was 4% lower compared to 2013 to 2017. While the number of USAL articles increased, when compared to the total articles published by non-USALs, USALs proportionally published fewer articles than non-USALs. During both periods, the range of percentages of USAL articles published in each journal varied widely, spanning from 0% to 93% for the period 2013–2017 and from 0% to 89% for 2018–2022. Table 2 includes the individual journals studied, listed in descending order from those with the highest USAL article percentage to the least in the current study. Upon closer examination of individual journals, the differences in inclusion rates between the two time periods varied. Specifically, journals such as SL, IRSQ, and DLP exhibited the most significant disparities, recording differences of over 38% between 2013–2017 and 2018–2022 (see Appendix I for journals by abbreviation).

The average number of USAL authors published in each journal between 2018 and 2022 was 2.8% lower than in the 2013 to 2017 period. This suggests a decrease in the representation of USAL authors across scholarly publications compared to the previous study. From 2013 to 2017, the percentage of USAL authors published in each journal varied widely, ranging from 0% to 91%. Conversely, for 2018–2022, this range narrowed slightly, with percentages ranging from 0% to 85%. Upon examining individual journals, the differences in inclusion rates between the two time periods varied. Like the USAL article data, Internet Reference Services Quarterly (IRSQ), Serials Librarian (SL), and Digital Library Perspectives (DLP) exhibited the most significant disparities, recording differences of over 34% between the periods of 2013–2017 and 2018–2022.

Taken together, certain journals, notably SL, IRSQ, and DLP, experienced substantial differences in the inclusion rates of USAL-referred articles and USAL authors between the two time periods, suggesting potential shifts in publication patterns or authorship trends.

TABLE 2
Percent of USAL Articles and USAL Authors in Journals Studied, 2013–2022

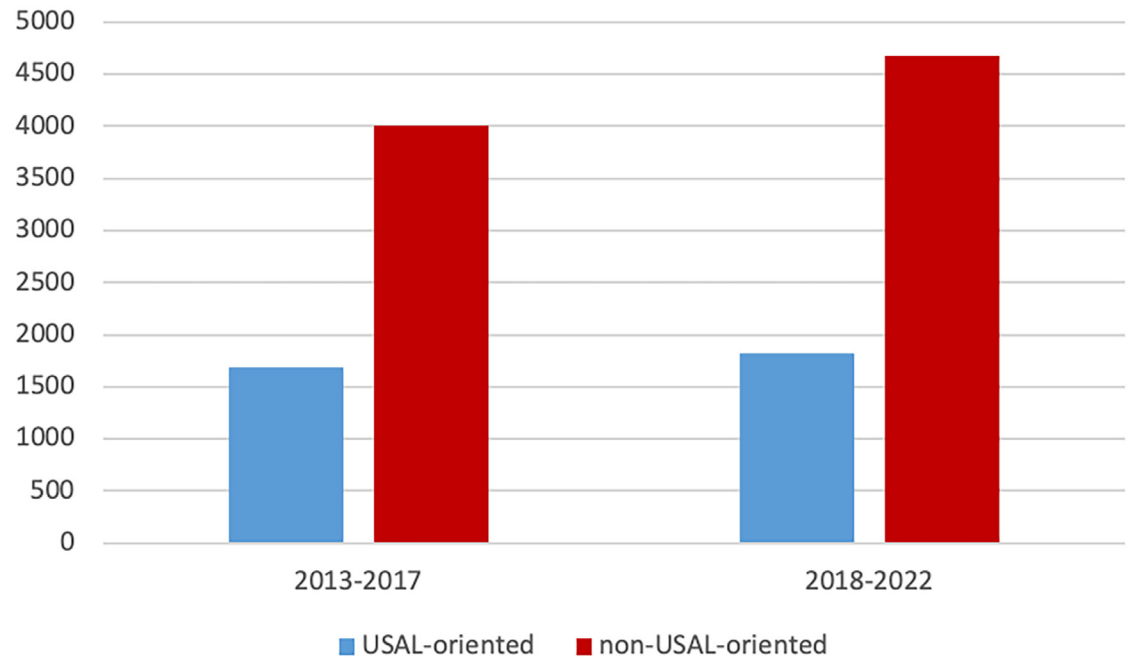
	2013–2017	2018–2022	Difference in USAL refereed articles	2013–2017	2018–2022	Difference in USAL authors
	% USAL refereed articles	% USAL refereed articles		% USAL authors	% USAL authors	
Technical Services Quarterly (TSQ)*	90.7%	88.9%	-1.8%	86.5%	84.6%	-1.9%
Issues in Science and Technology Librarianship (ISTL)*	87.9%	88.1%	0.2%	81.2%	80.2%	-1.0%
Library Resources & Technical Services (LRTS)*	86.4%	86.4%	0.0%	73.5%	81.0%	7.5%
Collection Management (CM)*	75.3%	84.4%	9.1%	67.5%	74.6%	7.1%
College & Undergraduate Libraries (CUL)*	93.4%	82.9%	-10.5%	81.9%	75.8%	-6.1%
Journal of Electronic Resources in Medical Libraries (JERML)*	88.5%	81.8%	-6.7%	74.1%	78.7%	4.6%
Journal of Access Services (JAS)*	88.5%	81.5%	-7.0%	85.3%	78.4%	-6.9%
Journal of Electronic Resources Librarianship (JERL)*	82.5%	80.0%	-2.5%	73.7%	75.4%	1.7%
Reference and User Services Quarterly (RUSQ)*	62.7%	80.0%	17.3%	52.0%	81.1%	29.1%
Reference Services Review (RSR)*	80.6%	79.6%	-1.0%	73.6%	79.0%	5.4%
Journal of Library Resource Sharing (JLRS)*	76.2%	78.8%	2.6%	66.2%	70.8%	4.6%
portal: Libraries and the Academy (PORTAL)*	82.0%	77.9%	-4.1%	67.0%	67.5%	0.5%
Journal of Web Librarianship (JWL)*	78.0%	77.4%	-0.6%	68.5%	76.5%	8.0%
Medical Reference Services Quarterly (MRSQ)*	91.2%	76.7%	-14.5%	77.5%	68.3%	-9.2%
Journal of Library and Information Services in Distance Learning (JLISDL)*	61.8%	71.4%	9.6%	58.2%	60.6%	2.4%

	2013–2017	2018–2022	Difference in USAL refereed articles	2013–2017	2018–2022	Difference in USAL authors
	% USAL refereed articles	% USAL refereed articles		% USAL authors	% USAL authors	
Journal of Library Administration (JOLA)*	72.7%	70.4%	-2.3%	71.4%	62.8%	-8.6%
College & Research Libraries (CRL)*	77.8%	68.8%	-9.0%	66.1%	54.6%	-11.5%
American Archivist (AA)*	43.3%	65.1%	21.8%	42.1%	56.2%	14.1%
Journal of Map & Geography Libraries (JMGL)*	37.3%	61.2%	23.9%	22.6%	54.2%	31.6%
Reference Librarian (RL)	79.8%	59.4%	-20.4%	69.3%	54.0%	-15.3%
Journal of the Medical Library Association (JMLA)	61.0%	57.0%	-4.0%	42.3%	42.2%	-0.1%
Notes of the Music Library Association (NMLA)	50.0%	56.4%	6.4%	54.9%	56.8%	1.9%
Information Technology and Libraries (ITL)	56.6%	55.5%	-1.1%	54.2%	45.7%	-8.5%
Internet Reference Services Quarterly (IRSQ)	91.0%	51.4%	-39.6%	91.3%	46.7%	-44.6%
Evidence Based Library and Information Practice (EBLIP)	47.5%	48.1%	0.6%	45.8%	40.7%	-5.1%
Journal of Library Metadata (JLM)	55.4%	47.9%	-7.5%	42.6%	41.8%	-0.8%
Journal of Academic Librarianship (JAL)	55.7%	46.9%	-8.8%	43.9%	36.2%	-7.7%
Science & Technology Libraries (STL)	67.9%	45.5%	-22.4%	52.5%	32.2%	-20.3%
Serials Review (SR)	50.0%	41.7%	-8.3%	34.3%	26.2%	-8.1%
New Review of Academic Librarianship (NRAL)	21.6%	40.8%	19.2%	14.7%	38.5%	23.8%
Cataloging & Classification Quarterly (CCQ)**	45.5%	35.6%	-9.9%	38.2%	35.5%	-2.7%

	2013–2017	2018–2022	Difference in USAL refereed articles	2013–2017	2018–2022	Difference in USAL authors
	% USAL refereed articles	% USAL refereed articles		% USAL authors	% USAL authors	
Performance Measurement & Metrics (PMM)**	45.5%	33.8%	-11.7%	26.2%	25.9%	-0.3%
Serials Librarian (SL)**	74.6%	32.9%	-41.7%	67.6%	28.2%	-39.4%
Library Trends (LT)**	16.8%	32.7%	15.9%	19.0%	27.5%	8.5%
Journal of Information Literacy (JIL)**	29.8%	19.2%	-10.6%	22.2%	19.3%	-2.9%
Library Quarterly (LQ)**	22.4%	19.0%	-3.4%	12.1%	12.3%	0.2%
Collection and Curation (CC)**	40.0%	18.9%	-21.1%	31.5%	15.1%	-16.4%
Digital Library Perspectives (DLP)**	55.6%	15.9%	-39.7%	46.8%	12.5%	-34.3%
Library Management (LM)**	17.6%	11.5%	-6.1%	13.0%	9.4%	-3.6%
Canadian Journal of Information & Library Science (CJLIS)**	2.0%	10.4%	8.4%	1.0%	8.0%	7.0%
Journal of Education for Library & Information Science (JELIS)**	10.7%	7.9%	-2.8%	5.5%	6.5%	1.0%
Library & Information Science Research (LISR)**	5.8%	7.9%	2.1%	2.6%	5.6%	3.0%
Health Information and Libraries Journal (HILJ)**	8.3%	7.7%	-0.6%	4.0%	4.7%	0.7%
Public Libraries (PL)**	4.2%	6.8%	2.6%	2.6%	5.3%	2.7%
Library Hi Tech (LHT)**	17.3%	4.5%	-12.8%	10.6%	3.1%	-7.5%
Information and Learning Sciences (ILS)**	18.2%	2.1%	-16.1%	13.6%	0.7%	-12.9%
Journal of the American Society for Information Science & Technology (JASIST)**	1.5%	1.7%	0.2%	0.6%	0.8%	0.2%

	2013–2017	2018–2022	Difference in USAL refereed articles	2013–2017	2018–2022	Difference in USAL authors
	% USAL refereed articles	% USAL refereed articles		% USAL authors	% USAL authors	
Online Information Review (OIR)**	0.7%	0.5%	-0.2%	0.4%	0.5%	0.1%
Journal of Information Science (JIS)**	0.0%	0.4%	0.4%	0.0%	0.1%	0.1%
Government Information Quarterly (GIQ)**	0.9%	0.3%	-0.6%	0.3%	0.1%	-0.2%
Information Processing and Management (IPM)**	0.0%	0.2%	0.2%	0.0%	0.1%	0.1%
Information & Culture (IC)**	10.1%	0.0%	-10.1%	8.4%	0.0%	-8.4%
Average % per journal	49.4%	44.3%	-5.1%	42.1%	39.3%	-2.8%
Percent of total count	39.5%	31.0%	-8.5%	30.6%	23.2%	-7.4%
* USAL-oriented journal; ** non-USAL-oriented journal						

FIGURE 1
Change in Number of Articles in USAL-Oriented and Non-USAL-Oriented Journals



As in previous studies, the present study distinguishes between journals currently oriented to USALs and those not oriented to USALs. Those journals that had ≥60% USAL authors in 2018–2022 were considered USAL-oriented journals. Those that had ≥60% of articles with no USAL author in 2018–2022 were considered non-USAL-oriented journals. There were 41 journals (out of 52) that fell into one of the categories for the current study period; 19 journals were USAL-oriented (TSQ, ISTL, LRTS, CM, CUL, JERML, JAS, JERL, RUSQ, RSR, JLRS, PORTAL, JWL, MRSQ, JLISDL, JOLA, CRL, AA, JMGL), and 22 were non-USAL-oriented (CCQ, PMM, SL, LT, JIL, LQ, CC, DLP, LM, CJLIS, JELIS, LISR, HILJ, PL, LHT, ILS, JASIST, OIR, JIS, GIQ, IPM, IC). Between 2013–2017 and 2018–2022, the number of articles published by USAL-oriented journals grew from 1,691 to 1,821, or 7.7%, whereas the number of articles published by non-USAL-oriented journals grew from 4,001 to 4,680, or 17%. Although both grew and non-USAL journals did not match the dramatic 78.9% increase recorded in the last study, the number of articles published by non-USAL-oriented journals grew significantly. Although Chang (2018, 2019) explored LIS author contributions to the LIS literature more broadly than the current study (i.e., not just U.S. academic librarians), they also noted growing contributions to the LIS literature by non-LIS authors. The results of the current study demonstrate there is an overall growth in LIS publications, where the growth is seen more dramatically in non-USAL-oriented journals, perhaps as a result of non-LIS authors.

Productivity

For authors who published, there was again an increase in productivity. The total number of article authors increased somewhat, from 2,877 to 3,141. However, the proportion of authors producing higher numbers of articles has increased. The percentage of authors who published two or more articles increased from 27.97% in 2013–2017 to 30.34% in the current study, an increase of 8%. Previous studies in the series have highlighted three articles in 5 years as a benchmark for high productivity. The proportion of authors meeting this benchmark has also continued to increase, from 8.14% in 2008–2012, to 10.8% in 2013–2017, to 12.07% in the current study. The increase was especially pronounced among those publishing four or more articles, from 4.13% to 5.73%. Although those publishing five articles had a modest increase, from 34 to 39 authors, those publishing six nearly tripled, from 11 to 29. Also remarkable was the "long tail" of the highest-productivity authors. In previous studies, the number of articles per author had topped out at 12 in 2008–2012 and at 10 in 2013–2017. From 2018–2022, there were individual authors with 13, 16, and 18 articles each. Increases in the number of articles per author are likely related to increases in coauthorship.

TABLE 3
Productivity of U.S. Academic Librarians from 2003 to 2022

Number of articles per author	Cumulative percentage of authors 2003–2007	Cumulative percentage of authors 2008–2012	Number of authors writing the # of articles 2013–2017	Percentage of authors 2013–2017	Cumulative percentage of authors 2013–2017	Number of authors writing the # of articles 2018–2022	Percentage of authors 2018–2022	Cumulative percentage of authors 2018–2022
18	0	0	0	0	0	1	0.03	0.03
17	0	0	0	0	0	0	0.00	0.03

Number of articles per author	Cumulative percentage of authors 2003–2007	Cumulative percentage of authors 2008–2012	Number of authors writing the # of articles 2013–2017	Percentage of authors 2013–2017	Cumulative percentage of authors 2013–2017	Number of authors writing the # of articles 2018–2022	Percentage of authors 2018–2022	Cumulative percentage of authors 2018–2022
16	0	0	0	0	0	1	0.03	0.06
15	0	0	0	0	0	0	0.00	0.06
14	0	0	0	0	0	0	0.00	0.06
13	0	0	0	0	0	1	0.03	0.10
12	0	0.04	0	0	0	0	0.00	0.10
11	0	0.08	0	0	0	0	0.00	0.10
10	0.05	0.08	2	0.07	0.07	1	0.03	0.13
9	0.1	0.08	0	0	0.07	4	0.13	0.25
8	0.1	0.17	5	0.17	0.24	6	0.19	0.45
7	0.38	0.39	2	0.07	0.31	6	0.19	0.64
6	1.11	0.74	11	0.38	0.69	29	0.92	1.56
5	1.71	1.4	34	1.18	1.87	39	1.24	2.80
4	3.54	2.72	65	2.26	4.13	92	2.93	5.73
3	9.64	8.14	192	6.67	10.8	199	6.34	12.07
2	26.46	26.61	494	17.17	27.97	574	18.27	30.34
1	100	100	2,072	72.02	100	2,188	69.66	100.00

Libraries

Table 4 indicates the number of articles from the top-producing libraries in 5-year increments from 1993 to 2022. Because several libraries in 2018–2022 tied for several places, the table presents ranks and numbers of articles for 31 libraries. Fifteen institutions joined the top 20 for the first time, of which 12 were R1 (Very High Research Activity) institutions and three were R2 (High Research Activity). Part of the reason for the increase in institutions in the top 20 was several institutions tied in the number of publications, leading to 31 rather than 20 institutions in the list. If the list had been limited to the top 20, not considering ties, there would be seven new institutions in the list. Further research is needed to understand the increase in these institutions' overall productivity.

TABLE 4
Library Productivity 2013–2022

Institution	2013–2017	2018–2022	
	Rank (number of articles)	Rank (number of articles)	% Change
Penn State University (R1)	2 (66)	1 (80)	+21.2
University of Illinois Urbana–Champaign (R1)	1 (80)	2 (72)	-10
Texas A&M University (R1)	3 (44)	3 (66)	+50
University of Illinois Chicago (R1)	7 (33)	3 (66)	+100
University of Colorado at Boulder (R1)	11 (29)	4 (54)	+86.21

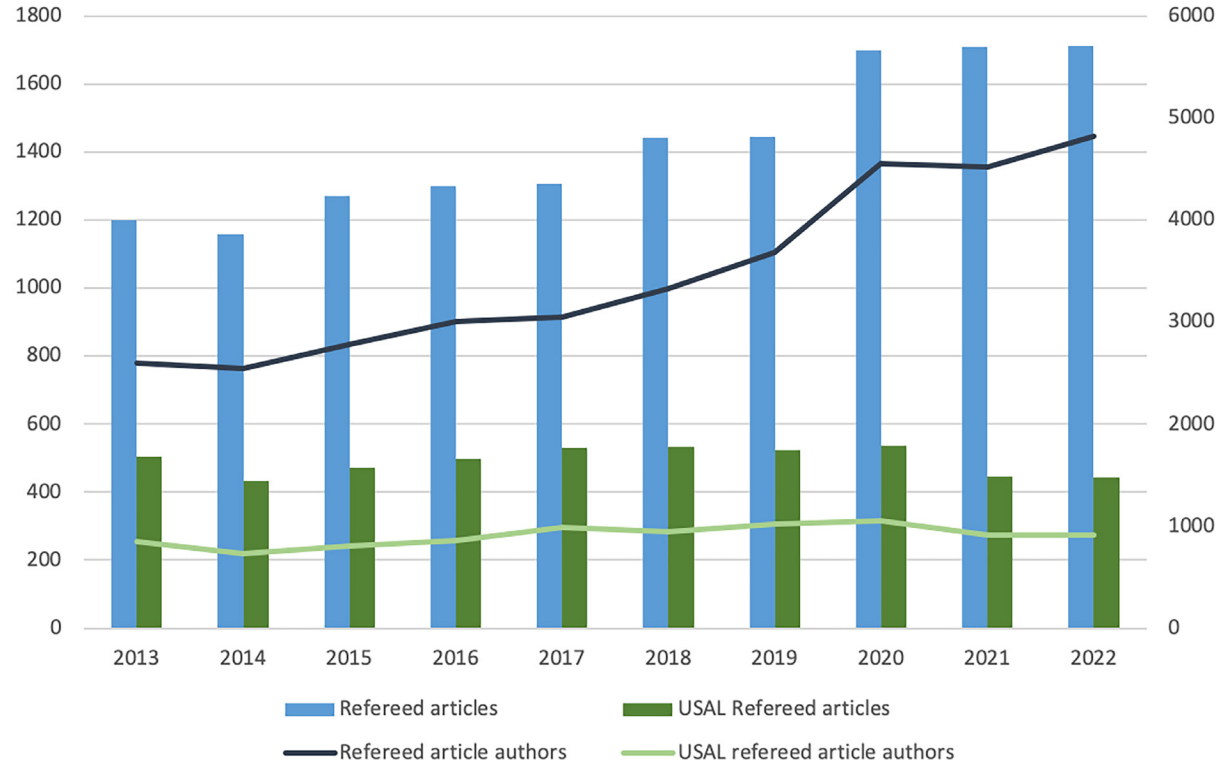
Institution	2013–2017	2018–2022	
	Rank (number of articles)	Rank (number of articles)	% Change
Indiana University (R1)	not top 20	5 (43)	
The Ohio State University (R1)	6 (38)	6 (41)	+7.89
Rutgers University (R1)	4 (42)	7 (38)	-9.52
University of Utah (R1)	not top 20	7 (38)	
University of Alabama (R1)	not top 20	8 (37)	
Brigham Young University (R2)	not top 20	9 (34)	
Purdue University (R1)	11 (29)	9 (34)	+27.24
Stony Brook University SUNY (R1)	not top 20	10 (33)	
University of Minnesota (R1)	9 (30)	10 (33)	+17.24
University of Nevada, Las Vegas (R1)	19 (22)	11 (32)	+45.46
University of Florida (R1)	11 (29)	12 (31)	+6.9
University of New Mexico (R1)	20 (22)	12 (31)	+40.91
University of Tennessee (R1)	not top 20	13 (27)	
Seton Hall University (R2)	not top 20	14 (26)	
University of Michigan (R1)	16 (27)	15 (24)	-11.11
Harvard University (R1)	not top 20	16 (23)	
University of California Los Angeles (R1)	not top 20	16 (23)	
New York University (R1)	not top 20	17 (22)	
University of Arizona (R1)	8 (31)	17 (22)	-29.03
University of Arkansas (R1)	23 (19)	17 (22)	+15.8
University of Louisville (R1)	not top 20	18 (21)	
Kent State University (R1)	17 (24)	19 (20)	-8.33
University of Idaho (R2)	not top 20	20 (19)	
University of Kansas (R1)	not top 20	20 (19)	
University of Oklahoma (R1)	not top 20	20 (19)	
Utah State University (R1)	not top 20	20 (19)	
University of Houston (R1)	22 (20)	not top 20 (17)	-15
Cornell University (R1)	17 (24)	not top 20 (14)	-41.67
Oakland University (R2)	14 (28)	not top 20 (13)	-53.57
Texas Tech University (R1)	14 (28)	not top 20 (12)	-57.14

Impact of COVID-19

The annual publication data (i.e., number of refereed articles and number of authors) from 2013 to 2022 was entered into a spreadsheet for all publications included in the study and those where there was at least one USAL author. While the overall number of publications increased between 2013 and 2022, as did the overall number of authors, the number of articles written by USALs and the total number of USALs decreased in 2021 and 2022 (see Figure 2). One explanation for the drop in articles may be related to COVID-19. COVID-19 did not fully impact U.S. academic institutions until March 2020, and for many journals, the articles to be published that year were already accepted or in the queue to be published. This lag may explain why 2020 does

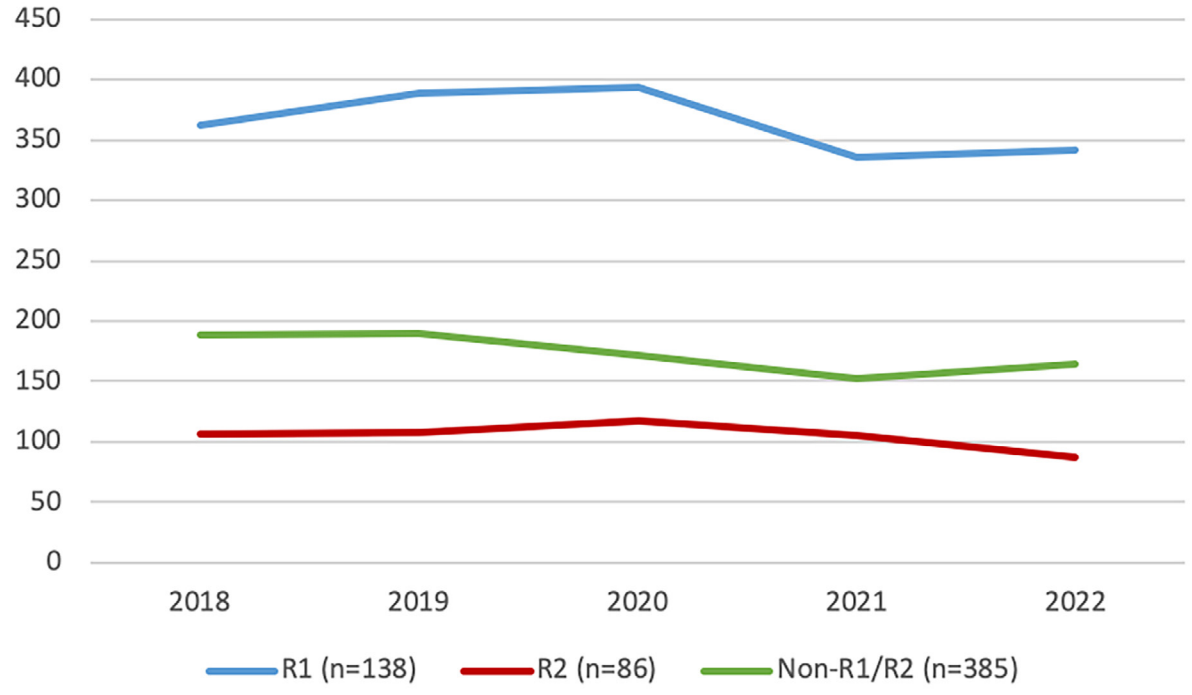
not reflect any decrease in productivity. Interestingly, the overall productivity of authors in LIS journals, which includes the non-USAL author data, contrasts with other studies that found a decrease in publications in conjunction with COVID-19 (Krukowski et al., 2021; Riccaboni & Verginer, 2022). The subsequent decrease for USALs may reflect how their research productivity was impacted by the demands placed on them as academic library practitioners. They faced increased competing demands, such as shifting to remote virtual service models, compared to the other non-USALs who contributed articles to the same journals. Additionally, academic librarians are predominantly female, with women comprising 72 to 74% of the profession (Eva et al., 2021). Furthermore, while LIS consists of more women than men, men have been identified as the primary authors of the library literature (Monroe-Gulick et al., 2024), As COVID-19 was found to impact productivity related to gender and childcare demands, these same factors likely impacted the productivity of female academic librarians, particularly those with children.

FIGURE 2
USAL Productivity Before and After COVID-19 Pandemic



The question arose as to whether productivity related to COVID-19 was different based on the research designation of the institution. The number of publications by each institution each year by Carnegie designation was explored. Institutions were grouped by Very High Research Activity (R1), High Research Activity (R2), and non-R1/R2 status. As seen in Figure 3, R1, R2, and non-R1/R2 institutions all experienced a decrease in research productivity in 2021 and 2022. In 2021–2022, R2 institutions experienced a 42% drop in publications, and R1s experienced a 40.1% drop. Non-R1/R2s experienced the lowest drop (36.6%) and showed some signs of rebounding in 2022. Academic libraries at R1 institutions are more productive than R2s and non-R1/R2s. On average, R1s published 13.2 articles, R2s published 6.08 articles, and non-R1/R2s published 2.25 articles per institution over the 5 years studied.

FIGURE 3
USAL Productivity from 2018 to 2022 by Carnegie Research Classification



COVID-19 appears to have inhibited the ability to sustain scholarship across all institutions, regardless of the research classification. The inability to find peer reviewers during the height of the pandemic and the overall impact on journal production also likely contributed to the decrease in productivity. Reflecting on the trends in productivity, an upward productivity trend appeared for USALs until the introduction of the pandemic. The divergent trends between non-USALs and USALs following the pandemic suggest that the overall productivity of USALs may have had a different outcome, such as an even greater increase in productivity, if not for the implications of COVID-19. It also points to the differences that being a practitioner in a field versus being a researcher may have on productivity and how vulnerable competing demands can be to outside forces. This may have been further impacted by the predominantly female makeup of academic librarians.

Limitations

This study explored a subset of LIS journals; patterns may have differed in journals not included. In addition, librarians are also publishing in journals outside of LIS, and these publications were not explored in this study. This study expanded the definition of USALs to include non-MLIS degree holders. This would impact comparisons to previous versions of the study in this series, as more individuals could be counted as USALs. Conversely, it is possible that some authors who are USALs were not included in the count if their affiliations did not show their roles as librarians. As is common with manually collected data, the dataset may have some errors.

Conclusions

Examining publication data with a consistent list of journals makes comparing data between different iterations of the studies in the series easier to calculate and interpret. This stability in the journals studied for the fifth iteration of the study was invaluable in comparing the trends

between non-USALs and USALs, particularly amid a pandemic. It reduced the possibility of introducing confounding variables, which are introduced by including new journals. It also helps highlight the ebb and flow of USAL contributions to the literature.

Overall, the proportion of articles by USALs decreased while the number of USAL-authored articles increased, suggesting other segments of LIS publishing are increasing faster than USAL publishing. Large public research universities remain the most productive, although it appears an increasing number of academic libraries are contributing to the literature of LIS journals. USALs are more likely to publish with other USALs, and USAL collaborators are more likely to be USALs at the same institution. The change in percentages of USAL and non-USAL articles in LIS journals points to differences in growth among journals and changes as to where USALs and non-USALs publish. COVID-19 likely impacted productivity for academic librarians but appeared to have less impact on non-USAL authors.

As publication patterns vary from study to study, we cannot concretely conclude that COVID-19 impacted productivity rates. Assuming this was the case, the next study period will need to closely examine whether, and how, publication patterns rebound or if the pandemic will have a longer-lasting impact on productivity. Given the divergent patterns observed in the USAL versus non-USAL authored articles, particularly as they correlated with the pandemic, it would be interesting to study author characteristics beyond being classified as a USAL or not. Exploring additional author demographics such as gender and field of study, or if the nature of the article focused on technological versus social sciences aspects, to name a few, would further inform factors influencing publication patterns in LIS journals.

Sole authorship decreased while coauthored publications increased. The percentages of USALs who publish three or more articles in 5 years increased as coauthorship increased. At the institution where this study was conducted, the results of this research series have guided the promotion and tenure norms. Given the increasingly collaborative nature of USAL scholarship and the increase in the number of USALs writing three articles in 5 years, it may raise the question of whether it is time to change the benchmark. Keeping this increase in perspective, the percentage of USALs hitting this mark remains relatively small at 12%. Additionally, the overall fluid nature of productivity and the unknown long-term impact of the pandemic suggest caution in making such changes. Further, promotion with tenure requires scholarly leadership, where sole and senior authorship remain important, and success should not be measured solely by metrics.

The study highlights the complex nature of library and information science journals and authorship. However, it also points to potential opportunities for enhancing the collaboration of academic librarians both with and beyond USALs and advancing the impact of research within the field.

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Appendix I

Journals by Abbreviation

Abbreviation	Journal
AA	American Archivist
BBSL	Behavioral & Social Sciences Librarian (ceased 2017)
CC	Collection and Curation
CCQ	Cataloging & Classification Quarterly
CJLIS	Canadian Journal of Information & Library Science
CM	Collection Management
CRL	College & Research Libraries
CUL	College & Undergraduate Libraries
DLP	Digital Library Perspectives (until 2016, OCLC Systems & Services)
EBLIP	Evidence Based Library and Information Practice
GIQ	Government Information Quarterly
HILJ	Health Information and Libraries Journal (until 2012 Health Libraries Review)
IC	Information & Culture (until 2006 Libraries & Culture; then, until 2012, Libraries & the Cultural Record)
ILS	Information and Learning Sciences (until 2017, New Library World)
IPM	Information Processing and Management
IRSQ	Internet Reference Services Quarterly
ISTL	Issues In Science and Technology Librarianship
ITL	Information Technology and Libraries (until 1982, Journal of Library Automation)
JAL	Journal of Academic Librarianship
JAS	Journal of Access Services (added for 2018–2022)
JASIST	Journal of the Association for Information Science and Technology (until 2014, Journal of the American Society for Information Science & Technology)
JELIS	Journal of Education for Library & Information Science
JERL	Journal of Electronic Resources Librarianship (until 2008, The Acquisitions Librarian)
JERML	Journal of Electronic Resources in Medical Libraries
JIL	Journal of Information Literacy (added for 2018–2022)
JIS	Journal of Information Science
JLISDL	Journal of Library and Information Services in Distance Learning
JLM	Journal of Library Metadata (until 2008, Journal of Internet Cataloging)
JLRS	Journal of Library Resource Sharing (until 2020, Journal of Interlibrary Loan, Document Delivery, and Electronic Reserve; 2005–2019, Journal of Interlibrary Loan, Document Delivery & Information Supply)
JMGL	Journal of Map & Geography Libraries
JMLA	Journal of the Medical Library Association (until 2002, Bulletin of the Medical Library Association)
JOLA	Journal of Library Administration

Abbreviation	Journal
JWL	Journal of Web Librarianship
LCATS	Library Collections, Acquisitions, & Technical Services (until 1999, Library Acquisitions: Practice and Theory; ceased/merged with JLRS in 2017)
LHT	Library Hi Tech
LISR	Library & Information Science Research
LM	Library Management
LQ	Library Quarterly
LRTS	Library Resources & Technical Services
LT	Library Trends
MRSQ	Medical Reference Services Quarterly
NMLA	Notes of the Music Library Association
NRAL	New Review of Academic Librarianship
OIR	Online Information Review (until 2000, Online & CD-ROM Review)
PL	Public Libraries
PMM	Performance Measurement and Metrics
PORTAL	portal: Libraries and the Academy
RL	Reference Librarian
RSR	Reference Services Review
RUSQ	Reference and User Services Quarterly (paused 2021–2023)
SL	Serials Librarian
SR	Serials Review
STL	Science & Technology Libraries
TSQ	Technical Services Quarterly

Social Network Analysis of Liaison Librarian Relationships

Ellen Hampton Filgo and Joshua Been*

This study employs social network analysis (SNA) to visualize the relationships between liaison librarians and faculty at a university library. To enhance targeted outreach and support library engagement, this research aims to identify strong and weak departmental ties, liaisons who are central to the network, and strongly connected faculty. Findings reveal that longer-tenured liaisons generally maintain stronger connections, while active participation in campus activities enhances relationship-building. The results underscore the significance of fostering long-term institutional ties and suggest targeted outreach for departments with weaker connections. Future research could broaden the scope by including data from other library staff, exploring undirected networks, and cross-institutional comparisons.

Introduction

During the fall semester of 2022, the librarians of the Baylor Libraries' Research and Engagement (R&E) unit, which includes our liaison program, attended a working retreat. During the retreat, we participated in one exercise specifically because of several new liaison hires. During a break, we set out lists of the faculty in each department across campus. As we got up to stretch and get snacks, we directed all the librarians to take a look at the lists and to mark their initials by any faculty with whom they had a relationship and to write the nature of that relationship: "ordered resources for," "taught a class for," "our kids go to the same school," "served on a campus committee with," "supported them during the summer data fellowship," "we go to the same gym," and so on. We then gave the departmental lists back to each corresponding liaison. The hope was that discovering relationship contacts between the faculty in assigned departments and the librarians in R&E could help our new colleagues find introductions, connections, and ways to focus their outreach. As a bonus, it could possibly help the established liaisons create new connections as well. Being able to visualize the network of relationships that our liaison librarians have across campus is vital to the work that we do every day.

Using social network analysis (SNA)[†] in an academic library setting, this study explores the relationships between liaison librarians and faculty at Baylor University. By mapping these interactions, we aim to uncover patterns that influence collaboration, considering factors like liaison tenure, involvement in university activities, and departmental ties. This analysis aims to

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[†] *In this paper, the social networks being analyzed refer to the networks of social relationships and connections between people, not the platforms or websites that allow people to share content.*

highlight both strengths and areas for improvement within the liaison program, ultimately guiding strategies to enhance library outreach and support across different academic departments.

Relationship-building remains one of the fundamental aspects of liaison librarianship, particularly as the position has changed over the past few decades from a collections-centric to an engagement-centric model (Díaz & Mandernach, 2017; Jaguszewski & Williams, 2013; Kranich et al., 2020; Schlak, 2016). Liaisons build relationships with their constituents, listen to their needs, and provide resources and services accordingly. While it may be more straightforward to assess the results of these relationships—such as counting consultations, instruction sessions, resources ordered, and the like—it is much more challenging to assess liaison engagement itself, particularly the relationship network at the heart of it. Both Bracke (2016) and Corrall (2023) have suggested applying social network theory to the assessment of liaison librarianship, specifically to illuminate the relational activities and connections of liaisons in a wholistic manner. If "the invisible work of relationship building ... is critical to the success of new liaison models," can we visualize the invisible through social network analysis (Bracke, 2016, p. 138)? The purpose of this study is to attempt to do just that: visualize the invisible network of liaison librarian relationships.

Literature Review

According to Borgatti et al. (2018), "networks are a way of thinking about social systems that focus our attention on the relationships among the entities that make up the system" (p. 1). Social Network Analysis (SNA) as a research methodology investigates the "patterns and implications of these relationships" (Wasserman & Faust, 1994, p. 3). One particular aspect of SNA that is of importance to libraries is that the relational ties or links between the actors in a network are "channels for transfer or 'flow' of resources" (Wasserman & Faust, 1994, p. 4). Whether those are physical resources in the form of books or materials or non-physical resources such as information or innovation, the library network can be studied to see how these types of resources can diffuse throughout the network.

Within the last half century, higher education research has increasingly focused on the social networks of academia. Higher education is the site of several networks between faculty, staff, students, administrators, and their interactions with the public, including parents, industry, and the government. Biancani and McFarland (2013) reviewed the higher education research on social networks and found that "research on faculty networks tends to concern knowledge production (authoring) and consumption (citation, co-citation, author co-citation)" (p. 156). However, some higher education SNA research has looked at information flow. Quardokus and Henderson (2015) is a model study that examined academic STEM departments to investigate informal network structures around teaching discussions to plan initiatives that introduce pedagogical change. This study was able to identify network individuals with strong ties that could be targeted by change agents. They also identified "gatekeepers" that connect otherwise disconnected hubs in a network and can either function as information distributors or bottlenecks.

The social networks that exist in library organizations have been studied as a part of business management literature, which has traditionally explored worker satisfaction, communication, performance, collaboration, and innovation (Brass et al., 2004). Research investigating libraries as the location of network analysis has also uncovered patterns of functional organization (Guhde & Keith, 2020), collaboration (Bakkalbasi, 2016), and efficiency (Ujwary-Gil, 2019).

SNA as a methodology was introduced to the field of library and information science (LIS) by Haythornthwaite (1996) as an approach to studying "both the content and the pattern of relationships in order to determine how and what resources flow from one actor to another"

(p. 324), particularly when it comes to information exchange. Hicks et al. (2020) suggested SNA as a theoretical framework and methodology to provide "hard data" (p. 6) about public library connections to their community. Rogers et al. (2022) proposed gathering social network data to assess library spaces and programs, as these are places where connections and relationships are formed. Bracke (2016) described SNA for the assessment of liaison work as "an approach that has unique value in illuminating the roles of librarians within larger social contexts of their institutions and beyond ... to better understand in which campus networks [liaisons] are more central than others, and to understand where their roles played a role in connecting campus stakeholders to each other, to new ideas or to external networks" (p. 139). In a survey of academic liaison librarians, Schlak (2016) was able to elucidate aspects of liaison relational work that can be measured by SNA, namely, reciprocity, strength of relational tie, and network positionality.

Much of the current LIS research on social networks has used bibliometric data to explore research and citation networks, similar to what can be found in the higher education SNA literature. For example, social network methods have determined core LIS journals and highly cited LIS researchers (Al et al., 2012) and have discovered networks of international collaboration (Han et al., 2014). Fewer studies have used data from self-reported relational ties. Two examples come from similar studies that gathered data from professional development networks. Cooke and Hall (2013) surveyed the participants in the DREaM (Developing Research Excellence and Methods) Workshop, a professional development training opportunity for LIS researchers in the United Kingdom. Their analysis looked specifically at the change in research expertise awareness and social or research-related interaction. In the United States, Kennedy et al. (2017) studied a network of novice LIS researchers to explore how participation in The Institute for Research Design in Librarianship (IRDL) would change their professional networks. While no studies have used relational data from liaison librarians and the faculty they interact with on campus, Rinio (2019) investigated networks of secondary school librarians and the teachers they worked with, providing the closest example of a study similar to ours. Rinio was able to see a holistic picture of the collaboration that happened between colleagues, which can be improved upon as the school librarians use the data to build strategic relationships.

Context and Research Questions

Baylor University is a private R1 university enrolling a little over 20,000 students, three-fourths of whom are undergraduates. The Baylor University Libraries' main library includes the Research and Engagement (R&E) unit, which is made up of Public Services, the liaison program, Data and Digital Scholarship (DDS), and the Arts and Special Collections Research Center (A&SCRC). While most liaison librarians are under the liaison program, a few more librarians in DDS, A&SCRC, and the Associate Dean of R&E serve as liaison librarians as well. For our study, we collected and analyzed social network data from all 13 liaison librarians at the Baylor Libraries with the following aims:

1. Creating a visual representation of the relationships between liaison librarians and campus faculty to better understand their interactions and connections.
2. Identifying and categorizing departments based on the strength of their connections to the library, distinguishing between strong and weak ties.
3. Identifying liaison librarians who serve as central network hubs due to their strong ties across various campus departments.
4. Identifying individuals on campus who have extensive connections within the library and could potentially be developed as library "champions" due to their strong connectivity.

Methodology

SNA views social relationships as nodes (the individual actors) and edges (the relationship ties between the actors). Ties can be weak or strong. We want to measure the strength of the relationships, as "tie strength is important in assessing the overall connectedness of actors in an environment and the likelihood that information will flow from one actor to another" (Haythornthwaite, 1996, p. 327). When information is not just one way—from liaison to faculty member, for example about library policies, new library resources, or upcoming library events—but instead also flows from a faculty member to a liaison (e.g., about research interests or upcoming classes) the liaison can be better equipped to provide more tailored information. Rather than just an email sent out to everyone about new resources, it could be an email sent to an individual faculty member with information about a new resource or book or article that made the liaison think of that faculty's research specifically.

To categorize relationship connection strength, the liaisons collaboratively created the scale. We first determined that the normal liaison activities that we participate in during work most likely made up most of the ways we formed ties with the faculty across campus. Therefore, we listed different liaison activities that we determined the liaison librarians do often and gathered input from the liaison librarians for other ideas. We also listed different levels of social media interaction and in-person social interaction, as those can also help build relationships with faculty. With this list of interactions, we invited all the liaison librarians to respond to a Qualtrics survey that allowed them to sort these interactions into a scale from weaker to stronger ties. We then created the final scale by placing each interaction at the level that was the median response from the liaisons; the final scale can be seen in Figure 1.

In the scale, one can observe interactions increase in time, effort and occasion for face-to-face encounters or sustained interactions. For example, an email with a quick question is lower on the scale than substantial research assistance, which might involve multiple emails

FIGURE 1
Liaison Interaction Relationship Scale. This Scale Was Used to Quantify the Relationships Between Liaisons and Faculty.

Liaison Interaction Relationship Scale	
Level 0	No interaction
Level 1	Been introduced to them
	Sent email to them in a group
	Gotten email from: quick question
	Gotten email from: resource request
	Served on campus committee with (committee meets infrequently or does not have much interaction)
	Social media friends/followers
	Interact occasionally with on social media
Level 2	Sent email to them individually
	Taught a class for: one-shot
	Interact with often on social media
	Part of a campus organization or group with them
Level 3	Taught a class for: multiple semesters
	Taught a class for: collaboration on an assignment
	Substantial research assistance
	Consulting with them about systematic reviews
	Helped with tenure notebook stats
	Served on campus committee with (committee meets frequently or works closely on projects together)
	Social aquaintance
Level 4	Embedded in their class
	Collaboration with on research project
	Collaboration with on a systematic review
	Social/friendly outside of work

back and forth or a meeting. Teaching a one-shot instructional session is lower than teaching a class for multiple semesters, which is lower than being embedded into a class.

Using those categories from the collaboratively created scale, we created a second Qualtrics survey that the liaisons then used to rate the faculty in all the departments across campus according to the category of relationship tie. Every liaison librarian rated every faculty member, whether that faculty member was in their liaison department or not. The only faculty excluded from the study were the faculty in the School of Nursing and the Law School, as these two units have their own libraries with librarians who serve those populations and who aren't a part of our formal liaison program. Included in the data collection were the authors of this study: the director of the liaison program and the director of Data and Digital Scholarship. While the latter is not a liaison, he regularly interacts with faculty across campus, often together with a liaison librarian, as he is an integral part of the team of Research and Engagement faculty librarians. The data collected included responses from the 13 liaison librarians who ranked over 2,000 faculty members (all faculty members at the university, including adjuncts) each according to the scale. We began the data collection over a lunch meeting that was scheduled for 90 minutes, and most liaisons finished entering data within that time frame. In hindsight, we should have made each measure default to "No interaction" so that there was less clicking for each librarian to do.

Prepare Qualtrics Export for Analysis in Gephi

Our goal from the outset was to use Gephi, the Open Graph Viz Platform, which is an open-source and cross-platform software application designed to analyze and visualize network data and is commonly cited in social network analysis research (Bastian et al., 2009). As Gephi has very specific formatting requirements to import spreadsheet data, we used Microsoft's Power Query Editor (PQE) to transform the output spreadsheet from the Qualtrics survey. For this research, we created a comma-delimited table containing information about each liaison and each faculty member to represent the nodes in the network. This table includes columns for each faculty member's name and a randomized number representing each liaison. Additionally, each liaison's length of service at Baylor University was coded as 0–5 years, 6–10 years, 11–15 years, and over 15 years, based on a response to a question in the Qualtrics survey. Each faculty member's school, department, and title were also included. We also created a second comma-delimited table with the liaison's ranking of each faculty member to represent the relationship ties, or network edges. The PQE was used to unpivot the Qualtrics spreadsheet, restructuring the table (from wide to long) to meet Gephi's requirements. This edges table contains only three columns: source (representing each liaison), target (representing each faculty member), and weight (representing the assigned rank).

SNA Analysis Using Gephi

Given the four research aims we chose (above), we needed to make four key decisions while analyzing the network: network type, network layout, centrality measures for each faculty member, and centrality measures for each liaison. We constructed a *directed network* in Gephi, representing a one-way relationship where we captured the strength of ties from 13 liaisons directed toward 2,037 faculty members. This configuration resulted in a network comprising 2,050 nodes and 26,481 edges (network visuals below). The strength of the ties in this directed network were derived from a single scale, which indicates a uniform and

consistent edge type across the entire network. Furthermore, this directed network is fully connected, as every possible edge (connection) that could exist from liaison to faculty member does exist.

When visualizing social networks, there are various algorithms that can be employed to organize the placement of nodes in the visual representation. For this research, we implemented the ForceAtlas2 algorithm for our layout (Jacomy et al., 2014). In this algorithm, nodes repel each other while edges (connections between nodes) act as attractive forces. ForceAtlas2 is ideal for this project for four reasons. First, it works very well with directed networks, where the directionality of relationships or ties is significant. Second, it is very effective in handling large networks, making it suitable for our dataset of 2,050 nodes and 26,481 edges. Third, it is widely used in academic research, providing us with confidence in its suitability for our analysis. Fourth, this algorithm produces visually appealing layouts to clearly communicate relationships across the network (Zhansultan et al., 2021). Using ForceAtlas2, faculty who are visually closer together scored similarly across the liaison tie rankings. This makes it convenient to identify patterns and trends. That network visualization revealed interesting patterns, but we also applied the Noverlap layout function, which stops the nodes from overlapping, to see patterns in the center of the visualization.

The centrality measure for each faculty member indicates their importance or centrality within the overall network. Faculty with the highest mean central scores are most likely to have the strongest connectivity. We focused on *eigenvector centrality* as it is most suitable given the directed nature of our network and its fully connectedness. Eigenvector centrality measures each node's (faculty member's) influence in the network based on the quality (strength) and quantity of connections (ties) (Bonacich, 1987). Other centrality measures, such as betweenness, closeness, and eccentricity, are more suited to undirected networks or less complete networks as they emphasize the distance (number of nodes) between nodes.

As the liaison librarians were not scored by each other nor by the faculty, the strength of liaison ties cannot be calculated using eigenvector centrality. Instead, to measure the strength of liaison ties, we used the *weighted outdegree* measure for each liaison. The weighted outdegree was calculated for each liaison, combining the quantity of non-zero ties (ties with a score of at least 1) and the strength of each tie. Liaisons with higher weighted outdegree values have more numerous and/or stronger connections to faculty members and are likely to have stronger ties across campus as they are actively engaged with a larger number of faculty members who have been ranked highly.

Visualizing Gephi Measures

Once we completed using Gephi to calculate centrality measures for the liaisons and faculty members, as well as create various visualizations of the social network, we exported the eigenvector centrality score for each faculty member and the weighted outdegree score for each liaison as comma-delimited tables. Using Microsoft Excel, we created the following pivot bar charts to help answer both of our remaining research questions, as well as questions that arose in the analysis: 1) mean eigenvector by academic department, 2) mean eigenvector by school, 3) mean eigenvector by faculty title, 4) mean eigenvector by the number of liaisons who currently or previously served as liaison to the faculty member's department, 5) mean eigenvector for individual faculty, and 6) mean weighted outdegree for each liaison, by length of service.

Discussion

Relationship Network Between Liaisons and Faculty

Figure 2 shows the network where each color represents faculty from a school or college. Liaison librarians can be found at the center of multiple connection points. This visualization clearly shows that there are a few colleges that have a lot of unconnected faculty, including the Business School, the School of Education, the School of Social Work, the College of Health and Human Sciences, and a few departments in the College of Arts and Sciences. In the network visualization in Figure 3, the Honors College, the Provost's Office, and the School of Music are closer to the center and therefore more closely connected.

Departments with Strong Ties and Weak Ties

In examining the network visualizations (see Figures 2 and 3) and the ranked list of departments by their average eigenvector centrality measure (see Figure 4), we began to see some patterns. We noticed that the College of Health and Human Sciences both disconnected from the network and that several departments from that college were at the bottom of the list. Sheble at al. (2016) has suggested that within a network a lack of ties might mean a lack of support. We hope to identify which departments have looser ties to the library as well as probe why those ties are weaker. In doing so, we can identify what kind of engagement and

FIGURE 2

Network of Relationships Between Liaisons and Faculty, in Which Each Color Represents Faculty from a School or College, as Shown in the Legend. This Visualization Demonstrates that Faculty Along the Outside of the Network Primarily have Strong Relationships with Their Assigned Liaisons, While Those Faculty in the Center of the Network have Ties to Multiple Liaisons.

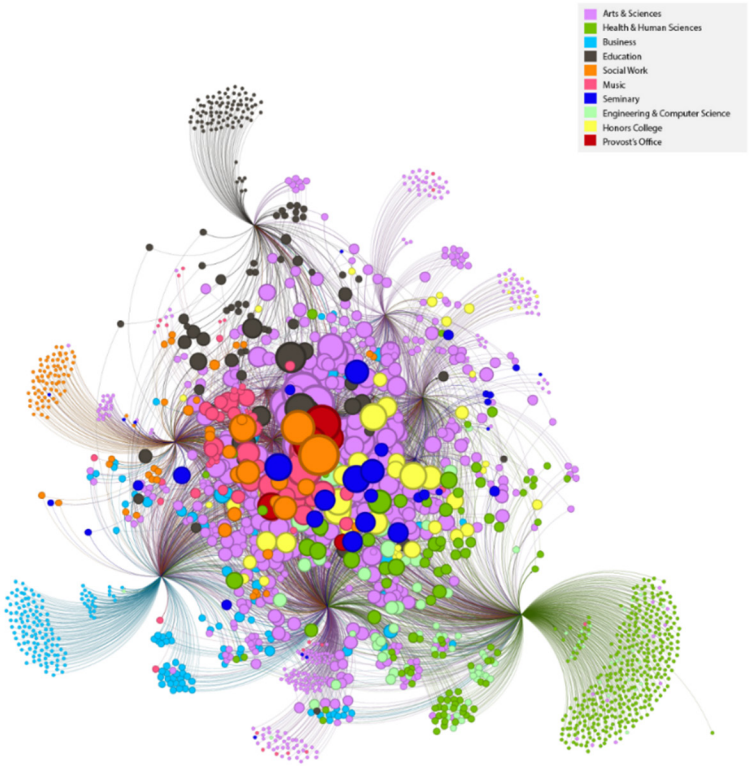
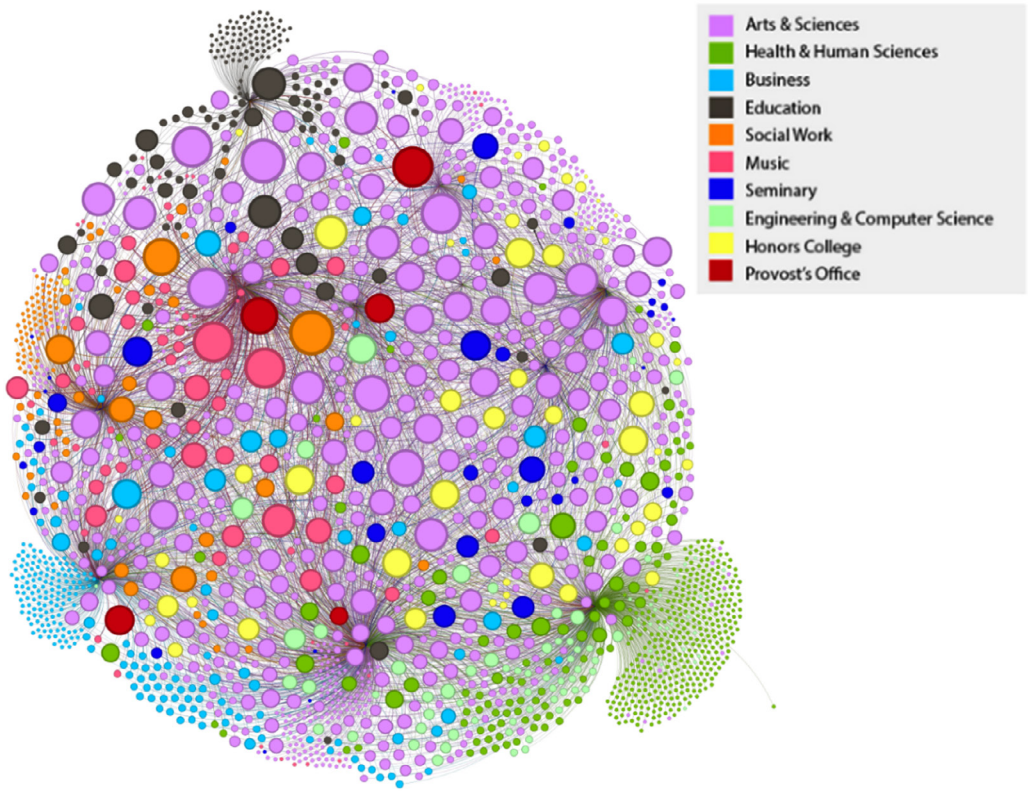


FIGURE 3

The Noverlap Layout Function in Gephi Restricts Nodes from Overlapping. This Allows Us to See the Patterns in the Center of the Visualization, Specifically that Faculty in the Honors College, Provost's Office, and School of Music are More Closely Connected to Multiple Liaisons.

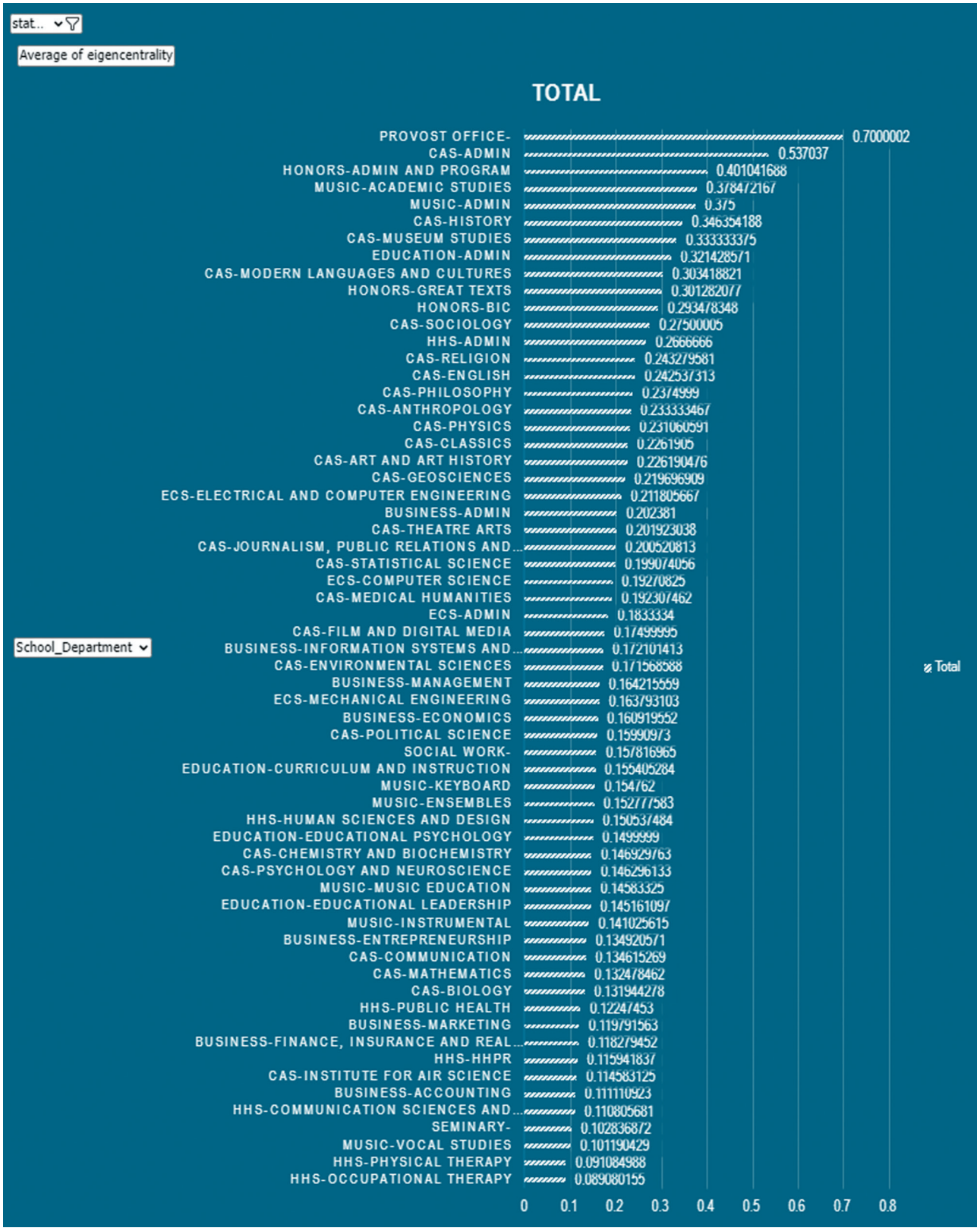


outreach efforts might need to take place. For example, the two departments that rank the lowest are physical therapy (eigenvector score of 0.091) and occupational therapy (eigenvector score of 0.089), from the College of Health and Human Sciences. These departments are two of the newest departments on campus, serving completely online programs and whose faculty work remotely and include 75% to 80% adjuncts. It is expected that the faculty from these departments are less connected to the liaison librarians, as the liaisons cannot stop by their offices, bump into them on campus, or engage in other impromptu or informal activities that support relationship-building (Filgo & Towers, 2020). However, the knowledge that these departments are not as connected to the library can help us plan targeted outreach specific to remote faculty (Bonella et al., 2017; Hines, 2006).

On the other hand, in investigating which departments have the strongest ties across the library, we discovered that many administrative personnel from schools and colleges and the provost's office floated to the top. Because many of our liaisons cultivate relationships with the decision makers across campus, this was not a surprising finding. The provost's office had the strongest average on campus (eigenvector score of 0.700), which bodes well for library priorities on campus. This can also be seen in action on the ground, as the library has a record of partnering with and supporting provost initiatives, such as providing training in digital humanities methods, highlighting diverse faculty research, and hosting a faculty author lecture series.

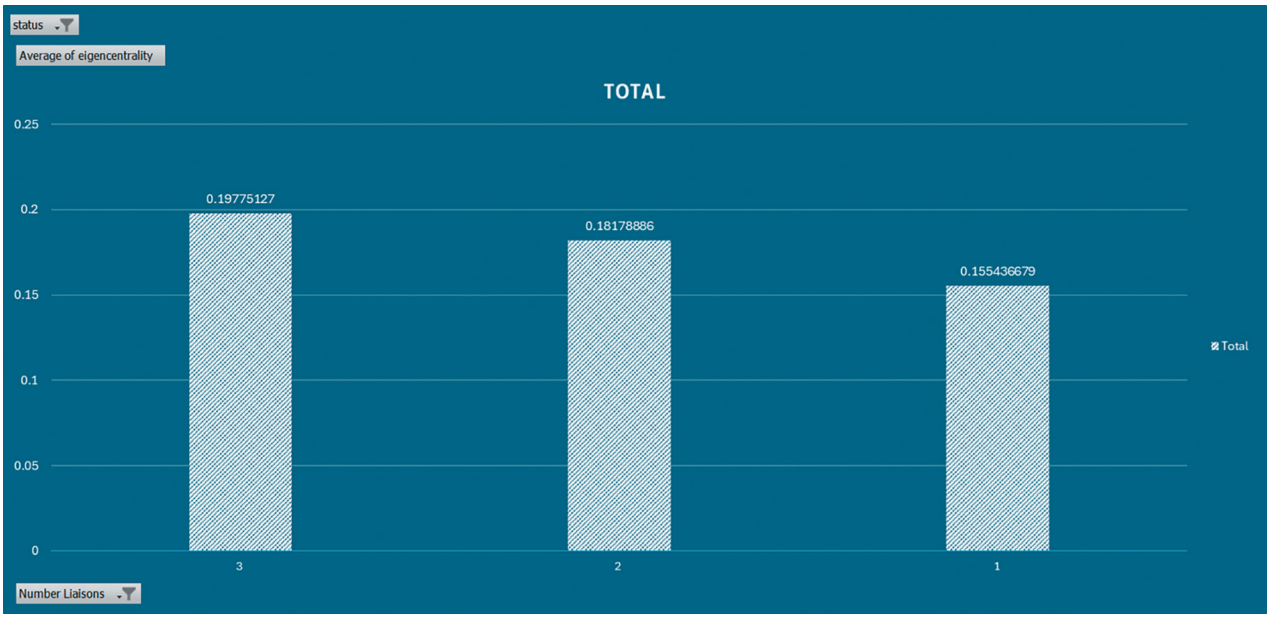
FIGURE 4

Departments Ranked by Average Eigenvector Centrality Score, a Measure of a Node's Influence in a Network Based on the Strength and Quantity of its Connections. Departments with Higher Scores have Stronger Ties to the Library.



The academic department with the strongest ties was academic studies from the School of Music (eigenvector score of 0.537), which is the department that offers the music survey, history of music, and research methods classes. In wondering why it specifically topped the list of academic departments—over English, history, modern languages, and the other (mostly humanities and social science) departments that were in the top 20—we realized that three of the liaisons who entered data had previously been, or currently were, the liaison to the School of Music during their time working at the library. Would that account for the stronger tie? To explore this question further, we coded each department with the number of current liaisons who are or have been liaisons to each department. Due to restructuring of liaison roles or librarians serving as an interim in between hires, many departments that have had more than one liaison. We found a direct link between the strength of tie to the library and the number of liaisons who are currently, or have been previously, connected to a department (see Figure 5).

FIGURE 5
Average Eigenvector Centrality of Departments by the Number of Liaisons. Departments with Three Liaisons Have the Highest Average Eigenvector Centrality.

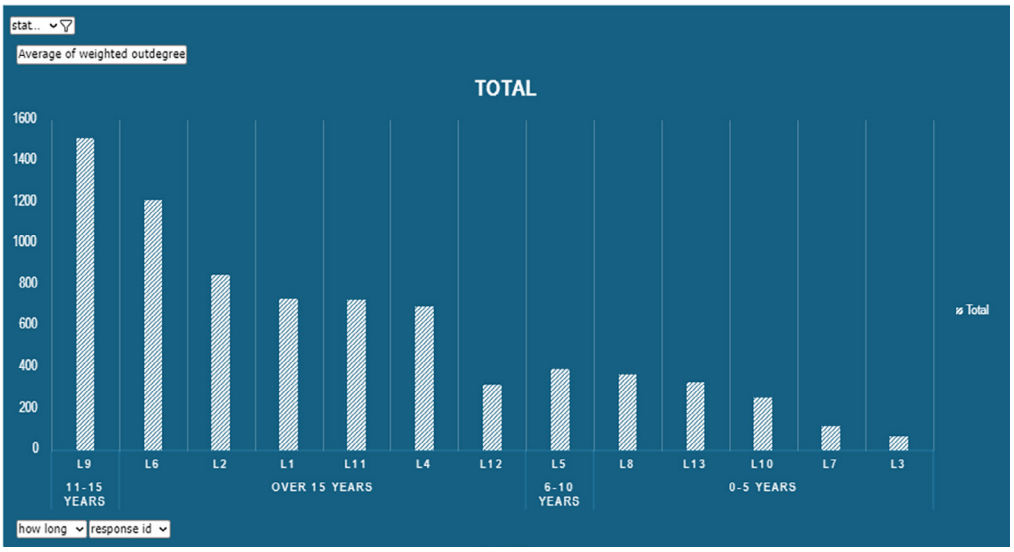


Our analysis shows that finding ways for multiple liaisons to connect to a department can strengthen their overall network connection. It also shows that our liaisons can maintain relationships even when their liaison assignments may change. Connecting more liaisons to a department could be done through rotating liaison assignments, creating team-based liaison models (Andrade & Zaghloul, 2010; Banfield & Petropoulos, 2017) and team interdisciplinary research support. If there are multiple points of connection, the overall network of relationships will not suffer as much in the loss of one node. Indeed, the literature on liaison librarian turnover argues for similar measures, that is, team liaison models, rotations, and multiple points of contact supported by knowledge sharing (Kalinowski, 2022). This analysis also underlines that collaboration between liaisons, rather than territoriality, creates a stronger network.

Liaisons with Strong Ties

The only demographic information we collected from the liaisons was the length of time they have been at the Baylor Libraries, as our hunch was that a longer term would mean stronger connections across the university. Our hunch was correct, but with a notable exception. In Figure 6, one can see that, for the most part, the average weighted outdegree tends to fall off by the number of years each liaison librarian has been at the library. While we have six liaisons who have been at the library for over 15 years, liaison L9, who has been at the library between 11 and 15 years, has the highest average weighted outdegree measure. To help explain this, we noted that L9 has two roles on campus committees that help to provide connection widely across campus, one as a member of the committee on committees and one as the chair of the Faculty of Color Alliance. In each of these roles, L9 emails faculty regularly to discuss committee assignments and invitations to meetings. We also looked at liaison L6, the second-highest ranked liaison. L6 has been at the library for over 15 years but in the liaison role only for about 5 years. However, in a previous role L6 served as the interlibrary loan librarian, again a position that provided connections broadly across campus, emailing faculty to help them connect with the resources they needed. While the surface takeaway might be for liaisons to start emailing faculty, a better one may be for liaisons to find places on campus—such as affinity groups, committees, task forces, and even informal settings like pickup basketball groups or musical ensembles—in which they can build relationships and strengthen their networks (Filgo & Towers, 2020; Kinnie, 2002).

FIGURE 6
Average Weighted Outdegree, from Highest to Lowest, for all Liaisons. L9 has the Highest Average Weighted Outdegree, While L3 has the Lowest.



We also discovered where liaisons worked together within the network. In Gephi, we performed the "modularity" calculation, which measures how a network breaks down into communities (Blondel et al., 2008). We found that our large network had eight distinct communities, five of which were centered around individual liaisons and (mostly) the faculty in their assigned departments (see Figure 7); however, there were several communities that had

more than one liaison at the center. One community consisted of three liaisons who work with music and fine arts departments and who make up the group of liaisons who have been at one time the liaison to the School of Music (see Figure 8). Another community was humanities-focused and contained a new liaison and the liaison who had spent considerable time as either the assigned liaison or the interim liaison to the departments currently assigned to the new liaison (see Figure 9).

Individual Faculty with Strong Ties

In the list of the top 50 faculty with the strongest average eigenvector centrality measure (which we are not sharing for privacy reasons), we found four faculty related to current or former librarians, three faculty who are a part of university units that work very closely with the library (for example, the Academy for Teaching and Learning, which is housed in the library), and 17 faculty who have been a "Fundamentals of Data Research" library summer fellow. These faculty meet every week over the summer with the director of data and digital scholarship (one of the authors of this paper) and their liaison librarian to support a digital humanities research project. As Kessenides and Brenes (2022) have pointed out, the network is strengthened when subject specialists with relational capital collaborate with functional specialists; our data support this.

When we had investigated the liaison librarians' connections, we looked at length of time and whether that affected the strength of the connections. We did not have the data on the

FIGURE 7
Community Centered Around One Liaison, with a Strong Connection to Their Assigned Departments. This Visualization Represents the Strong Ties Between Liaisons and Faculty in Their Assigned Departments, While also Highlighting the Connections Built Through Other Campus and Social Activities.

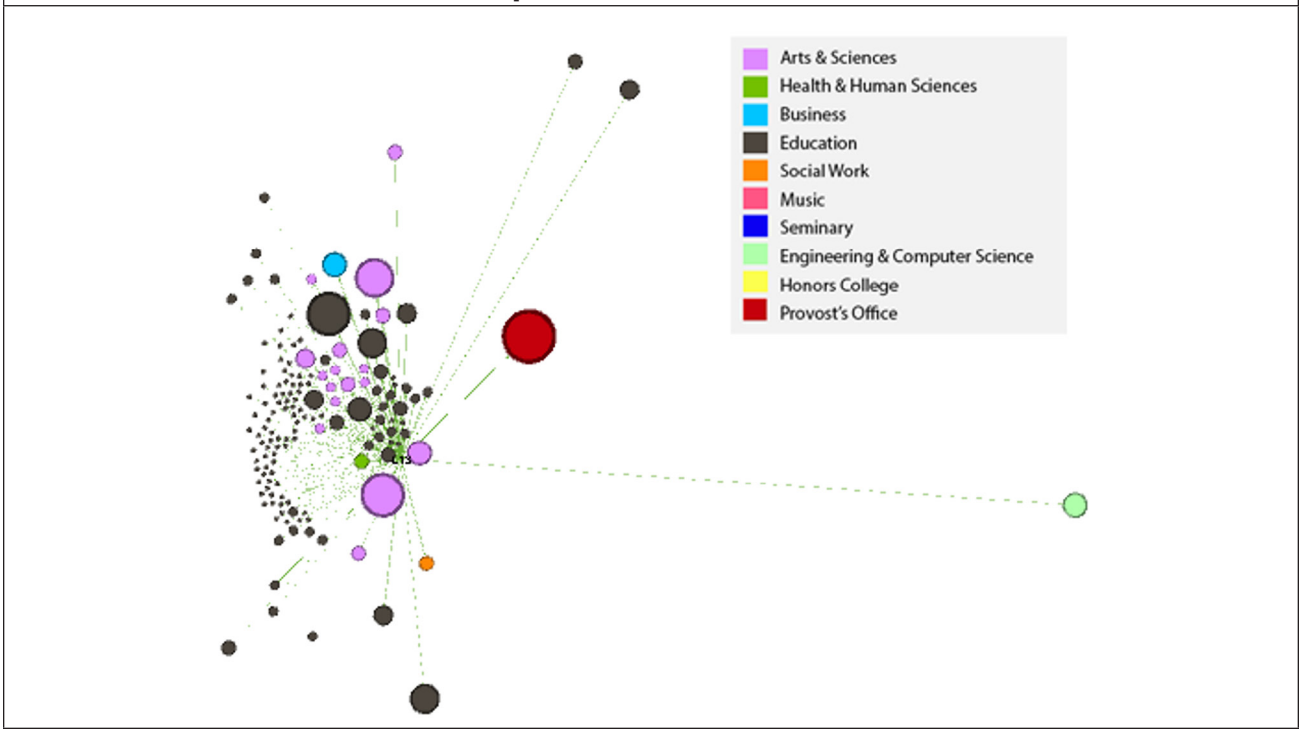
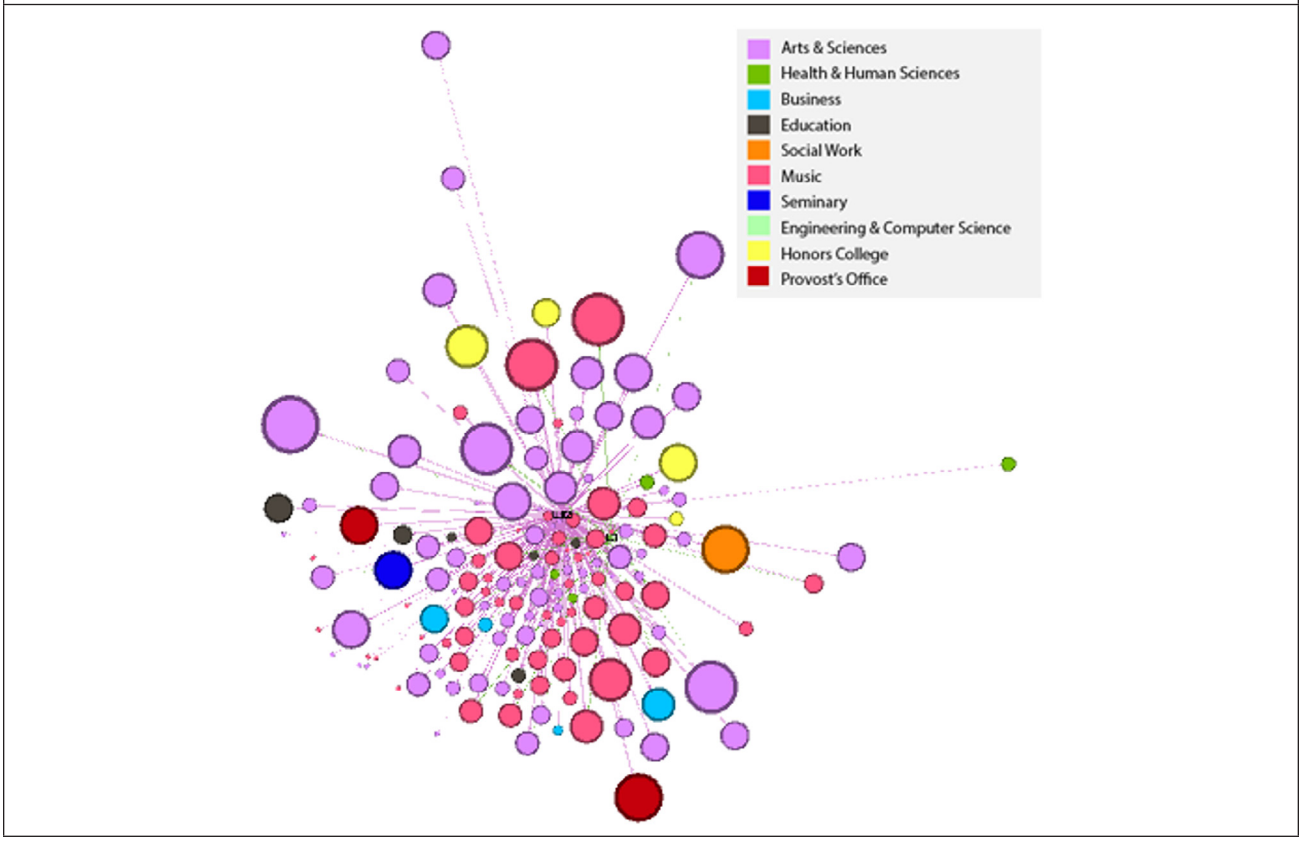


FIGURE 8
Community Centered Around Three Liaisons with a Strong Connection to the School of Music, as Shown by the Nodes in the Center of the Visualization. This Visualization Represents the Strong Ties Between Liaisons and Faculty in the School of Music, Built Over Time as Each of the Three Liaisons has Served as the Liaison to the School of Music



length of time each faculty member had been at the university; however, we did have the titles for each faculty member, which, we realized, could serve as a stand-in for length of time. The vast majority of faculty spend 6 to 7 years as an assistant professor before getting tenure and promotion to associate professor and about that much time again before promotion to full professor. The university has a similar path from lecturer to senior lecturer as well. Also, barring outside hires, chairs and deans usually have been at the university for a longer amount of time. When we analyzed the data from the faculty titles, we discovered that a higher title/longer term at the university was linked to a stronger connection, similar to the liaison data (see Figure 10).

Limitations and Future Research

Our social network analysis only used data from the liaison librarians. However, we might also want to use data from the rest of the librarians and archivists, particularly those who also interact often with the faculty. Our liaisons often work in collaboration with the Special Collections librarians, similarly to how they work with the Data and Digital Scholarship unit. Therefore, getting data from the Special Collections librarians who do work similar to the liaisons, such as teaching classes and providing research support, would provide a fuller picture of how the faculty are connected to the library.

FIGURE 9

Community of Two Liaisons with Strong Inter-Related Ties to Faculty in the Humanities Departments in the College of Arts & Sciences.

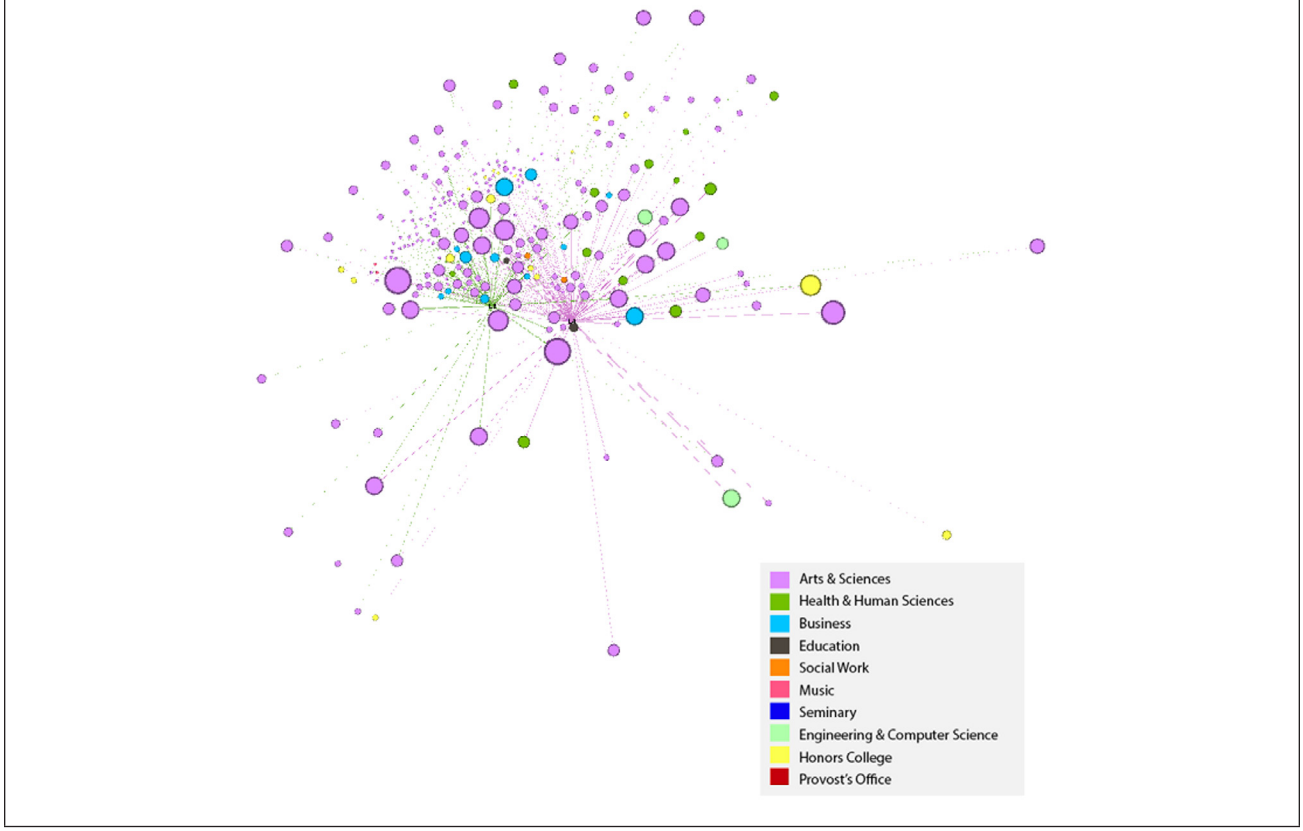
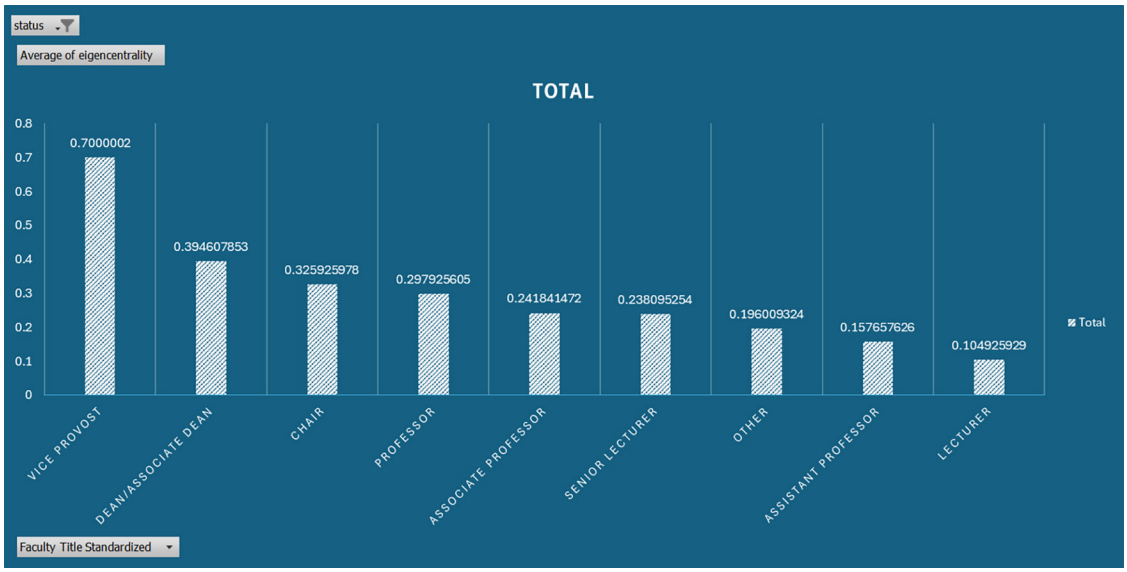


FIGURE 10

Average Eigenvector Centrality Score, from Highest to Lowest, for All Faculty Titles. This Visualization Demonstrates that Eigenvector Centrality Scores Generally Decrease as Faculty Rank Decreases, with Vice Provosts and Associate Deans Having the Highest Scores and Lecturers Having the Lowest.



Our network was also directed, which means the relationship strength was only measured one way. To gain a more comprehensive understanding of the network between liaisons and departmental faculty, we would need to include the faculty's measurements of the relationships as well. Further studies could be done with an undirected network approach, either of one liaison and their constituents in their liaison areas or of a liaison program and an entire campus. Collecting the data on the former scenario would be a little less complicated and could provide the "assessment of emerging models of liaison librarianship" suggested by Bracke (2016, p. 139).

Future social network explorations of liaison librarian relationships can uncover a variety of dynamics within academic libraries and their broader institutional environments. SNA can map how information flows between librarians, faculty and students, identifying central nodes and potential bottlenecks. SNA can also be used to investigate whether librarians help or hinder cross-disciplinary collaborations among departments. In addition, SNA can be used to determine whether liaison librarians are aligned with institutional priorities; are their networks connected to key researchers or decision-makers? Comparative studies could also be illuminating, such as comparing networks across institutions to highlight differences in network structures or communication patterns or contrasting the networks of liaison librarians who exhibit collaborative behaviors with those who are more territorial. A longitudinal study could observe network changes in response to technological change or institutional priorities.

Conclusion

Our study has visualized the network of relationships between liaison librarians and the faculty they serve. The network we uncovered shows that the length of time either a liaison or a faculty member spends at an institution reflects a greater connectivity of relationships. It also shows that departments or individuals with ties to more than one liaison are more strongly and centrally connected. Another significant finding is that liaisons who participate in campus activities outside of their direct liaison work create relationships that strengthen their connectivity across the network. These findings suggest that fostering long-term institutional ties and encouraging broader campus involvement can enhance the effectiveness of liaison programs. Understanding these dynamics is crucial for optimizing liaison librarian roles and fostering stronger academic communities.

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The authors extend their gratitude to Amy, Beth, Bethany, Carol, Christina, Ezra, Ken, Laura, Millicent, Sha, and Sinai—the liaison librarians at the Baylor University Libraries. Their diligent efforts in data collection were essential to the creation of this paper.

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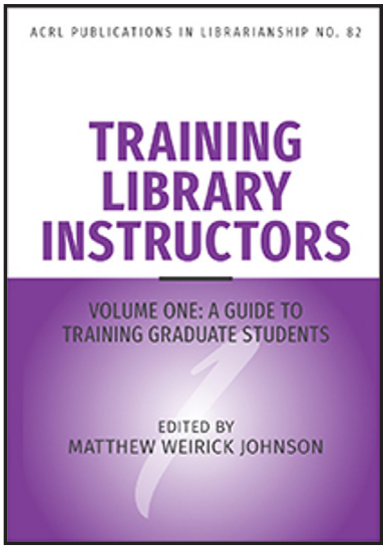
Training Library Instructors, Vol. 1: A Guide to Training Graduate Students, Matthew Weirick Johnson (ed.), Association of College and Research Libraries, 2024. 196pp. Paperback, $60.00 (979-8-89255-603-3)

Training Library Instructors, Vol. 2: A Guide to Training Librarians, Matthew Weirick Johnson (ed.), Association of College and Research Libraries, 2024. 226pp. Paperback, $60.00 (979-8-89255-601-9)

Training Library Instructors, edited by Matthew Weirick Johnson, is a two-part series of books that present a current view of instructional teaching in librarianship. *A Guide to Training Graduate Students* (volume 1) and *A Guide to Training Librarians* (volume 2) give insightful perspectives on the different ways that instruction is relevant to librarianship. This set is an informative manual for those who are looking to further their understanding of teaching instruction for early career and emerging librarians.

Volume 1:



Training Library Instructors Volume One: A Guide to Training Graduate Students provides in-depth insights into the current state of instruction in the field with 14 chapters, from a variety of contributing authors, presenting their expertise in different aspects of teaching instruction. The volume is divided into sections that cover the current curriculum in library and information science graduate programs, examples of curriculum in practice from different perspectives, and evaluations of library and information science teaching pedagogy.

The first section of the book is devoted to discussions about instructional curriculum in library and information science programs. Teaching graduate students to become librarian instructors is an ongoing challenge for the library and information science field (3). Due to limited course offerings and elective schedules, students may have limited opportunities to take library instruction classes during their studies (16). Furthermore, individual courses leave students with partial knowledge since they often lack occasions for graduate students to put theory into practice (17–18). Authors draw the focus on the lack of internships or student teaching opportunities due to limited openings, the competitiveness of placements, and the small window of time when such practice is available. Graduate students may be forced to wait for internships, often planning course study to coincide with practicums or continuing without applied practice in a classroom. This is something that all who teach future library and information science professionals might take into consideration when structuring graduate-level courses.

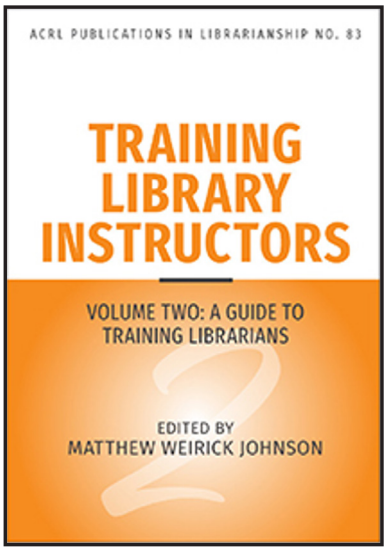
Contributions in the second segment of the book share first-hand experiences with matters related to teaching instruction to graduate students. This section focuses on the perspectives of librarian instructors leading courses on teaching, and on graduate students learning about instruction. The discussions within each chapter provide examples of successful teaching methodologies and practices. Examples are specific and detailed, making this section critical

reading for anyone looking to enrich their own experience leading graduate studies on instruction. Case studies covered in this segment of the book address different aspects of teaching graduate students about instruction. The examples are relevant to the landscape of library and information science programs, making section two an excellent starting point for anyone striving to learn more about successful examples of teaching instruction. Current LIS graduate students may even find inspiration to learn more about teaching pedagogies by reading these chapters. Opportunities to learn about instruction should be an inherent part of library and information science programs, and authors point out where these opportunities already exist.

The third section is dedicated to the reflections of those who received educational training to become librarian instructors while still graduate students. These chapters expand upon the experiences of LIS graduate students who learned about teaching pedagogy and practice during their graduate studies. The reflections provide insight into instructional learning that takes place within library and information science graduate programs, in addition to the next step of going into the field as early career professionals. Contributors share experiences about instruction that propelled them into becoming library professionals who practice instruction. Authors point out that they accumulated enough familiarity with instructional theory and practice while being graduate students, so they could approach working as new informational professionals with confidence. The positive effect of beginning a career as an information professional while already holding foundational knowledge about instruction highlights the importance of graduate students receiving opportunities to be involved in instruction during their studies.

The final part of volume one offers a slightly different perspective and features reflections from those who received instructional education outside of the library and information science field. Previous teaching experience has been found to expedite understanding of matters related to teaching instruction (150). Nevertheless, the overall message of the volume supports the idea that a well-structured internship or teaching opportunity offered through a course can also accomplish this same outcome. Authors in these reflective chapters draw from general teaching instruction and reapply their knowledge to their work in libraries. This indicates that graduate students can look toward resources outside of library and information science schools for additional learning opportunities about teaching instruction.

Volume one emphasizes the importance of teaching emerging information professionals about library instruction. The book's contributors offer compelling discussions that stress the importance of graduate students having opportunities to choose to learn about library instruction during their studies or early in their careers. Whether a graduate student intends to become an instructional librarian, the information in this book is inspiring and motivational; it invites the reader to consider instructional knowledge as a positive influence on other aspects of librarianship.



Volume 2:

Training Library Instructors Volume Two: A Guide to Training Librarians focuses on teaching instruction for those who are already working in the field as librarians. It has 14 chapters from authors who all hold various levels of teaching experience. The scope of the training covered in this volume ranges from teaching librarians who are completely new to instruction to librarians who have years of experience in the classroom. The book emphasizes

that learning about teaching instruction can benefit all who are in the field. Teaching instruction has broader-reaching implications that can benefit librarians in their jobs.

This volume begins with discussions about instructional learning for those who are already librarians. Continuing from the first volume, this fifth segment concentrates on developing programs for experienced librarians to learn about teaching instruction. In a case study presented in Chapter 15 by Caplan et al., a consortium of institutions sponsored learning opportunities for teaching instruction. Combining resources and sharing responsibilities can give more librarians the ability to participate in instructional learning (185–186, 201). When an institution sponsors or creates a program for instructional learning, the course can cover issues that learners and class leaders have encountered while on the job. These chapters make clear that libraries utilizing resources that are already available can create greater success in the classroom. Case studies provide support for the effective implementation of instructional training in library institutions. These chapters function as a guide to help libraries develop training opportunities within their own institutions.

Part five closes with a chapter from Wong and Saunders that discusses communities of practice where all participants share their expertise and experience versus the traditional teacher-led class, which can reinforce authority roles and create barriers to learning (220). Chapter 17 gives examples of success from the perspective "collective learning," ensuring that library training is through the discussion among colleagues as a collaboration and not a lecture (221). Overall, this section suggests that thoughtful consideration for one's own teaching practices during the development of a lesson plan can create richer learning environments.

Part six examines the benefits of training early career librarians. The authors of Chapter 18 highlight the importance of mentorship and peer observation, serving as a reminder that every librarian will have varying levels of experience with teaching instruction (238). Taking this into consideration may lead to specialized instruction geared toward the learner versus generic sessions that are not meaningful. This section is especially helpful for those who are interested in developing workshops or classes for librarians. Instructors with more experience might consider these chapters as inspiration for mentoring or supporting colleagues who are new to the field of librarianship and the classroom.

Part seven expands upon ideas introduced earlier in the book. Included articles bridge insights from the first volume regarding the varied ways that those in the field may acquire their library instruction knowledge. It is clear that instructional training for new and experienced librarians should be tailored to make it engaging and useful. Chapter 22 emphasizes that the competency of the instructor influences the quality of instruction as well as the success of the class. Instructors without a firm pedagogical foundation, as well as practical experience, may not be able to guide students (309). Authors also found that logical curriculum design was imperative to eliminate student confusion and increase successful program completion (315). The findings from this example highlight the importance of making sure that those who are new to library instruction feel confident enough to participate in training activities that are new to them. Confidence in one's own ability to learn about instruction is a critical element for putting instruction into practice once in a teaching environment.

The eighth and final section of the book offer reflections and lessons learned from library instructors. The experiences discussed provide rich insights into personal teaching experiences. Those who are new to library instruction can gain knowledge from others who may

be considering a career in library instruction. Experienced practitioners could interpret this section of the book as a means of understanding learning trajectories from the reflections. Westerdahl considers the notion that all aspects of librarianship are impacted and shaped by a librarian's own knowledge of instructional teaching (337, 340). Whether a librarian is delivering instruction in a traditional classroom, giving a presentation at a conference, or providing training to colleagues, a foundational understanding of instructional teaching can be beneficial for fostering successful learning environments. Knowledge of instruction is unarguably an integral part of being an information professional.

The second volume in the *Teaching Library Instructors* series offers valuable information to the instructional practitioner. For those who already have instructional experience, this book is a refresher, offering current knowledge and discussions about instructional scholarship. The contents of the book could be thought of as a free-form guide to working with new librarians who are learners of library instruction. The information here covers enough different aspects of instructional learning and teaching that a reader will certainly find something new and significant. The perspectives in the book are worthwhile and relevant reading for anyone who is looking to broaden their knowledge of instruction. The contributions offer guidance and ideas for those who are looking to create or improve instructional training opportunities.

The overarching takeaway from *Training Library Instructors Volume One: A Guide to Training Graduate Students* and *Volume Two: A Guide to Training Librarians* is that instructional librarianship is most effective when the practitioner has a background in pedagogy and can combine theory with practice. Confidence in teaching abilities, along with the willingness to learn about instruction, can lead to an effective learning environment where student success is the priority. Regardless of the level of instructional experience, reading these books is a step toward building one's own instructional capabilities, and the two volumes are useful to library professionals and library learners alike. —*Jordan Claire, Arizona State University*

Serving Hispanic, Latine, and Latinx Students in Academic Libraries. Isabel Soto-Luna and Sommer Browning (eds.), Litwin Books, 2023. 304pp. Paperback, $60.00 (978-1-63400-137-3)

Serving Hispanic, Latine, and Latinx Students in Academic Libraries addresses a persistent gap in library and information science (LIS) literature: the lack of sustained, practical attention to the experiences and needs of Latine students in academic libraries. While case studies and institutional initiatives exist, this edited volume offers a practice-oriented collection of strategies across multiple areas of librarianship. It is a timely and valuable contribution to a field that is grappling with issues of equity, representation, and cultural responsiveness.

The book is organized into four areas: Foundations; Decolonizing Information Literacy; Establishing and Growing Representative Collections; and Archives, Research, and Heritage. Many chapters begin with a positionality statement in which authors reflect on their personal and professional identities. These reflections increase transparency and credibility while modeling reflective practice for

readers. Rather than treating identity as incidental, the authors emphasize it as central to how library work is understood and delivered.

While the volume does not directly address frameworks such as Critical Race Theory (CRT) or Community Cultural Wealth (CCW), many chapters draw on these traditions. For example, several authors highlight asset-based engagement, an approach rooted in CCW that recognizes the knowledge, language, and cultural capital students bring to campus. Others challenge the myth of cultural neutrality in library services, aligning with CRT's critique of "colorblind" institutions that often conceal exclusion behind the guise of neutrality. These theoretical touchpoints ground the first section, which situates the work within its historical and sociocultural context.

In the opening chapter, Soto-Luna underscores that while the designation of Hispanic-Serving Institution (HSI) can provide significant benefits when used as intended—to expand services, education, and opportunities for Hispanic students—many institutions stop at the designation itself. The author notes that campuses that fail to implement meaningful systems of support are described by some as "Hispanic Enrolling" rather than truly Hispanic-Serving, highlighting the gap between the designation and meaningful institutional transformation.

Fullmer and Fiedler turn attention to the profession itself, emphasizing the responsibility of librarians to act now. They acknowledge that student demographics are beyond librarians' control, but stress that "they do, however, have the opportunity and responsibility to respectfully learn about, actively invite, and continually welcome and celebrate their Latinx students" (p 46). Their reminder of accountability is especially significant given that demographic shifts in the profession will take decades. With Latinx librarians still underrepresented, the profession cannot afford to wait for demographics to change before taking action. Contributors highlight how DEI initiatives often disproportionately fall on the few who are present and who must carry an outsized share of DEI responsibilities. They argue that institutional change—not individual resilience—is needed to address these inequities. This framing resonated strongly, as my personal research documents similar patterns of underrepresentation of librarians of color in academic libraries. By casting representation as both an opportunity and a burden, the chapter makes a compelling case for structural rather than personal responsibility.

Having established these foundations, the book then turns to applied strategies in the sections on instruction, outreach, collections, and archives, demonstrating the potential to enact systemic commitments in practice effectively. Specifically, the section on decolonizing information literacy provides practical strategies for inclusive teaching, including bilingual resources, culturally relevant examples, and support for first-generation students. These chapters are beneficial for instruction librarians seeking to translate equity commitments into pedagogy. Similarly, chapters on outreach offer models for trust-building and relational engagement, particularly through campus partnerships and student-centered events. A consistent message emerges; librarians cannot assume that students understand what librarians do or how library services can support them. Making services visible is itself a part of building trust, especially for first-generation students. Just as outreach requires intentional relationship-building, collection development emerges here as another form of community engagement.

Community engagement in light of collection development sees contributors describing efforts to build collections that reflect Spanish-speaking populations, Latin American diasporas, and intersectional Latinx identities. Others criticize the structural limitations of cataloging systems, such as the Library of Congress Subject Headings, which often erase or

misrepresent marginalized identities. Equally significant are efforts to incorporate student input into cataloging and metadata decisions, offering replicable models for inclusive practice. This participatory approach carries through into the section on archives and special collections, which stands out for its depth and innovation.

Authors describe student-led oral histories, community-centered exhibitions, and zine-making projects that document and preserve Latine histories. These initiatives position students as co-creators, not as mere users, disrupting traditional hierarchies of archival authority. Particularly compelling is the chapter by Enriquez, Prieto, Starry, Hoff, and Boehlert, which pairs an oral history collection with a systematic and ongoing assessment of student learning outcomes and community impact.

As with many edited collections, there is some variation in scope and depth. Some chapters include detailed case studies and assessment data, while others remain more descriptive or experiential in nature. The geographic focus tends to favor institutions in the Western United States, which may limit the applicability of some models elsewhere. Additionally, readers seeking more sustained theoretical framing may find the implicit references to CRT, CCW, or LatCrit insufficient. Still, the collection's practical orientation and wide range of perspectives outweigh these limitations. The book succeeds in providing concrete models that libraries of different sizes and contexts can adapt.

The book's practical orientation ensures its applicability across multiple settings. It will be particularly valuable for academic libraries at HSIs, emerging HSIs, and institutions experiencing demographic shifts. It is also highly relevant to MLIS programs and instructors who aim to prepare students for equity-centered practice by incorporating tenets into instruction, outreach, cataloging/metadata, or multicultural librarianship coursework. Outside the classroom, the book would serve well in professional development collections, DEI working groups, or internal training programs dedicated to culturally sustaining library services.

In a professional environment where DEI efforts are increasingly scrutinized, contested, or deprioritized, *Serving Hispanic, Latine, and Latinx Students in Academic Libraries* offers both affirmation and a roadmap for action. By centering Latine students and the library workers who support them, this volume provides a timely, practice-oriented resource for inclusive librarianship. Any academic library serious about equity and representation should add this book to their collection. —*Marina Luz Corrales, San José State University*

Inclusive Cataloging: Histories, Context, and Reparative Approaches. Amber Billey, Elizabeth Nelson, and Rebecca Uhl (eds). ALA Editions, 2024. Paperback, 296 pp. $64.99 (979-8-89255-566-1)

"Books are for use. Every reader his or her book. Every book its reader. Save the time of the reader. The library is a growing organism" (Ranganathan, 1931). Every library student learns these laws in their first semester of library school. Furthermore, every student who becomes a cataloger learns the importance of words, word choice, and cataloger's judgment, which brings us to *Inclusive Cataloging: Histories, Context, and Reparative Approaches.* Within its pages, the editors bring their collective decades of expertise to the areas of cataloging, collection development, and metadata, compiling the histories and works of practitioners in the context of inclusive cataloging. In turn, this provides the context for the 19 case studies in Part II.

Inclusive cataloging is not a new concept, and practitioners have been incorporating it into their work for decades. The events of 2020, precipitated by the COVID-19 pandemic in the spring and by the death of George Floyd that summer, created a shift in the library world, making staff in the library—especially in technical services, special collections, and archives—re-evaluate and reconsider their collections in terms of accessibility and discoverability.

Inclusive cataloging, also known as radical cataloging, reparative description, critical cataloging, and various other terms, is "a movement that focuses on developing critical practices around cataloging which can mitigate harmful ideology present in library catalogs, cataloging standards, and controlled vocabularies. … The movement seeks to understand how these historical forces continue to perpetuate harm within our libraries and find solutions to these structural problems within library catalogs" (Pratt Institute Libraries, n.d., para. 3). In chapters 2 through 5, the contributing authors provide a cross-section of past and present, addressing pressing concerns found in cataloging and classification. In their chapter "This Is the Work," Fox and Gross highlight the work of librarians from an African American perspective, including Dorothy Porter Welsey's contributions at Howard University, overseeing its collection focused on Black studies in the Moorland–Spingarn Research Center. Welsey discovered that the university library had placed such works under the Dewey Decimal Classification call numbers 325 (colonization) or 326 (slavery), instead of their relevant subject areas (e.g., placing the Black poet James Weldon Johnson under 811, poetry). Fox and Gross also address criticisms from the indigenous perspective and challenges through the gender and sexuality lenses. They discuss the collaborative actions taken via the radical and critical cataloging movements that started in the 1970s with Sandy Berman's book, *Prejudices and Antipathies: A Tract on the LC Subject Heads Concerning People*, and the creation of the Subject Authority Cooperative (SACO) in 1993, which allowed librarians to submit proposals for new subject headings in hopes of addressing bias.

Chapters six through nine focus on the specific themes of accessibility metadata, gendered information, inclusive comics cataloging, and the critical cataloging movements in GLAMS (Galleries, Libraries, Archives, Museums, and Special Collections) that have taken place outside the purview of the Library of Congress, American Library Association, and Program for Cooperative Cataloging (PCC). Altogether, Part I, "History and Theory," provides a good background on the what, how, and why of inclusive cataloging. With online directories, it is encouraging to see the addition of accessibility features on a publisher's website (figure 6.1, p. 81) and in library catalogs (figures 6.3–6.6, pp. 83–86); however, it would be more helpful to readers if the information in the figures was in a larger font size or magnified (in an ebook, this would be easily remedied by adjusting the zoom).

"Part II: Case Studies" brings together contributors from across the United States, from small and large libraries, from single systems to consortia, from academic to public, as well as special libraries. With such a large number of chapters, it would have been useful to have the chapters grouped by like-themed studies or to provide an index for searching or browsing. Although 19 case studies may seem like a lot to peruse, they are all a relatively quick and easy read, with references for further reading.

The first case study, "Words Matter," details the work of the Schaumburg Township District Library in Illinois to craft and adopt a "harmful content statement" for their library catalog (p. 125). The library's hope was to "shine a light on the benefits of public libraries engaging in this work in a way that makes sense for their collections ... [and] help libraries to focus on the best way to describe materials in a way that is respectful and informed by their

communities" (p. 126). The next two case studies also feature public libraries, with two later chapters featuring special libraries (Hayes Research Library at Perkins School for the Blind in Massachusetts and the Utah State Hospital Library). The remaining cases highlight the endeavors of various college and university libraries. In some instances, libraries undertook the responsibility to update, revise, and/or replace problematic Library of Congress Subject Headings (LCSH) such as the term "illegal aliens." In other cases, they sought to enhance subject access to make works on BIPOC, LGBTQIA+, and religious identity groups more discoverable in the catalog and/or archives.

In *Inclusive Cataloging*, the editors' goal was to "document both what has been accomplished and what still needs to be done ... [with the] hope to inspire others to take up this work" (p. xi). For those who work in technical services, special collections, and archives, there is *always* more work to be done, both retrospectively and ongoing. Though this compilation only spotlights a handful of public and special libraries, it would make a suitable addition to any academic, public, or special library collection. The book would be especially useful for library students looking for a research idea and practitioners considering future projects.—*Linh Uong, University of North Georgia*

Reference

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Ranganathan, S. R. (1931). *The five laws of library science*. Madras Library Association. E. Goldston.