ASEE 2022 ANNUAL CONFERENCE Excellence Through Diversity MINNEAPOLIS, MINNESOTA, JUNE 26TH-29TH, 2022 SASEE

Paper ID #37071

Look Who's Talking: Exploring the DEI STEM Librarianship Conversation

Sarah E Lester (Engineering Librarian)

Sarah Lester is the College Librarian for Engineering at Cal Poly San Luis Obispo. She has over 15 years of experience working in Engineering Libraries. Her research examines how engineering librarians address issues of diversity, equity, and inclusion in their libraries and engagement with students. She has a BA in liberal arts, with a focus on science and art. Her MLIS work focused on how users and librarians navigate library spaces and resources.

Kelly Durkin Ruth (Engineering Librarian)

Kelly Durkin Ruth is the Engineering Librarian at the United States Naval Academy in Annapolis, Maryland. Her research interests include diversity, equity and inclusion practices in STEM librarianship.

© American Society for Engineering Education, 2022 Powered by www.slayte.com

Look Who's Talking: Exploring the DEI STEM Librarianship Conversation

Abstract

Librarian research on diversity, equity, and inclusion (DEI) in its various iterations dates back over a decade; however, in the context of science, technology, engineering, and math (STEM) librarianship this work still seems very limited. We collect and analyze papers published in STEM library and information science journals over the past 10 years to better understand the nature of this work. In our research we consider the content of existing conversations, what is missing from this discourse, and areas for further research.

Introduction

"As a broader awareness of, interest in, and a professional desire (and often a personal desire) for a more equitable, accessible and just world increases, some in the sciences struggle to incorporate these social developments into their research and teaching. Science librarianship can be similarly removed from this discourse."

- Bussmann et al, 2020, "Science Librarianship and Social Justice: Part One Foundational Concepts" [1]

How are STEM librarians engaging with DEI principles and the related underlying systemic inequities in their practice? Previously, the authors had independently conducted research on inclusion and critical librarianship. In doing so, we anecdotally noted a lack of literature, from "how we did it" case studies to empirical research, on DEI topics within the STEM librarianship literature. Although there is an established body of work in the librarianship literature that addresses the profession's work with community members of different races, ethnicities, sexualities, genders, abilities, and economic backgrounds, this research often focuses on using those groups to describe outreach and information literacy efforts, rather than engaging with the barriers and greater *systemic* issues that members of those communities face, such as racism, sexism, classism, poverty, etc.

As researchers working in this area, we are further challenged by the lack of literature when developing our own research and practice as academic engineering librarians. To confirm or reject our suspicions of a dearth of evidence in this area, we set out to begin collecting and analyzing what information we could find while identifying critical initial gaps in the discourse. This paper describes a preliminary study to both investigate the content in STEM librarianship journals and understand the manner in which to approach this type of work.

To evaluate the relevance and usefulness of our search results, we used the following questions to guide our analysis of papers in STEM librarianship journals:

• Is the article centered on STEM librarianship, rather than on librarianship in general or STEM in general? We define STEM librarianship as library work in support of

curriculum, students or professionals in the science, technology, engineering, and/or math fields. We also include medical and health library work in our scope.

- Is the terminology and are the ideas represented by that terminology engaged in a substantial way and not in passing? As Velez and Villa-Nicholas [2] did in their survey of race and racism in library history literature, we excluded content that did not include engagement with underlying systemic issues. In our context, we excluded content related to diversity, equity and inclusion that did not engage topics such as racism, sexism, heterosexism, classism, etc. For example, we would exclude a paper that mentions the word diversity once, in the context of serving a diverse student population, and does not mention or engage with that topic further.
- Does the paper contain reflection and/or critical engagement that we could use to inform our practice?

We set out to gather papers that were published in two journals, one open access and one subscription-based, on DEI topics over a period of 10 years, and evaluate them based on our criteria. We also were curious if some of the authors we consider foundational to our understanding of DEI in librarianship were being cited by authors in these journals. Having taken the Library Juice Academy Certificate Program in Diversity and Inclusion Skills, we were inspired by the work of a number of librarian-authors, including both BIPOC and non-BIPOC whose work is foundational to our understanding of DEI. We wanted to use a selection of their papers to begin understanding the citation politics at play in STEM journals. In her essay, "Making Feminist Points," Sara Ahmed describes the politics of citations as "a rather successful reproductive technology, a way of reproducing the world around certain bodies [3]." If these foundational authors writing about DEI aren't being cited in research on DEI, who is?

Literature Review

DEI in Librarianship

Much of the literature on DEI topics in librarianship can be divided into two groups: those papers about the demographics of our profession and those papers about our work as librarians; both include perspectives on theory, critical analysis, and practice. The literature on each topic goes back decades [2], [4]–[9]. A review of the entire body of such literature is outside the scope of this paper.

It is well known that the demographics of the librarian profession often do not reflect the communities those librarians serve - we are an overwhelmingly majority white woman profession at the non-managerial level [10]. In response to this disconnect, library professional organizations have made efforts to diversify the profession through programs such as the American Library Association's (ALA) Spectrum Scholarships [11], as well as residencies through the Association of College and Research Libraries' (ACRL) Diversity Alliance [12] which aims to "significantly" increase the number of underrepresented librarians in academic libraries by 2050. Further, ALA, ACRL and many of our other library professional organizations have incorporated DEI goals and expressions of support into their guiding documents [13]. In

2017, the Special Libraries Association created a Diversity & Inclusion Task Force charged with recommending ways that the organization could become more inclusive [14]; one outcome being the creation of a permanent Diversity Inclusion Community Equity (DICE) community. This recognition of the need extends to the engineering education domain as the American Society for Engineering Education (ASEE) has its own statement on Diversity and Inclusiveness [15]. Even the accrediting body ABET has its own Principles of Diversity and Inclusion [16], approved by its board in 2017.

STEM librarianship groups have shown similar support for this work. The Medical Library Association lists diversity, equity, and inclusion as "essential values" [17] to the organization, and as of 2020 has said it will integrate DEI objectives into each of its strategic plan goals. ACRL-STS names Inclusion, Diversity, Equity, and Accessibility as a core value [18] while the ASEE Engineering Libraries Division's (ELD) bylaws include a statement on Diversity, Equity, Inclusion, and Ethics [19]. ASEE-ELD also has a newly formed Committee of Diversity Equity and Inclusion. Many of our engineering librarian colleagues in ASEE-ELD have expressed a desire to incorporate DEI practices into their work; however, the lack of assessment and outcomes reported in the literature makes it difficult for them to do so [20].

Despite the number of recruitment initiatives in our field, Kung, Fraser & Winn [21] found in their systematic review of diversity hiring and retention initiatives in academic librarianship that "there is not enough evidence to indicate that there is a significant increase in the number of diverse librarians entering librarianship or supported career advancement over time." One likely reason for this failure is because our efforts to recruit marginalized librarians are imbued with whiteness [22], [23]. Another reason may be that although directors at libraries of all sizes appear increasingly aware of the need to foster DEI and social justice in their libraries, they often lack the capacity to enact change [24] or the ability to prioritize the work to achieve stated diversity goals [25].

What impact does our lack of diversity have on the communities we serve? Morales, Knowles & Bourg [10] remind us of the homogeneity of librarianship and encourage us to reflect on "what message such a stark lack of diversity communicates to patrons, to current and potential members of the profession, and to society at large." They also remind us that although there is a difference between diversity, which they define as a "mix of individual characteristics," and social justice, which "addresses power and privilege on a structural level, as well as at the level of mere representation," both are necessary to achieve the goals we have set for ourselves as a profession through our library associations.

Another issue at hand with our profession's attempts to prioritize DEI practices is an obfuscation, whether intentional or not, of exactly what we mean and what systemic inequities we mean to address when we use the words diversity, equity, and inclusion. Peterson [4] critiques the term "multiculturalism" as a distraction from the underlying equity issues faced by members of marginalized groups, with little meaningful contribution to the discipline's scholarship. Since the term became popularly used in LIS scholarship, Peterson believes that multiculturalism has "clogged our literature primarily with the mantra 'Everyone is different, and isn't that special?' [4]" Observing a superficial treatment of these underlying issues with little reflection or analysis on the implications for our practice, Honma [26] builds on Peterson's work, noting that although

LIS scholarship often uses words like diversity, equity, and inclusion when discussing race and racism, "the precise reasons why we need to 'diversify' seldom receive(s) any close scrutiny." Honma goes on to say that "the focus on concepts such as 'diversity' and 'ethnicity' elides any mention of race, problematically divorcing these terms from the distinct power relations of their racialized meanings." In their bibliography scoping the library history literature on race and racism over almost two decades, Velez and Villa-Nicholas [2] reiterate this line of thought, writing that "although multiculturalism and diversity are stronger focuses in the current LIS landscape, these are frequently used to avoid conversations about people of color rather than to include them" and reiterated Honma's conclusion that "the terms multiculturalism and diversity have historically been used as stand-ins for not discussing race and racism in LIS." Vinopal suggests we name the problem as a recommendation for library leaders to take action toward creating a more diverse, equitable, and inclusive profession [27].

In the literature, and as an extension, in our practice, much work has been focused on expanding racial and ethnic diversity in the profession; however, there has been less attention given to additional identities such as librarians with disabilities [28] and LGBTQ+ librarians [29]. Kung, Fraser & Winn [21] found that most of the papers that met their systematic review inclusion criteria centered on race, while "[f]ew studies examine gender and most completely neglect how multiple identities intersect to impact experiences," alluding to the framework of intersectionality, originally coined by Crenshaw [30] to describe legal bias against Black women. Switzer [31] recognizes this focus on racial and ethnic diversity in research on student groups in academic libraries and suggests expanding the notion of diversity to include nontraditional students, that is, anyone who is not a white, straight, cis, able-bodied, middle-class man who can attend class in person. "The educational barriers are different for each separate population," Switzer writes, and "they are, nonetheless, significant enough to warrant our consideration."

As a framework for understanding and action, Overall [32] proposes a model of environmental, cognitive, and interpersonal domains that work together to promote cultural competence, which she defines as "the ability to recognize the significance of culture in one's own life and in the lives of others; and to come to know and respect diverse cultural backgrounds and characteristics through interaction with individuals from diverse linguistic, cultural, and socioeconomic groups; and to fully integrate the culture of diverse groups into services, work, and institutions in order to enhance the lives of both those being served by the library profession and those engaged in service." These domains require a deeper understanding of the needs of different cultures as well as personal reflection on our own cultures and biases to be effective librarians. Library work, therefore, must be done in collaboration with communities rather than prepared for them with no understanding of the various cultures at hand. Mestre [33] extends the conversation on cultural competency and finds that, although the ability to work with members of different cultures is a critical part of our jobs, librarians have little training on what it means to be culturally competent or how to unite their practice of librarianship with cultural competency. Recognizing the needs of marginalized librarians and patrons is a first step toward creating equitable practices. STEM librarians need to address the full spectrum of cultural competency as a foundational element of our practice and actively create inclusive and equitable spaces for our colleagues and patrons. In her literature review on academic library diversity initiatives, Cruz [9] concludes: "True commitment to diversity requires more than one-time compliance with hiring mandates, or a

single presentation of diversity-themed programming. It is essential that librarians continue to share successful and innovative strategies for integrating diversity into library work via research and publication."

So, the question remains: How are STEM librarians incorporating DEI, cultural competency, and engagement with systemic inequities into our daily work? We the authors turned to the STEM library literature for a first look because it seemed like a natural first place to look for work on DEI topics in STEM librarianship.

Previous Analysis of STEM Librarianship Journals

Bibliometric and content subject analyses in STEM librarianship journals over a period of time have been conducted previously, most notably by Aytac and colleagues [34]–[38]. Through their work, we have a retrospective snapshot of content published in "prominent" [34] subject-specific journals, including *Science & Technology Libraries (STL)* and *Issues in Science & Technology Librarianship* (ISTL), in various blocks of time from 2005 to 2019. Over time, the topics most frequently written about in these journals generally fell into the categories of "Research and Science," "Library Users/Information seeking," "Information Literacy," and "Libraries and Librarianship."

We see a gap here. Looking back at more than a decade of STEM librarianship, there is no DEI-related category in this content analysis. Given that a conversation about DEI and systemic inequities has existed for much longer and is still ongoing within our profession broadly, we think we would expect to find evidence of this conversation in our literature - that of STEM librarians. Could it be that there are no papers in these disciplinary journals about DEI? Were the DEI-related contributions to the STEM librarianship discipline so minor that they did not warrant a mention in this analysis? Are DEI contributions to the STEM librarianship literature being overlooked?

Our Approach

As we begin framing our investigation of DEI topics in the STEM librarianship literature, we must define what we mean by a DEI topic. To that end, we are looking for papers that engage meaningfully with the concepts of diversity, equity, and inclusion as defined by Bussmann et al [1]:

Diversity: "A term that attempts to express, when used in higher education, an organizational recognition that people with different life experiences and identities affect organizations differently, and that people of differing experiences and identities should be represented in organizations because multiple perspectives are important. Diversity includes race, sexuality, gender, physical disability, mental abilities and disabilities, economic reality, class in society, etc."

Equity: "The act of creating opportunities in order to obtain justice, fairness, and equality without impartiality or barriers."

Inclusion: "Intentionally providing for or creating an environment that not only contains diverse people but also welcomes and allows for the meaningful involvement, contributions, representation, and empowerment of any person, particularly those who have been historically excluded. This can include ideas and objects as well. In an organizational context, inclusion is the act of involving, recognizing, and valuing the diversity of others with the goal of empowering them within the organization and creating an overall sense of belonging."

We chose these definitions to guide our work because they were created to enhance understanding within and for use in the context of STEM library work.

Methods

Because this is an exploratory pilot study, we limited our initial analysis to *Issues in Science and Technology Librarianship* (ISTL) *and Science & Technology Libraries* (STL), the same two journals Aytac and Slutsky used to pilot their full study in 2017 [35]. These titles are indexed in various disciplinary databases; however, because of discrepancies between the total number of search results found in those databases and the total number of search results found through the journals' own website, we deferred to the journal website to gather data and execute searches. We also limited our scope to these two journals because of the challenges of finding a satisfactory search strategy given their different platforms.

Keyword Searching

We began with Bussmann et al.'s three-part series on Science Librarianship and Social Justice in *Issues in Science and Technology Libraries* [1], [39], [40] and selected eight terms defined in the series to use as keywords and guiding concepts. We chose a short list of terms specific to the conversation in question. Recognizing that our keyword selections might limit the results, we opted for broad enough terms we anticipated would cast the widest net while keeping in mind Peterson, Honma, and Velez and Villa-Nicholas's arguments about language use in LIS literature. Ultimately, we wanted the opportunity to develop a proof of concept before engaging in more extensive searches.

Accessibility Bias Diversity Equality Equity Inclusion Intersectionality Microaggression

Although Aytac and colleagues' work focused on research articles, we expanded our scope to include any content in our selected journal set because we did not want to exclude relevant and useful content, like editorials and book reviews, that may not have undergone the peer-review

process. We searched for all types of materials in the two selected journals published from 2011-2021.

We used our set of terms to search the title, abstract, and subject or keywords (where possible) for matches, and also ran full-text keyword searches to identify instances of the terms being used within an article. We used term variations such as diverse, diversity, divers*, etc. and used quotes around terms to ensure we were capturing variations of words. For the complete set of terms used for each journal, see Appendix A.

Title and Abstract Analysis

We also compiled a spreadsheet with bibliographic information for all materials published in each journal from 2011-2021 to capture the full corpus of articles we were reviewing and to validate our results, ensuring we identified relevant papers that did not appear in our searches, despite matching our criteria.

Citation Analysis

As a final step in our analysis, we collected citation data from Google Scholar for eight papers we consider foundational to our understanding of DEI and bias in librarianship written by librarian scholars. We used Google Scholar because we found that Web of Science provided incomplete data for our purposes; ISTL, In the Library with the Lead Pipe, and InterActions: UCLA Journal of Education and Information Studies are not included in Web of Science. We also wanted to use a tool that others could use to replicate our data. We selected papers from the following library scholars: Fobazi Ettarh [41], [42], Todd Honma [26], April Hathcock [22], Kaetrena Davis Kendrick [43], Gina Schlesselman-Tarango [44], Jaena Alabi [45], and Patricia Montiel Overall [32]. Each one of these articles provides background and context for examining our practices as librarians and understanding the challenges for students and librarians when dealing with issues of diversity, equity, and inclusion in the library. The current authors were particularly interested to discover if there were citations of Davis Kendrick's work addressing low morale issues in libraries [43], Ettarh's exploration of vocational awe and librarianship [41], and Alibi's research on microaggressions and challenges for BIPOC librarians [45]. These three papers comprised part of the Library Juice Academy curriculum, and both the current authors independently took them as foundation for their own practice.

Results

Across the two journals searched, we started with a total of 598 articles published between 2011 and 2021. Within each journal, the number of articles that matched terms varied with some notable trends. The term diversity (diversity, diverse, divers*, etc.) had the highest total number of matches followed by inclusion (inclusion, inclusive, inclusivity, inclus*, etc.). After reviewing all the articles we found in our searches, we found three articles that matched all of our inclusion criteria in ISTL. Those were a series of articles by Bussmann et al, which we were already familiar with. STL had no papers that met all of our inclusion criteria.

For our citation analysis, we pulled citation data from Google Scholar, as seen in the table below. Many of these papers were highly cited overall. We then checked ISTL and STL to see if any of the papers from our two journals had citations to these foundational articles on DEI, listed below. Only one paper was cited, once, in an article in ISTL; Reed and Carroll [46] cite Hathcock in their discussion about the potential for implicit bias in interviewing and hiring of health science librarians. This reference appeared in their analysis as a reference for the need for hiring managers to be cautious about using terms like "natural" and "fit" that might introduce bias into interviews. The overall scope of the paper was analyzing job descriptions rather than a discussion of bias in hiring.

Google Scholar Type of Citations Citations in Article in STL Journal Cited By ISTL Results 0 0 Making a New Table: Intersectional librarianship, **Open Access** 36 Fobazi Ettarh, (2014) 0 0 Vocational Awe and Librarianship: The Lies We **Open Access** 161 Tell Ourselves, Fobazi Ettarh (2018) Trippin' Over the Color Line: The Invisibility of **Open Access** 204 0 0 Race in Library and Information Studies, Todd Honma (2005) White Librarianship in Blackface: Diversity **Open Access** 134 0 1 Initiatives in LIS, April Hathcock (2015) Subscription-0 0 The Low Morale Experience of Academic 64 Librarians: A Phenomenological Study, based Kaetrena Davis Kendrick (2017) 0 0 The Legacy of Lady Bountiful: White Women in Subscription-65 the Library, Gina Schlesselman-Tarango (2016) based Racial Microaggressions in Academic Libraries: Subscription-94 0 0 Results of a Survey of Minority and based Non-minority Librarians, Jaena Alabi (2015) 0 0 Cultural Competence: A Conceptual Framework Subscription-243 for Library and Information Science based Professionals. Patricia Montiel Overall (2009)

Foundational Article Citation Analysis

Discussion

As expected, using a simplified search method returned a high number of matching papers. However, we realized once we started analyzing the articles themselves that the majority of the results were not relevant. We found examples of ways in which individual terms had multiple meanings within this specific body of literature. For example, a search for "inclusion" brought back results related to search strategies and inclusion/exclusion criteria. We also found many papers that used variations of the word "diverse" that either were not relevant to our scope (like "biodiversity"), or that only mentioned the term in passing. Much of our time analyzing this data was spent eliminating these articles which matched a term but did not match the concept. Bussmann et al [40] note that in "the library and information science context, access and accessibility are sometimes conflated to refer to public access to publications and data." We found this to be the case in our analysis with little engagement on topics of disability or accessibility in our context.

We found another set of three papers focused on providing STEM-related library services to underrepresented populations, one from ISTL and two from STL. While they matched our search terms, these articles were excluded from our results because they did not substantially engage with nor did they indicate the manner in which these programs address the institutional barriers or injustices members of those underrepresented groups often face. One article was primarily about the logistics of organizing a STEM camp for girls [47] but didn't specifically discuss the numerous issues that underpin the need for such camps. Another [48] focused on promoting the library to Chinese engineering students at an American university. The article offered great suggestions for approaching information literacy for this group and alluded to cultural competence as a practice to support these students, but it didn't specifically address the social and cultural barriers often faced by international students. The third [49], looked at the curriculum for an information literacy program focused on underrepresented and first-generation college students. The focus here again was on the curriculum rather than the specific barriers that lead to the need for these programs.

Our results could be seen as preliminary evidence of the phenomenon observed by Peterson, Honma, Vinopal, and Velez and Villa-Nicholas that library scholarship often avoids discussing the problems of racism, sexism, classism, and instead focuses on promoting its diversity and outreach initiatives in response to those issues. However, our scope is purposefully narrow for this exploratory research and we cannot draw conclusions from such a small sample.

Two interesting articles we found, not related to STEM librarianship but written by librarians and demonstrating engagement with issues of bias, were literature review articles topically focused on women in STEM in higher education [50], [51].

Citation analysis

When we selected our foundational papers we expected to find at least a few citations for them, so we were quite surprised to find only one passing reference. Is this citation politics at play, or could there be some other explanation? We cannot make conclusions from our small study. As we delve further into this work it is important to recognize that the authors we cite "positions our

work in a field. It aligns us with particular epistemologies and ontologies; ways of knowing and of ways of being. It can polarise us from others [52]."

Future Research

This project is a proof-of-concept first step at mapping the DEI and social justice work published in the STEM librarianship sphere. Although we ended up with only a few articles that met our criteria, we surfaced many more questions about professional practices and publishing trends than we had at the outset of this pilot project that could inform future research.

While we only analyzed two journals in our pilot project, we recognize that STEM librarians are publishing in other venues, and a natural extension of this project would be to investigate the content of other STEM librarianship journals analyzed by Aytac and colleagues.

We also intend to retroactively expand our time frame of analysis and anticipate evaluating new content as there are indications that the discourse is expanding. For example, we are encouraged to see in the *Journal of eScience Librarianship* (JeSLIB) Thielen and Marsolek's [53] work examining how diversity, equity, inclusion, and accessibility themes are being incorporated into engineering librarian job postings. ISTL's upcoming 25th anniversary special issue call for submissions includes mention of "fostering inclusive practices and access to diverse information sources [54]." Looking to STEM librarianship more broadly, the 2022 RDAP Summit theme is "Envisioning an Inclusive Data Future [55]," and we anticipate seeing relevant papers published in JeSLIB from that event.

In their citation analysis, Blackburn and Heppler [50] point out that many of the papers on women in STEM in higher education are published outside of the typical journals for a particular domain and therefore might be missed by readers who don't read outside of their area of expertise. It may be that STEM librarians are publishing their work on DEI practices in journals outside of the STEM librarianship domain, such as the *Journal of Academic Librarianship*, and in journals focused on DEI work, such as the *International Journal of Information, Diversity, & Inclusion*. We would also want to look at databases with broader content coverage of librarianship to capture additional articles and other formats, such as books.

Through our professional development readings, we have noticed anecdotally that many articles on diversity in libraries are published in open access journals, especially those without fees. We wonder whether there is a trend toward publishing work on DEI and social justice issues in open access journals, and if so, why. Is it because the journals are lower fee? Is it because the publication is more open editorially to this type of content, or is this just a coincidence? This is an area for future investigation. We also wonder about authorial motivations in selecting where to submit their work. Are they publishing in more prestigious journals to bring more visibility to their work, even though many of those journals are behind a paywall, a somewhat contradictory motive? One future project may be to survey authors to capture why they chose to publish this critical work where they did.

Librarians interviewed by Tewell [56] mentioned either only being able to make small changes or recommended that colleagues "start small" when incorporating aspects of critical information

literacy into their practice, and we wonder whether that theme is at play here. Are STEM librarians making minor changes to their practice to incorporate DEI principles that they feel do not rise to the heft and importance of a journal article? We may need to turn to other forms of scholarly communication, like conference proceedings, for more evidence. Through our involvement in professional associations, we know that specific groups, like SLA's Physics-Astronomy-Math division, regularly incorporate DEI and social justice work into their programming, yet that information, while very useful for our practice, is often inaccessible to library workers outside of the parent organization (e.g., presentations at ALA with no proceedings available). We could address this by looking at conference agendas for PAM, ASEE-ELD, the various regional STEM librarianship conferences that occur throughout the year, or through other gray literature like division newsletters.

We have other unanswered questions related to our search results. Are there stop words or NOTs for some of these terms that would help us narrow to more relevant content? How should we deal with homonyms specific to our discipline, like inclusion, as in search criteria, and inclusion, as in inclusive practices? How can we create search strategies that cut through the noise we discovered in our keyword searches? This may be an opportunity to partner with publishers to create relevant filters or specific and meaningful subject terms to make these papers more discoverable.

Although journal editors are making efforts to solicit scholarship in this area, STEM librarians need to first engage meaningfully with DEI work, cultural competence, and social justice and especially to "articulate social and institutional structures of discrimination" like racism, sexism, classism, ableism, etc. that underpin exactly why we need to do this work at all [26], and the authors of this paper are no exception - we need to do this work, too. Then, once these papers are written, we need better ways to find them. There is a need for better discoverability, and we as researchers need to think critically about the terms we use in our work because we run the risk of burying useful, relevant research under our superficial, disengaged references to diversity, equity, and inclusion. As Vinopal argues, unless "we are clear about what we're trying to accomplish and why, and unless we're willing to name and examine the underlying factors that thwart the changes we hope to see, we will ultimately fail [27]."

Acknowledgements

The authors would like to thank our readers and reviewers, especially Brett Bodemer, Donna Goda, and our respective spouses, for their feedback on this paper.

Works cited

- J. Bussmann, I. Altamirano, S. Hansen, N. Johnson, and G. Keer, "Science Librarianship and Social Justice: Part One Foundational Concepts," *ISTL*, no. 94, May 2020, doi: 10.29173/istl62.
- [2] L. Velez and M. Villa-Nicholas, "Mapping race and racism in U.S. library history literature, 1997–2015," *Library Trends*, vol. 65, no. 4, pp. 540–554, 2017, doi: 10.1353/lib.2017.0017.
- [3] feministkilljoys, "Making Feminist Points," *feministkilljoys*, Sep. 11, 2013.

https://feministkilljoys.com/2013/09/11/making-feminist-points/ (accessed Mar. 18, 2022).

- [4] L. Peterson, "Alternative perspectives in library and information science: issues of race," *Journal of Education for Library and Information Science*, vol. 37, no. 2, pp. 163–174, 1996, doi: 10.2307/40324271.
- [5] L. A. H. Paris, "Responses to diversity: A comparison of the libraries at Stanford and UCLA," *The Journal of Academic Librarianship*, vol. 23, no. 2, pp. 91–99, Mar. 1997, doi: 10.1016/S0099-1333(97)90004-5.
- [6] M. D. Winston and H. Li, "Managing diversity in liberal arts college libraries," *College & Research Libraries*, 2000, doi: https://doi.org/10.5860/crl.61.3.205.
- [7] E. J. Josey and I. Abdullahi, "Why diversity in American libraries," *Library Management*, vol. 23, no. 1/2, pp. 10–16, Jan. 2002, doi: 10.1108/01435120210413544.
- [8] J. L. Semenza, R. Koury, and S. Shropshire, "Diversity at work in academic libraries 2010-2015: an annotated bibliography," *Collection Building*, vol. 36, no. 3, pp. 89–95, Jan. 2017, doi: 10.1108/CB-12-2016-0038.
- [9] A. M. Cruz, "Intentional integration of diversity ideals in academic libraries: A literature review," *The Journal of Academic Librarianship*, vol. 45, no. 3, pp. 220–227, May 2019, doi: 10.1016/j.acalib.2019.02.011.
- [10] M. Morales, E. C. Knowles, and C. Bourg, "Diversity, social justice, and the future of libraries," *portal: Libraries and the Academy*, vol. 14, no. 3, pp. 439–451, 2014, doi: 10.1353/pla.2014.0017.
- [11] American Library Association, "Spectrum scholarship program," *Advocacy, Legislation & Issues*, Mar. 29, 2017. https://www.ala.org/advocacy/spectrum (accessed Mar. 26, 2022).
- [12] Association of College & Research Libraries, "ACRL diversity alliance," Association of College & Research Libraries (ACRL), Sep. 22, 2016. https://www.ala.org/acrl/issues/diversityalliance (accessed Mar. 25, 2022).
- [13] Association of College & Research Libraries (ACRL), "Diversity standards: cultural competency for academic libraries," *Association of College & Research Libraries (ACRL)*, May 04, 2012. https://www.ala.org/acrl/standards/diversity (accessed Feb. 08, 2022).
- [14] Special Libraries Association, "About SLA DICE diversity inclusion community equity," Special Libraries Association. https://connect.sla.org/diversity/aboutus (accessed Feb. 08, 2022).
- [15] American Society for Engineering Education, "ASEE statement on diversity and inclusiveness – ASEE diversity & inclusion initiatives," ASEE Diversity & Inclusion Initiatives. https://diversity.asee.org/about/ (accessed Mar. 26, 2022).
- [16] Accreditation Board for Engineering and Technology, Inc., "Diversity, equity & inclusion," *Accreditation Board for Engineering and Technology, Inc.*, 2017. https://www.abet.org/about-abet/diversity-equity-and-inclusion/ (accessed Feb. 08, 2022).
- [17] MLA, "MLA: about : strategic plan." https://www.mlanet.org/strategy (accessed Feb. 08, 2022).
- [18] ALA Science & Technology Section, "STS core values," Association of College & Research Libraries (ACRL), Apr. 19, 2007. https://www.ala.org/acrl/aboutacrl/directoryofleadership/sections/sts/stswebsite/stsstrategic (accessed Feb. 07, 2022).
- [19] ASEE Engineering Libraries Division, "Bylaws ASEE engineering libraries division," *Bylaws – ASEE Engineering Libraries Division*.

https://sites.asee.org/eld/about-the-eld/bylaws/ (accessed Feb. 08, 2022).

- [20] S. Lester, "Diversity, equity, and inclusion teaching practices among engineering librarians," in 2020 ASEE Virtual Annual Conference Content Access Proceedings, Virtual On line, Jun. 2020, p. 34472. doi: 10.18260/1-2--34472.
- [21] J. Y. Kung, K.-L. Fraser, and D. Winn, "Diversity initiatives to recruit and retain academic librarians: a systematic review," *C&RL*, vol. 81, no. 1, p. 96, Jan. 2020, doi: 10.5860/crl.81.1.96.
- [22] A. Hathcock, "White librarianship in blackface: diversity initiatives in LIS," *In the Library with the Lead Pipe*, Oct. 2015, Accessed: Jun. 16, 2021. [Online]. Available: https://www.inthelibrarywiththeleadpipe.org/2015/lis-diversity/
- [23] A. S. Galvan, "Soliciting performance, hiding bias: whiteness and librarianship," *In the Library with the Lead Pipe*, Jun. 2015, Accessed: Jun. 16, 2021. [Online]. Available: https://www.inthelibrarywiththeleadpipe.org/2015/soliciting-performance-hiding-bias-white ness-and-librarianship/
- [24] C. Wolff-Eisenberg and J. K. Frederick, "National movements for racial justice and academic library leadership: results from the Ithaka S+R US library survey 2020," Ithaka S+R, Mar. 2021. Accessed: Mar. 25, 2022. [Online]. Available: https://doi.org/10.18665/sr.314931
- [25] J. Gilbert, "Heroes and holidays: the status of diversity initiatives at liberal arts college libraries," *College & Research Libraries*, Apr. 2017, doi: https://doi.org/10.5860/crl.77.4.520.
- [26] T. Honma, "Trippin' over the color line: the invisibility of race in library and information studies," *InterActions: UCLA Journal of Education and Information Studies*, vol. 1, no. 2, Jun. 2005, doi: 10.5070/D412000540.
- [27] J. Vinopal, "The quest for diversity in library staffing: from awareness to action," *In the Library with the Lead Pipe*, Jan. 2016, Accessed: Jun. 16, 2021. [Online]. Available: https://www.inthelibrarywiththeleadpipe.org/2016/quest-for-diversity/
- [28] J. Oud, "Systemic workplace barriers for academic librarians with disabilities," *C&RL*, vol. 80, no. 2, p. 169, Mar. 2019, doi: 10.5860/crl.80.2.169.
- [29] E. Kuecker, "Recruiting and retaining LGBTQ-identified staff in academic libraries through ordinary methods," *In the Library with the Lead Pipe*, Mar. 2017, Accessed: Mar. 25, 2022.
 [Online]. Available: https://www.inthelibrarywiththeleadpipe.org/2017/recruiting-and-retaining-lgbtq-identified-

https://www.inthelibrarywiththeleadpipe.org/2017/recruiting-and-retaining-lgbtq-identifiedstaff-in-academic-libraries-through-ordinary-methods/

- [30] K. Crenshaw, "Demarginalizing the intersection of race and sex: a black feminist critique of antidiscrimination doctrine, feminist theory and antiracist politics," *University of Chicago Legal Forum*, vol. 1989, no. 1, 1989, [Online]. Available: https://chicagounbound.uchicago.edu/uclf/vol1989/iss1/8
- [31] A. T. Switzer, "Redefining diversity: creating an inclusive academic library through diversity initiatives," *College & Undergraduate Libraries*, vol. 15, no. 3, pp. 280–300, Aug. 2008, doi: 10.1080/10691310802258182.
- [32] P. M. Overall, "Cultural competence: a conceptual framework for library and information science professionals," *The Library Quarterly: Information, Community, Policy*, vol. 79, no. 2, pp. 175–204, 2009, doi: 10.1086/597080.
- [33] L. S. Mestre, "Librarians working with diverse populations: what impact does cultural

competency training have on their efforts?," *The Journal of Academic Librarianship*, vol. 36, no. 6, pp. 479–488, Nov. 2010, doi: 10.1016/j.acalib.2010.08.003.

- [34] S. Aytac and C. Y. Tran, "Authorship trends of research articles published in seven scientific, technical, engineering, and medical (STEM) library journals: analysis of STEM library research from 2016 to 2019 update," *Science & Technology Libraries*, vol. 40, no. 2, pp. 117–132, Apr. 2021, doi: 10.1080/0194262X.2021.1871702.
- [35] S. Aytac and B. Slutsky, "Authorship trends of research articles published in seven scientific, technical, engineering, and medical (STEM) library journals: analysis of STEM library research from 2011–2015," *Science & Technology Libraries*, vol. 36, no. 2, pp. 114–134, Apr. 2017, doi: 10.1080/0194262X.2017.1323070.
- [36] B. Slutsky and S. Aytac, "Publication patterns of science, technology, and medical librarians: Review of the 2008–2012 published research," *Science & Technology Libraries*, vol. 33, no. 4, pp. 369–382, Oct. 2014, doi: 10.1080/0194262X.2014.952486.
- [37] S. Aytac and B. Slutsky, "Published librarian research, 2008 through 2012: analyses and perspectives," *Collaborative Librarianship*, vol. 6, no. 4, Jan. 2014, [Online]. Available: https://digitalcommons.du.edu/collaborativelibrarianship/vol6/iss4/6
- [38] B. Slutsky and S. Aytac, "Bibliometric analysis and comparison of two STEM LIS journals: Science & Technology Libraries and Issues in Science & Technology Librarianship (2005–2014)," *Science & Technology Libraries*, vol. 35, no. 2, pp. 152–171, Apr. 2016, doi: 10.1080/0194262X.2016.1171191.
- [39] J. Bussmann, I. Altamirano, S. Hansen, N. Johnson, and G. Keer, "Science librarianship and social justice: part two intermediate concepts," *ISTL*, no. 95, Sep. 2020, doi: 10.29173/istl2570.
- [40] J. D. Bussmann, I. M. Altamirano, S. Hansen, N. E. Johnson, and G. Keer, "Science librarianship and social justice: part three: advanced concepts," *Issues in Science and Technology Librarianship*, vol. 94, no. Spring 2021, 2021, Accessed: Oct. 18, 2021. [Online]. Available:

https://journals.library.ualberta.ca/istl/index.php/istl/article/view/2601/2613

- [41] F. Ettarh, "Vocational awe and librarianship: the lies we tell ourselves," In the Library With the Lead Pipe, Jan. 2018, Accessed: Sep. 06, 2019. [Online]. Available: https://www.inthelibrarywiththeleadpipe.org/2018/vocational-awe/
- [42] F. Ettarh, "Making a new table: intersectional librarianship," *In the Library With the Lead Pipe*, 2014, Accessed: Apr. 03, 2021. [Online]. Available: http://www.inthelibrarywiththeleadpipe.org/2014/making-a-new-table-intersectional-librari anship-3/
- [43] K. D. Kendrick, "The low morale experience of academic librarians: a phenomenological study," *Journal of Library Administration*, vol. 57, no. 8, pp. 846–878, Nov. 2017, doi: 10.1080/01930826.2017.1368325.
- [44] G. Schlesselman-Tarango, "The legacy of lady bountiful: White women in the library," *Library Trends*, vol. 64, no. 4, pp. 667–686, Apr. 2016.
- [45] J. Alabi, "Racial microaggressions in academic libraries: results of a survey of minority and non-minority librarians," *The Journal of Academic Librarianship*, vol. 41, no. 1, pp. 47–53, Jan. 2015, doi: 10.1016/j.acalib.2014.10.008.
- [46] J. B. Reed and A. J. Carroll, "Roles for health sciences librarians at college and university libraries," *Issues in Science and Technology Librarianship*, no. 94, Art. no. 94, Apr. 2020,

doi: 10.29173/istl42.

- [47] S. C. Stapleton *et al.*, "Girls tech camp: Librarians inspire adolescents to consider STEM careers," *Issues in Science and Technology Librarianship*, no. 92, Aug. 2019, doi: 10.29173/istl22.
- [48] Y. Chen and C. Brown, "Ensuring Chinese engineering graduate students' academic success: a study at the University of Oklahoma," *Science & Technology Libraries*, vol. 31, no. 3, pp. 320–341, Jul. 2012, doi: 10.1080/0194262X.2012.705144.
- [49] L. Palumbo, "Instruction is contextual: an examination of McNair program curricula for STEM scholars and recommendations based on the framework for information literacy in higher education," *Science & Technology Libraries*, vol. 37, no. 2, pp. 187–210, Apr. 2018, doi: 10.1080/0194262X.2018.1456089.
- [50] H. Blackburn and J. Heppler, "Women in STEM in higher education: a citation analysis of the current literature," *Science & Technology Libraries*, vol. 38, no. 3, pp. 261–271, Jul. 2019, doi: 10.1080/0194262X.2019.1645080.
- [51] H. Blackburn, "The status of women in STEM in higher education: a review of the literature 2007–2017," *Science & Technology Libraries*, vol. 36, no. 3, pp. 235–273, Jul. 2017, doi: 10.1080/0194262X.2017.1371658.
- [52] D. D. M. Netolicky, "Reference lists as sites of diversity? Citations matter.," *the édu flâneuse*, Jul. 11, 2018. https://theeduflaneuse.com/2018/07/11/citations-matter/ (accessed Mar. 28, 2022).
- [53] J. Thielen and W. Marsolek, "Taking a diversity, equity, inclusion & accessibility lens to engineering librarian job postings: recommendations from an analysis of postings from 2018 and 2019," *JeSLIB*, vol. 11, no. 1, p. 1212, Jan. 2022, doi: 10.7191/jeslib.2022.1212.
- [54] D. Hubbard, "Call for submissions ISTL 25th Anniversary special issue," May 19, 2021.
- [55] RDAP, "Research data access and preservation association RDAP Summit 2022." https://rdapassociation.org/event-4523132 (accessed Feb. 07, 2022).
- [56] E. C. Tewell, "The practice and promise of critical information literacy: academic librarians' involvement in critical library instruction," *C&RL*, vol. 79, no. 1, p. 10, Jan. 2018, doi: 10.5860/crl.79.1.10.

Appendix A: Search Terms by Journal

Issues in Science and Technology Librarianship (ISTL)

Total articles published from 2011-2021 = 290 divers*: 74 "diversity": 39 bias*: 37 equality: 4 equit*: 12 inclusi*: 59 "inclusion": 50 "inclusive": 13 accessib*: 104 "accessibility": 38 intersectional*: 1 microaggress*: 2

Science & Technology Libraries

Total articles published from 2011-2021 = 308divers* = 102"diverse": 76 "diversity": 41 bias*: 40 "bias": 30 equality: 52 "equality": 2 "equity": 7 equit*: 11 inclusi*: 75 inclusive: 295 "inclusive" :18 inclusion: 295 "inclusion": 51 accessib*: 74 "accessible": 65 "accessibility": 17 intersectional*: 2 "intersectional": 0 intersectionality: 8 "intersectionality": 2 microaggress*: 1

"microaggression": 1