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Editorial

Is *C&RL* Ready for a Data Sharing Policy?

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Introduction

In the summer of 2020, *C&RL* received a request from the ACRL Board of Directors to establish a registered report submission track as a major step to ensure *C&RL*'s high standards of rigorous methods. The request letter was signed by a group of ACRL members, led by Amy Riegelman, who later published an editorial on this topic (Amy Riegelman, 2021), calling *C&RL* to be more proactive in supporting open research practices. In order to increase *C&RL*'s rigor in supporting and implementing open research practices, it was recognized that both access to research data and transparency of research methods are necessary. From this line of thought, the *C&RL* Editorial Board, former Editor Wendi Arant Kaspar and Editor Kristen Totleben, have been engaged in an ongoing conversation on the possibility and the journal's capacity to implement a data sharing policy. For the past three years, Editorial Board member Minglu Wang has been researching academic journals' data sharing policies and reaching out to journal editors and editorial board members for consultation. Her efforts culminated in fall 2022 when she, Totleben, and Editorial Board member Adrian Ho conducted a survey (see Appendix) requesting input from colleagues in academic libraries regarding their perceptions of a data sharing policy and what types of data management support they would need or recommend.

This editorial aims to provide context and discuss the survey responses and next steps in terms of *C&RL*'s data guidance for authors. As the survey indicated that all responses will be confidential, we are not sharing the responses but rather providing an overview of the findings and interpretations for how to take action. In the spirit of transparency and straightforwardness, based on our findings and Editorial Board discussions, our next steps do not involve the implementation of a data sharing policy and at this time, no data sharing policy will be issued for *C&RL* in the foreseeable future. We have decided that it will remain the authors' choice of whether or not to share their data. It is recognized that as stewards and facilitators of information in its many stages of existence, it would be negligent not to keep up with what is happening with data in scholarly publications and how journals are evolving with data policies and related practices. For *C&RL*, it is the intention that reserving this choice for authors allows them the freedom to publish whether or not they are ready and willing to share data. Further, we

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realize that, in general, authors seek support in working with their research data. In candid discussion of what survey respondents shared and what the journal in its current state can provide, we are planning to include data management and sharing resources in the Author Guidelines and corresponding *C&RL* guide to assist *C&RL* authors, existing or prospective.

Overview of Research and Scholarly Environment

Open Science and Data Sharing

Originating in Europe (European Commission, Research and Innovation, 2019), open science has now spread to the whole world. The publication of the *UNESCO Recommendation on Open Science* (UNESCO, 2021) at the beginning of the 2020s marked a broader and deeper movement of open science. The White House Office of Science and Technology Policy (OSTP) has announced that 2023 is the Year of Open Science and there will be a series of open science policies, guidelines, services, trainings, funding programs, and initiatives, including the National Institutes of Health's expanded data management and sharing policy (NIH, 2023) and the Transform to Open Science initiative led by the National Aeronautics and Space Administration (NASA, 2023). Open science, as defined by the OSTP and the National Science and Technology Council, is beyond providing access to research articles and data. Instead, it refers to "the principle and practice of making research products and processes available to all, while respecting diverse cultures, maintaining security and privacy, and fostering collaborations, reproducibility, and equity" (OSTP, 2023). Similarly, the Canadian federal government has moved one step further toward open science with the implementation of the Tri-Agency Research Data Management Policy (Government of Canada, 2021).

The open science movement is not just a matter of government agencies or funders' policies or requirements. Research societies are already engaged and have generated positive impact on the development of open science, especially in terms of data management-related principles and frameworks. From 2021 to 2022, 11 societies and federation collaborators across disciplines co-hosted a 12-month Data Sharing Seminar Series for Societies in an effort to bring research communities' voices to the table and to provide societies and their journals with expertise and resources to share data and software (AAAS/Science et al., 2022).

In the meantime, research data management and sharing have been recognized as important scholarly activities in the research lifecycle. Funding agencies and academic journals have formulated data sharing policies to support open science and to facilitate reproducibility and innovative reuse of data. It is believed that data sharing is conducive to safeguarding research integrity and strengthening the public's trust in scientific studies.

In 2015, a group of researchers organized as a committee through the Center of Open Science (COS) published The Transparency and Openness Promotion Guidelines (TOP Guidelines) in *Science* (Nosek et al., 2015). The TOP Guidelines offer a framework of eight areas of openness and three levels of increasing rigor for each of the areas, providing journals with the flexibility of adoption with reference to their disciplinary contexts and cultures (COS, 2020). The TOP Guidelines Committee has since quantified the framework into a TOP Factor metric that can be used to assess a journal's steps to implement open science practices. Currently, *C&RL* is at level 0 in all areas of open research implementation.

Our review of the 53 articles published in *C&RL* in 2020 and 2021 reveals that the authors employed a variety of empirical methodologies to conduct their research. On the whole, seven articles included a statement about data availability while the authors of nine articles provided

links for access to their research data. Additionally, 42 studies shared research instruments, such as research questionnaires or interview questions. Despite not being required to share data, some *C&RL* authors were apparently cognizant of the open science movement and embraced the practice of data sharing when publishing their research.

LIS Journals' Data Sharing Policies

In his article examining open data policies among library and information science (LIS) journals, Brian Jackson (2021) observed that those journals published by large commercial publishers are more likely to have a data sharing policy when compared to small independent LIS journals because the large publishers had already adopted the policy and had ready-to-use author instructions for their LIS journals. However, such data sharing policies tend to serve as an encouragement rather than a requirement. Jackson predicted that some small independent LIS journals may potentially develop more rigorous data sharing policies.

To complement Jackson's findings, we investigated some LIS journals' data sharing policies and concluded that most of them encourage rather than mandate data sharing. Among the library association journals, the *Journal of the Medical Library Association* and *The Journal of the Canadian Health Libraries Association* have established policies that require authors to deposit de-identified data in repositories. However, they allow rare exemptions due to contractual or privacy concerns. Viewing these policies as inspirations, we contacted the colleague who spearheaded the development of the policies, Kevin Read. He generously shared with us insights about the policy development process, organizing working groups, author engagement, and areas that need special consideration and discussion, e.g., reaching a consensus on the definition of data. Read's advice was echoed by a study on journal data sharing policies in the sciences around the world (Christian et al., 2020). Specifically, both Read and Christian pointed out that the success in implementing a data sharing policy hinges on engaging stakeholders early in the policy development process.

With that in mind, the Editorial Board decided that soliciting authors' input should come before drafting a data sharing policy.

Survey on Data Sharing

Understanding the importance of authors' awareness and perceptions of research data sharing, we created a brief online survey (see Appendix for survey questions) and sent out invitations to participate via ALA Connect and multiple mailing lists. The survey was open from early October through mid-November 2022, and we received 161 valid responses. Based on the nature of the responses, we divided them into three categories:

1. Positive: These responses consisted of supportive comments with no concern or reservation (79 out of 161 responses; 49%)
2. Neutral: Each of these responses comprised a mix of supportive comments and specific concerns or reservations (57 out of 161 responses; 35%)
3. Negative: These responses were made up of noteworthy questions and/or comments that pointed out potential problems (25 out of 161 responses; 16%)

The three most frequently mentioned concerns pertained to:

- Data privacy and security
- Respondents not having access to an institutional repository for data sharing
- Respondents not willing to share data at the time of publication

Additionally, the respondents provided a number of recommendations with respect to data sharing. The three most frequent recommendations are as follows:

- Provide preferred and acceptable repository options as well as a comparison of the options
- Provide guidance, standards, and examples regarding metadata, file formats, licensing, documentation, etc.
- Elaborate the data sharing policy in the author guidelines

The responses suggested that most of the respondents were aware of data sharing and almost half of them expressed support for it. However, it seemed that some respondents understood the significance of data sharing but did not have (enough) hands-on experience with it. Thus, there existed a wide array of questions and concerns regarding how data sharing is carried out in practice. Among the respondents who were conversant with data sharing, some enthusiastically approved and advocated for it whereas others conscientiously brought up conceivable problems and were skeptical of a successful implementation of a data sharing policy for *C&RL* at this point. On the whole, the responses revealed that not all potential authors were willing or ready to share research data. Moreover, it is apparent that *C&RL* needs to engage in a variety of preparation work before we should roll out a data sharing policy in earnest. As such, it has been determined that no such policy will be issued for *C&RL* in the foreseeable future.

Next Steps

Thanks to all who filled out last fall's survey, the Editorial Board gained a better understanding of what needs to be addressed in order to facilitate a successful implementation of a data sharing policy. We realize from survey responses and Editorial Board discussions that some authors are not able to share their data for one reason or another. We respect that and do not intend to erect barriers to publication by requiring authors to share their data.

On the other hand, in the past few years, some *C&RL* authors have voluntarily shared their research data by indicating in their articles where readers can access it. To encourage this voluntary act and to present data information systematically, *C&RL* will include a non-required field on the submission form for a data availability statement. In the Author Guidelines and corresponding *C&RL* guide, the Editor and Editorial Board will provide resources and examples about handling data in different parts of the research lifecycle and about the optional "Data Availability Statement." In addition, the Editorial Board will create an online guide that aims to assist authors in finding and using free resources for data management and sharing. Resources listed may include checklists, best practices and other types of guidance. Its contents will be based on the comments and recommendations we received from the survey. We believe that providing such a guide will help prepare authors for data sharing in the long run. Further, *C&RL* will consider what a data sharing policy entails in terms of peer review and peer reviewers' expertise.

Concerns raised in our author survey also confirmed and remind us of increasing findings in studies and discussions on the equity and ethics issues with data publication. For example, authors do not have equal access to data sharing support or resources (Santoro, 2021); libraries and library practitioners are accountable for what and how they share data and in effect, need more training in responsibly and ethically handling users' data and publishing analytical results (Briney, 2019; Jones & Hinchliffe, 2023). *C&RL* Editorial Board members will continue learning about emerging equity and diversity frameworks for open research

(Klinkhamer, 2022), best practices of conducting learning analytics studies (Jones et al., 2020), and practical guides on research data publishing ethics for journals (Puebla et al., 2021). All of this information will help inform what the Editorial Board decides in terms of guidance and/or policy for authors and reviewers.

Regarding the development of a data sharing policy in the future, the Editorial Board will seriously take into consideration the comments and suggestions collected from our survey. Additionally, we will refer to the data policy framework developed by the Research Data Alliance (RDA) Data Policy Standardization and Implementation Interest Group (Hrynaszkiewicz et al., 2020). The framework was built on extensive reviews of journal publishers' research data policies and identifies 14 features of the policies. It also presents six policy types (or tiers) based on different combinations of the features, ranging from mandated data deposit and sharing to encouragement of data sharing best practices. Thinking ahead, *C&RL may choose an appropriate level to start and gradually progress based on our community's readiness in the future.*

In sum, this is the beginning of *C&RL*'s journey in support of research data management and sharing. The Editorial Board will keep authors and readers posted of *C&RL*'s plans and decisions. If you would like to provide input in the meantime, you are welcome to contact the Editor or any of the Editorial Board members.

Acknowledgments

We would like to thank the following *C&RL* Editorial Board members for their review, suggestions and editing of this editorial: Michelle Demeter, Megan Hodge, Eamon Tewell and Le Yang.

Thank you to the 161 survey participants and of these participants, the 57 participants who offered to help, if we had decided to implement a data sharing policy.

Appendix. *C&RL* Data Policy Survey (October 4 through November 18, 2022)

Question 1
If data sharing was necessary for future *C&RL* articles, do you have any thoughts about where your data and related documentation (e.g., codebooks, data use guide, survey instruments, etc.) would be deposited so that others can access and reuse it?

Question 2
What concerns or input do you have about *C&RL* adopting a data sharing policy?

Question 3
What information or guidance would be helpful for you to comply with a data sharing policy?

Question 4
If you are willing to help review the data policy draft, please provide your name and email address, so that we can contact you later.

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Carrots and Sticks: A Qualitative Study of Library Responses to the UK's Research Excellence Framework (REF) 2021 Open Access Policy

Dan DeSanto

This study examines how academic libraries in the UK responded to the Research Excellence Framework (REF) 2021 open access policy. Thirteen information professionals at twelve institutions across the UK took part in semi-structured interviews. Findings from the interviews reveal how libraries created and deployed new infrastructures, workflows, and staffing as well as the methods through which universities communicated the policy's requirements. The study describes respondents' experiences of the changes brought about by REF 2021 as well as their thoughts on how the REF 2021 open access policy will affect future REF assessments. Results provide insight for libraries responding to US initiatives such as the August 2022 White House Office of Science and Technology Policy memo directing the open publishing of federally funded research.

Introduction

Every six to eight years, the United Kingdom's government council for research investment, UK Research and Innovation (UKRI), undertakes an exercise called the Research Excellence Framework (REF) to assess the research contributions made by each university and reallocate funding based on outcomes. REF guidance outlines the threefold purpose of the REF as:

1. providing accountability for public investment in research and produce evidence of the benefits of this investment
2. providing benchmarking information and establish reputational yardsticks, for use within the higher education sector and for public information
3. informing the selective allocation of funding for research.[1]

The REF is an assessment of return-on-investment for research undertaken at UK higher education institutions. With approximately £2 billion of total research funding at stake, universities carefully follow the guidance set out by UKRI.

The most recent REF, REF 2021, began its assessment period on April 1, 2016, and was completed on March 31, 2021. A university's REF submission is comprised of three parts: an **impact case study** (25 percent of overall score); a statement of the university's **research environment** (15 percent of overall score); and **research outputs** (60 percent of overall score). This study is concerned with only the latter category, in which universities present examples of

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impactful contributions (called "outputs") made by university researchers.[2] By its conclusion, 157 universities had participated in REF 2021. Over 185,000 research outputs were submitted for assessment, representing work from over 76,000 authors.[3]

The most important change for academic libraries in REF 2021 was an open access (OA) policy stating that articles and conference contributions must be made open, defined as "discoverable, and free to read, download and search within, by anyone with an internet connection,"[4] within three months of acceptance to be eligible for inclusion in the REF. This presented an enormous challenge and required that libraries find ways to make open nearly the entirety of their university's non-monographic publications. The aggressive time frame (publication often fails to happen within three months of acceptance) and the cost of article processing charges (APCs) ruled out publication in OA journals (gold OA) as the primary means for complying with the open access policy. Instead, the policy advanced a process of accepted manuscripts being deposited to institutional repositories (green OA) as the primary means for compliance. Universities quickly needed to implement research management and repository infrastructures able to accommodate and track the vastly increased number of deposits about to pour in. University libraries facilitated much of the response by setting up or expanding systems to process and track deposits, creating workflows for researcher deposit, and providing the outreach necessary to ensure that researchers understood the policy and deposited their work.

Across the UK, libraries were extremely successful. The infrastructure that emerged to support REF 2021's open access policy has proven to be transformative. Figure 1 looks at the most recent Leiden University Centre for Science and Technology Studies rankings (2016–19) for proportion of university research that was made open access (PP(OA)) and indicates that, globally, the UK holds twenty-four of the top twenty-five places for universities with the highest proportion of research made OA.

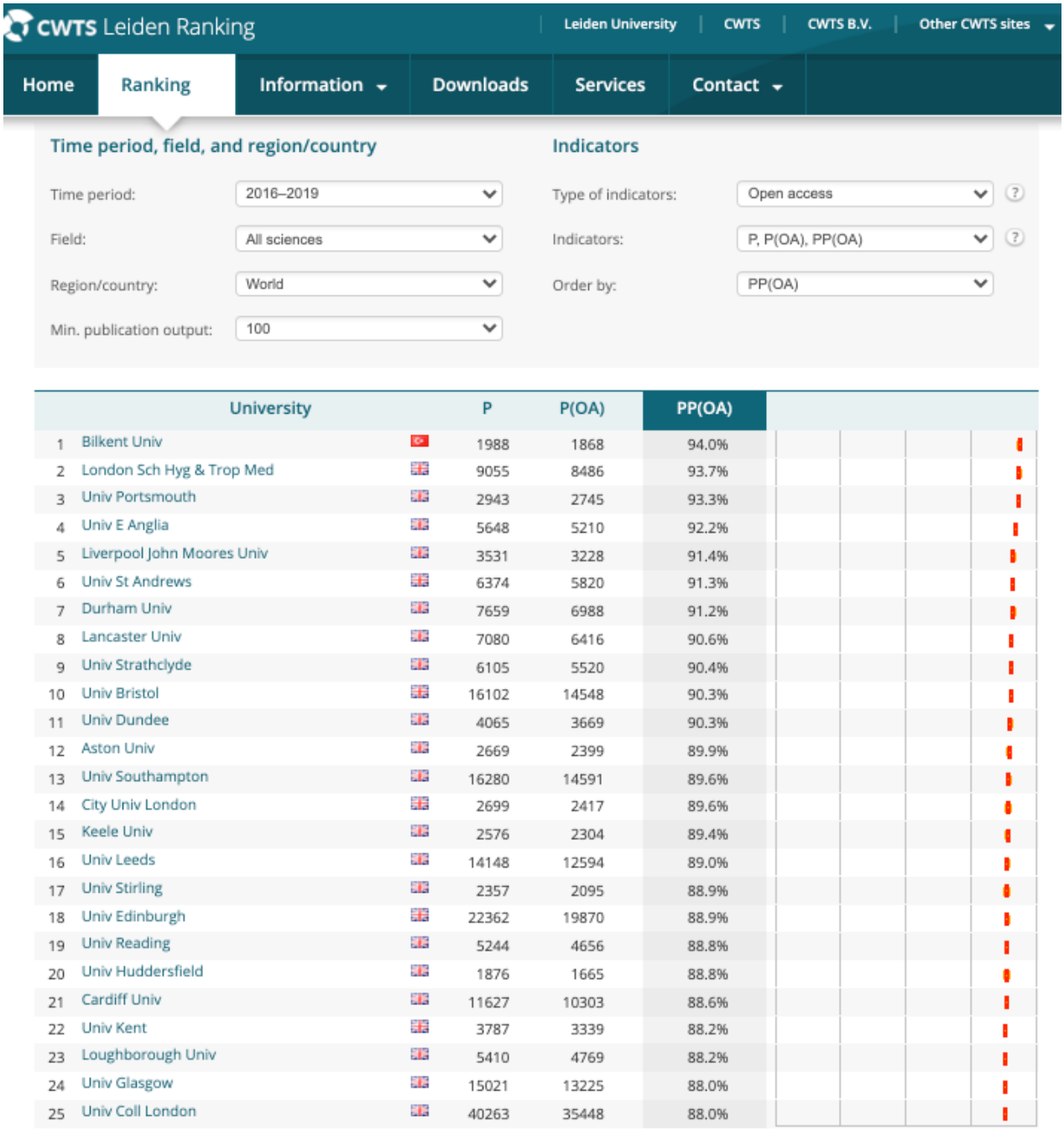
Going further down the list, forty-six of the top fifty universities worldwide with the highest proportion of open research are in the UK.[5] The rankings put in context the degree to which UK universities are making their research open and, as indicated by those interviewed for this study, the marked increase in open research is directly attributable to REF 2021's open access policy.

This study asks questions of repository, communications, and research information professionals at twelve academic libraries who played a significant role in their institutions' response to the REF open access policy. The study aims to find common experiences that illustrate how libraries found ways forward and created responsive systems that made accessible the majority of research produced on their campuses. Further, it seeks out themes on what respondents considered to be the effects of the open access policy, both intentional and unintentional, and asks them to consider future developments for OA after REF 2021.

Literature Review

The REF represents one instance of the UK's increasingly demanding requirements that universities demonstrate the impact of the research they undertake—commonly referred to as the "impact agenda."[6] The impact agenda, and the REF as one of its manifestations, has encountered a good deal of criticism as the commodification of academic work.[7,8] John Holmwood, one such critic, writes, "The impact agenda …recommends that research should be coproduced with beneficiaries. In consequence, it proposes that research should be aligned

FIGURE 1
Leiden University Centre for Science and Technology Studies Rankings (2016–2019) for Proportion of University Research Made Open Access (PP(OA))



	University	P	P(OA)	PP(OA)
1	Bilkent Univ	1988	1868	94.0%
2	London Sch Hyg & Trop Med	9055	8486	93.7%
3	Univ Portsmouth	2943	2745	93.3%
4	Univ E Anglia	5648	5210	92.2%
5	Liverpool John Moores Univ	3531	3228	91.4%
6	Univ St Andrews	6374	5820	91.3%
7	Durham Univ	7659	6988	91.2%
8	Lancaster Univ	7080	6416	90.6%
9	Univ Strathclyde	6105	5520	90.4%
10	Univ Bristol	16102	14548	90.3%
11	Univ Dundee	4065	3669	90.3%
12	Aston Univ	2669	2399	89.9%
13	Univ Southampton	16280	14591	89.6%
14	City Univ London	2699	2417	89.6%
15	Keele Univ	2576	2304	89.4%
16	Univ Leeds	14148	12594	89.0%
17	Univ Stirling	2357	2095	88.9%
18	Univ Edinburgh	22362	19870	88.9%
19	Univ Reading	5244	4656	88.8%
20	Univ Huddersfield	1876	1665	88.8%
21	Cardiff Univ	11627	10303	88.6%
22	Univ Kent	3787	3339	88.2%
23	Loughborough Univ	5410	4769	88.2%
24	Univ Glasgow	15021	13225	88.0%
25	Univ Coll London	40263	35448	88.0%

with the interests of those beneficiaries and modified in order better to realize them. The intention of the impact agenda was to speed up the commercialization of research, or the time from idea to income."[9] This "speeding up" via exercises in researcher accountability has come under scrutiny as numerous authors point to situations where researchers must change the nature of their research to fit a size and shape dictated by an accountability mechanism.[10,11,12] The REF, for many, fits this category of a neoliberal assessment exercise that furthers epistemic injustice.[13,14]

Extending this criticism to the realm of scholarly communication, the REF 2021 open access policy can be viewed as incongruous with aims to democratize knowledge or broaden access to information. Instead, it can be viewed as serving the corporatized end of speeding up research-as-product for the purposes of business and economic development.[15] In this accounting, the open access policy becomes yet another demand that burdens researchers and directs research in ways that benefit corporate entities rather than the public good. Poynder calls the REF "the pressuring and sweating of researchers to increase productivity, for almost exclusively economic reasons" and asks, "How can the OA ethos fit comfortably with this?"[16] While criticisms of corporate-driven open access are not unique to the REF, they find a fertile home in the REF's tying together accountability and access.

Whatever the motivation behind the REF 2021 open access policy, it has undeniably made a large amount of scholarly information openly readable that otherwise would not have been. Writers like Martin Eve push back on claims that the UK's gains in OA are somehow tarnished or should be discounted. Eve agrees that the REF exercise forwards the commodification of research, but differs with writers like Holmwood and Poynder, claiming that "this does not mean that it is the technology of open dissemination of research online—digitalization—that should come in for critique…it seems to me that open access is not to be grouped under the neoliberal rhetoric of 'there is no alternative.' There patently is an alternative: we do it already [proprietary publishing]. And for many, many people, it is decidedly worse."[17] The gains made in OA, for Eve, present an improvement on the current publishing system. In this accounting, the benefits of access outweigh the problems of the REF as a catalyst.

Studies of the REF 2021 open access policy's effects on researchers and libraries are much more difficult to find. In 2016, DeGroff outlined potential sticking points and best practices as universities and libraries began setting up systems to respond to REF 2021.[18] In the following years, quantitative assessments measured the ways in which the REF's open access policy was reshaping repositories and expectations for research availability.[19,20] At the closing of the REF 2021 cycle, qualitative studies emerged that reflected on the monumental task just completed. The largest of these reflective studies is the *Real Time Review* done by researchers at Cardiff University and the University of Sheffield. The study surveyed approximately 600 faculty across four UK universities and conducted twenty-one in-depth interviews with REF managers at the same universities. While the study addresses researcher attitudes and knowledge of the REF more broadly, it calls out the open access component in saying, "Importantly, an insight that emerged from the survey data was that the focus on open access and research practices was the most consistently positive and impactful influence of the REF on both researchers' own work and UK academic culture."[21]

While researchers in the Cardiff University/University of Sheffield study were positive about the general idea of increasing access to research after the REF 2021 exercise, researchers in other studies were decidedly less positive when asked about the specific process of submitting accepted manuscripts to repositories. Carolyn Ten Holter's 2020 study asks researchers about the day-to-day work of submitting research and populating a repository.[22] The Ten Holter study finds a lack of enthusiasm for open access stemming from researcher frustrations with deposit processes and poor understanding of how submissions contribute to open scholarship. Repository managers interviewed for the study described their work as cumbersome and technically demanding; however, they remained committed to the benefits of making research open. For both researchers and repository managers, compliance with

REF 2021's open access policy was described as stressful and in danger of becoming an end in itself rather than a means of facilitating open research. Now that REF 2021 has come to a close, reflective work such as Ten Holter's and the Cardiff and Sheffield study are increasingly important as the UK begins to plan for the next REF and governments outside the UK consider open access mandates of their own. The study presented here fits into this nascent body of qualitative research reflecting on and attempting to learn from REF 2021.

Methodology

Thirteen library and research information professionals at twelve different institutions participated in semi-structured interviews. Participants were invited based on geographic location and university size. Participants represent institutions across England, Scotland, and Wales at universities varying in size from approximately 7,000 to 37,000 students; the largest concentration clustered at campuses of 15,000—30,000 students.[23] Nine participants had primary responsibilities in scholarly communications, three in repository management, and one in research information management.

Interviews were conducted between September 2020 and September 2021. The duration ranged from forty-five to ninety minutes, and recordings were made with either Microsoft Teams or Zoom. The semi-structured interviews asked respondents about:

1. their job function in the university library or libraries
2. the infrastructure (both technical and staffing) put in place to make research open access
3. the outreach that occurred to the larger campus
4. green vs. gold routes for open access at their university
5. the library's role in facilitating compliance with REF 2021's open access policy
6. the changes in scholarly publishing they attributed to the REF 2021 open access policy.

Standard interview questions are attached as an appendix. Respondents answered for as long as they wished, and follow-up questions were asked for the purpose of clarification. Three participants were contacted a second time to clarify initial responses.

Interview recordings were loaded into Nvivo qualitative analysis software for transcription and the development of an initial coding structure. Coding followed an inductive approach and was refined by a second round of coding, done by hand, to develop subcodes. The coding structure informed a thematic analysis of the data.[24,25] It should be noted that multiple participants moved to new institutions within the timeframe of the REF exercise; those participants spoke of their experiences not only at their current institution but also at their prior institution. Before each interview participants were provided with a copy of an institutional review approval stating that their identities and responses would be kept anonymous.

Results

Infrastructure & Workflows

Implementing a CRIS

Eleven of the twelve institutions in the study implemented a current research information system (CRIS). Ten institutions implemented a commercial CRIS system (Elsevier's PURE was used by six universities and Digital Science's Symplectic by four), and one institution maintained their own. The lone university without a CRIS was in the process of acquiring one. A CRIS serves as a centralized system by which researchers, librarians, and administrators

interact in order to process, manage, and organize the research that takes place at a campus.[26] It differs from a repository in that it is not meant to store a large number of full-text documents; rather, it is meant to facilitate and track the full research process from Institutional Review Board (IRB) approval to publication and reporting. Although manuscripts can be deposited through a CRIS, it serves the deposit process only as an intake channel to the repository.

Resoundingly, the message from those interviewed was that the CRIS made deposit easier for researchers and measuring compliance easier for managers. Many respondents spoke to the need for simplicity in the deposit process.

> The idea is that the researcher only engages with one system. They engage with the CRIS. And as many things as possible are fed automatically from external systems.

Another librarian stated that deposit through the CRIS should take no longer than two minutes. The CRIS allowed universities to create a comprehensive record of scholarship and report on OA compliance within this body of scholarship. As one librarian noted, the CRIS and REF served each other's ends of completeness and compliance.

> So there is an aspect of if your department is assessing what you've done…if it's not in the CRIS, then it's not been written…. If everybody has to put everything in that system, for the purposes of institutional monitoring, and then we check those systems for REF compliance, then the system serves the REF and the REF serves the system, which works relatively well.

Respondents using a CRIS system described it as a vital tool in managing their campus' research activity and tracking researcher deposits. Because the CRIS touches other parts of the research process, it allows information to be shared between modules to generate a broad picture of scholarship as well as more specific reports on OA compliance.

Methods for Depositing Work

The majority of universities included in this study relied on researcher deposit as the primary means for populating their repositories. Two universities relied on mediated deposit facilitated by the library. One university had multiple means of deposit for its different schools. Counter to assumptions of scale, the universities with mediated approaches were not the smallest schools in this study; in fact, two of the three have particularly sizable student and researcher populations.

Respondents at researcher deposit universities needed to convey a clear and consistent message regarding deposit expectations, timeline, and workflow. Those interviewed stressed that conveying a simple and concise plan to researchers was essential to their process.

> We needed to have a simple message …we didn't want to say, "Here's how you're compliant with the REF: you can either do A, B, C, or D." We just want to say, "There's one process. Follow this process at all times and you're fine. If you don't follow the process, you may not comply." And our message was "Deposit in PURE

> within three months of the date of acceptance and we'll make it open access." So that was the key, simple message that everyone had to buy into.

> Our advocacy to researchers is to act on acceptance. It needs to be your workflow that when your paper's accepted …you get the email from the publisher saying 'congratulations, we've accepted your paper,' and at that point you need to go into PURE and create a record and upload your accepted manuscript.

> Just do it. It doesn't matter if it's a review article, it doesn't matter if you are invited to comment on something else. It doesn't matter what it is. Just put it into the repository and then you don't have to worry about it.

Respondents at mediated deposit universities acknowledged the staff time needed to support a mediated approach but pointed to the benefits of accuracy, precision, time saved double-checking deposits, and ease of compliance from researchers:

> I prefer it that way, because I know that we're doing it properly, and if you catch them at acceptance, because we had to deposit within three months of acceptance for REF, we knew that we were getting it right.

> We are not asking the authors really to do very much, but they send us the manuscript and then we can take most of the details from that…. My job is to remove the admin from the researchers as much as possible.

While mediated deposit approaches did largely remove the burden for deposit from researchers, some respondents noted that taking the deposit process out of the hands of researchers had unintended consequences.

> It does mean, though, that academics are a bit hands-off so they don't always engage with the CRIS and with the system because there are other things that you can do, like activities and awards and things like that, which most people just don't do. So I wouldn't say it's not without its problems the way we do it. We would like them to engage more with it. And they don't because we're doing so much for them.

It seems a valid concern that researcher disengagement in matters of dissemination and access could prove detrimental as funders increase expectations for open research, their policies become more complex, and researchers are asked to demonstrate impact in new ways.

Prior to the REF 2021 cycle, many UK libraries harvested publications from databases like Scopus and Web of Knowledge as the primary means for depositing work into their institutional repositories. Since the REF policy required work to be deposited within three months of acceptance, this workflow became invalid as a primary means for populating a repository. Many respondents noted, however, that they still use harvesting as a notification mechanism for items that researchers have yet to deposit.

> We get weekly reports from Scopus …and so we can sort of nudge authors if it's not already in PURE and they need to add it to PURE quickly, so that's how we do our temperature reports.

> I've got to look through all these different [harvested] things but that just kind of works because it helps me to reach out to people and just say, "Hey, here's a reminder. We have a repository. We have a Publication and Open Access Policy. Just a gentle reminder. Could you please deposit when you get a chance?" …and that has helped I think.

A majority of respondents indicated that they will only spend time chasing down work that is still valid (within three months of acceptance) for the REF, although a few stated that they will seek out older non-REF compliant work for the sake of a complete record in the repository.

Dealing with the Number of Deposits

Institutional repositories needed to adapt in order to process a hugely increased number of deposits. Ten of the twelve institutions in this study maintained an institutional repository. Of the two without a dedicated institutional repository, the CRIS served this purpose and powered a public search interface. The most common repository systems were the University of Southampton's E-Prints (used by five universities) and the Lyrasis platforms D-Space (used by four) and Fedora (used by one).

By design, every university in the UK saw increases in the number of deposits to its repository. Respondents highlighted just how dramatic this increase was:

> It's a constant stream of things that come through …it's very much increased. I think we're depositing between six and seven thousand items a year now. Prior to REF, probably less than a thousand.

> When I started in the Open Access Team in 2010, we had about 5 percent full text in the repository…. With the REF OA mandate, we're now at about 90-plus percent.

They described needing to rethink previous processes and add additional infrastructure to increase capacity. In addition to the necessary technical infrastructure, libraries were also forced to rethink staffing models and add positions to adequately process the increased number of submissions.

Changes to Staffing

Most universities in the survey added between one and five new FTE to facilitate compliance with the open access policy. Of two outliers, one added no new positions and another added sixteen. For almost all universities, adding new staffing was essential to accommodate the REF 2021 open access policy.

> We just knew we that we had to have …more full-time people on this, just seeing the volume of content through.

> So, it kind of evolved from being just one research support librarian doing everything to a research services team covering different areas.

> [The repository] did see a huge increase; however, it still required a huge increase in resources for the library to process the content …towards the end of 2015 until the end of 2019, so over a four-year period, we went from one to sixteen members of staff.

Even with the increased staffing, respondents still largely felt like they lacked enough capacity for the amount of work created by the REF. Those on much smaller staffs especially felt overburdened.

> We had 1,000 outputs, which isn't a great deal compared to some institutions which were submitting thousands and thousands of outputs, but …it was just me on my own …managing this …it was a massive job. Thank God it's over.

> We've never got enough staff. It could definitely do with a bigger team. And actually we have just expanded in 2019. We were really under-resourced before then. So yeah, it can be quite difficult.

One librarian noted that new positions were not necessarily granted by the institution; rather, a case had to be made that these new positions were necessary, and this case was made much easier by the ability to point to the financial repercussions of a poor REF submission.

> Making the business case ended up being able to demonstrate what was going to happen if we didn't have additional resources. I would like to say resources were offered from the start with "whatever you need is fine," but it was the negative consequences of not having additional resources that obtained results.

The significance of REF required most libraries to add staffing in order to accommodate the demands of increasing deposit numbers and meet the expectations set out by REF 2021.

Outreach

In addition to processing and managing deposits, libraries also needed to communicate to a wider campus audience the policies, processes, and expectations governing deposits and OA compliance.

Starting Early

Most respondents noted that their universities began outreach about the new open access policy before the REF process got fully underway in 2016. Those at the few campuses that failed to get an early start discussed feeling behind and needing to catch up. Starting early enabled libraries to iron out processes for deposit and get researchers used to depositing their work.

> We started a year early, so we started in 2015 to get people used to the policy before it actually came into force. So, by the time we got to 2016, it wasn't too bad. People had gotten used to the policy and our systems.

By starting early, libraries were able to communicate the workflows researchers had to follow, but respondents also noted a feeling of needing to "get out ahead" of misinformation.

> We had a bit of a job to do because …people started getting information from outside, and so, as the policy came out, departmental researchers and individual research group leaders started developing their own ideas about [the open access policy]. And…we found that quite lethal. So we embarked on a huge exercise to tell people from one source, from us, what the policy would be and how we were going to implement it, and that worked quite well. So we kind of rushed because of that.

Being able to set, from the start, a clear and definitive message around the REF open access policy and university expectations proved crucial to smoothly implementing new workflows and infrastructure.

Administrative Communication and Support

Establishing a connection to upper-level administration provided access to meetings and events that those in libraries would not have had otherwise. It also tasked administrators with setting expectations and demonstrating that compliance with the open access policy was non-negotiable.

> I thought it was top down that did it [got them into meetings with faculty]. We wouldn't have had any inroads into any of it without it being a top-down approach.

> The only way was through the head of the college …so I went and persuaded her and then she just invited me to all the meetings that happened.

> It required very strong top down communication and there is a committee which looks after these issues, specifically open access in the university, and it's chaired by the pro vice chancellor for research…. The message is "You need to be up to speed with this. These are the people you need to contact. Here is the information about how to do that, the help that you need. If you want to ask any questions, here is the help line."

Respondents overwhelmingly indicated that their outreach work relied on good relationships with administrators overseeing the university's REF 2021 response. These relationships helped establish those in the library as the campus experts leading and directing OA compliance.

Methods for Direct Outreach

Unsurprisingly, issues of scale and capacity largely dictated each university's approach to conducting outreach. Librarians and research managers tasked with communication worked with

subject liaisons, held workshops, met with small groups, and spoke one-on-one with faculty. Non-personal outreach included email messages and physical mail drops. Interestingly, two librarians described the helpfulness of including a deposit link directly in their email signatures.

Departmental Contacts

Respondents from three larger universities described how their libraries created a network of OA contacts within departments and spent significant time training them. In some cases, OA contacts served as departmental advisors tasked with helping researchers deposit their work. In other cases, contacts made deposits on behalf of researchers. In nearly all cases, OA contacts were administrative staff people who required a good deal of training.

> This is …someone who is probably going to be the poor sod running around chasing the academics in the department…the administrative person could be putting things into Symplectic, the CRIS, themselves or they could just be chasing people because they get emailed stuff regarding compliance…. If it's handled within the department, it does tend to be a lot more effective than an outside body.

> We established a network of open access contacts in schools and faculties …most schools actually have got a named open access contact, and they've got a variety of kind of roles and responsibilities. So some of them do mediated deposit on behalf of the staff in their schools. Some of them are a lot more hands off than that. And they just kind of do a little bit of compliance monitoring and that sort of thing when it's necessary. But most of our comms go through this, the open access contacts…. So that was one of the big things we did. Actually, it's probably one of the things that's had the biggest impact.

For those at larger institutions, time spent in "train the trainer" sessions or at help desks specifically dedicated to OA contacts was time well invested. A system of OA contacts lessened the burden of communicating with faculty about individual deposits and freed up time to tackle higher level reporting, compliance, and outreach needs.

Broader OA Education

As REF 2021 drew to a close, a few respondents noted a change to their communication plans. After five years of researchers getting used to workflows and expectations, some libraries are taking the opportunity to broaden out their communications around open access and move away from messaging focused mainly on policy and process.

> I think we tried to switch the message up a bit from being the REF stick to more of the open access carrot…. We basically taught them about the benefits to them: collaboration, raising visibility, rather than, "you've got to do this because this is what the university is telling you you've got to do."

There was a feeling expressed by some in the study (detailed in the *Effects* section), as well as the Ten Holter study,[27] that researchers' focus on REF compliance began to overshadow

deeper understandings of open access or open research. This concern precipitated outreach efforts to move faculty beyond a compliance-only mindset.

Other Funder-Based Open Access Policies

Preceding Open Access Policies

Prior to the REF 2021 period beginning in 2016, two large UK funders, UKRI and the Wellcome Trust, had already introduced open access policies of their own. These pre-2016 policies tied open access requirements to research grants or awards, but they did not have the aggressive timeline of the REF nor, initially, was compliance strictly enforced. Because the policies were tied to specific funding awards rather than university-wide funding (like the REF), they missed large swaths of faculty whose work did not rely on acquiring research funding. Yet, despite their limitations and checkered compliance, most respondents felt that funder OA policies that preceded REF 2021 did contribute a foundation on which the REF 2021 open access policy built.

> The big funders such as UK Research and Innovation, you know, they've really driven that open access agenda forward. I think they've definitely paved the way for something like REF.

> There's a certain sort of line that you can trace. It seems inevitable when you look back …. Really, I think in terms of what they [funders] required around open access, I think that maybe was the testing ground that then allowed them to introduce that the REF policy was going to affect a much wider group of people. So, I think politically it would have been more difficult for them to have that [REF] policy if they hadn't already had that.

While respondents largely indicated that the earlier funder requirements established a framework on which the REF 2021 open access policy could build, many also noted just how dramatically the policy differed from these previous mandates.

> It was a logical progression, but it was a big step.

> REF is so, so important and people are so passionate about it in the UK. It's really so important to them. And we just wouldn't have had the building blocks in place going in …. I think actually REF is more of a driver than even the [individual] funders. The REF is more encompassing.

In fact, one librarian indicated that the REF policy was different enough from the earlier funder requirements that they "probably didn't matter that much because it [REF 2021] was a whole new thing." However, most respondents felt that the foundation created by preceding funder policies was important, and they expected new funder OA policies, like the most recent from UKRI,[28] to push open access boundaries further and create even more aggressive expectations for open research in the next REF cycle.

Haves and Have-Nots

Open access policies from UKRI, the Wellcome Trust, and other funders did not disappear with the REF. A funded research project might need to meet one set of expectations for the funder and another for REF. Respondents spoke in their interviews about the complexities of managing unaligned OA policies and APC funding while simultaneously building a repository infrastructure for REF 2021. They also described empathizing with researchers who, unlike librarians and information professionals with expertise in scholarly communications, had to fulfill funder requirements with very little familiarity to draw from. One librarian described the burden on funded researchers as a "policy stack" and another as a "minefield," while others expressed their desire for funder policies to align.

In many cases, the repository served double duty as a mechanism for funder compliance when APC funding began to run out:

> We cannot afford to have current subscriptions the way they are, so we're kind of seeing green open access as a pressure valve to enable our researchers to comply with their research funder policies.

> We always run out of money every year, everybody runs out of money. Most years, we would tell somebody we wouldn't pay for this [APC], actually, because we can make it open access through the green route. And they normally don't like that.

> The block grants that we've got from the funders like the UKRI one, in particular, it just doesn't go very far. We're always running out before the end of the year, and then we're having to say, "You need to do green open access."

A robust green OA infrastructure, then, not only answered the REF's call for fast access to an accepted manuscript but also provided another tool to facilitate compliance with other OA policies. Many respondents noted, however, that this contributes to a dichotomy of "haves" and "have nots" in which repository-based green OA is seen as secondary or lesser-than APC-funded gold OA.

> What we don't want, of course, is a situation whereby those that can afford to make their work available through open access with the version of record, which is the one everybody wants, and those that can't have the green version.

> It's almost becoming a two-tiered system where some people, if you're funded, you can afford to pay for it and if you're not funded, you're like second class going the green route because you don't have any other options.

> There's still a bit of a feeling of gold open access as being kind of proper open access and certainly as being more desirable, I guess, for a number of reasons. Possibly calling it 'gold' doesn't help…and green open access is kind of the poor researcher's alternative.

Many respondents felt that REF 2021 made inroads in countering negative views of green OA by raising its profile and demonstrating that it is legitimate, acceptable, and often the fastest way to make work accessible.

Compliance

Informing not Enforcing

Universities took REF open access compliance very seriously given the possible consequence of having research outputs disqualified. Disqualified quality outputs could jeopardize a university's REF submission and result in a loss of revenue to the university. When discussing compliance, respondents made clear that their role was to *inform* compliance, not to enforce it. Those tasked with enforcing compliance were either university administrators, committees, or departmental administrators.

> Within the library, we said, "Look, we're not going to be the compliance checkers. We've given you the tools, we're getting the stuff in, but we're not going to go around and haven't got the resources to do this [enforcement]."

> We weren't the stick because we're not really in a position to do it, but we were reporting to senior people in the university…. I think it's also, realistically, people wouldn't listen to us when we don't have the clout, I suppose. I think we were just not in a position to do that, but we have the information to make others do it.

Instead, librarians passed information to administrators via dashboards, reports, or spreadsheets. In other cases, departmental OA contacts generated compliance information and served as first-line compliance monitors. One librarian noted that her campus created staff positions specifically for monitoring compliance eighteen to twenty-four months before the REF's completion.

Using Exceptions

Some respondents discussed the allowable exceptions in the REF 2021 open access deposit process. The REF 2021 guidance states that 5 percent of outputs included as part of a university's complete REF submission are allowed to be non-compliant with the open access policy.[29] This small wiggle room is afforded for cases where an output might need to be published in a journal that best fits the research but the journal is not open access and does not allow for the deposit of an accepted manuscript in an institutional repository. In this case, the non-compliant article still could be included in a university's submission under the 5 percent of exceptions.

Respondents stressed that, although these exceptions existed, they did not widely publicize them to faculty. Most were cautious with exceptions so that the university would have room later to include a handful of important non-compliant outputs or have space if outputs thought to be compliant proved otherwise.

> There's a 5 percent acceptable non-compliance rate …and, you know, we don't tell our faculty anything about that.

> The university doesn't want to get anywhere near that figure because that's five percent of the entire university return …the motivation is to come nowhere near the five percent cap. Where the publisher absolutely disallows inclusion, [and] there's going to be an issue with making it open access via green or gold, then yes, where there is no other wiggle room whatsoever and it's wanted for the REF because it's that important, that's where the 5 percent exception will come in.

However, two librarians described their universities as consciously using the 5 percent exemption to include as many research outputs as possible, while a librarian at a different university described the practice of trying to max out the 5 percent exception rate as a "dodgy game to be playing."

Effects of the REF 2021 Open Access Policy

Increase in UK Research Made OA

REF 2021's most important effect on scholarly communications was the dramatic increase in the amount of UK-based research made openly accessible; however, respondents also noted that the benefits of the infrastructure created to accommodate REF 2021 extend beyond the assessment period and have the potential to grow.

> The entire landscape has seen positive changes. I have only seen it in regards to content becoming available…. The knock on effect of the open access policies [is] on research data, inclusion, and reproducibility…. It's a bit of a wedge. It opens up the scholarly publications environment and the scholarly communications environment.

> It's hugely increased the interest and infrastructure for green. It means that we have built up a huge infrastructure around repositories and green open access that wasn't there before.

> Effectively, yeah, it seems that the REF has been either the carrot or the stick that was required to get things moving…. It's actually helped institutions, maybe especially smaller institutions, focus themselves to create proper repositories and archive stuff properly. And then, later on, they brought in these mandates which mean that people are more proactively making their research more discoverable, more usable, more readable.

The UK's gains in open access were overwhelmingly viewed as a positive in terms of broadening availability and increasing the impact of research. Those interviewed unanimously felt that the REF 2021 open access policy achieved its goal of breaking down barriers to research and, in so doing, expanded the reach of UK-based research to a wider and more diverse global audience.

Educating Researchers about Open Access

Mixed opinions were expressed, however, about whether the REF policy made a difference in researchers' understandings of open access and scholarly publishing. Some respondents felt

strongly that going through the REF 2021 process had prompted researchers to think more about how their work is disseminated.

> I think what it's done is raise the profile of what open access publishing is, whether that's through a repository or a journal…. We took some of the key questions to our research committees, one of which was around a rights retention strategy and about whether there should be embargoes on the final version of record. And, across the board, our academics all said, "No, we shouldn't be having to sign over our copyright." I think that's partly probably because of REF, because open access just had to be in people's heads…. I'd suspect we wouldn't have had the same reaction eight years ago.

Other respondents felt similarly but qualified their thoughts by saying that the process of making work comply with REF sometimes overshadowed wider and more thoughtful considerations of open research. One librarian, in a very telling statement, said, "When a measure is being used as target, it stops being a good measure." Similarly, another librarian commented,

> I think what REF were trying to do is very admirable. What they wanted to do was to try and drive forward the open access agenda by bringing in this policy, this mandate, to be included in REF. I think that's admirable. I think it did help. It has helped transform the movement, somewhat, but I think also it's kind of been a little tiny bit detrimental in the way that people think, "Oh, it's not for REF, then we don't need to worry about open access" because they kind of feel that they're just thinking about the policy and they're not thinking about the bigger or the wider implications relating to open access and the benefits for them and their research and the wider public.

There was a tension in responses between those who viewed REF 2021 as an exercise that engaged and educated researchers on issues of access and publication and others who viewed REF 2021 as an exercise that blinkered researchers and encouraged them to think solely about compliance.

Two Tracks

A small number of librarians described a third effect of REF 2021 as the creation of two "tracks" for research outputs: one track for outputs likely to be included as part of the university's REF submission and another track for outputs unlikely to be selected. By identifying research outputs as either likely or unlikely to end up as part of the university's REF submission, researchers could see their departments allocate resources and attention accordingly. One librarian called this "teaching to the test" and clarified by saying,

> Your head of department will be asked early on in the cycle to highlight outputs that are likely. They'll pick out across the department that this person is working on this project and it's likely to be a REF output and …if somebody doesn't think they're going to be a 'good' research output, they're not given the time to work on them…. That would probably be pressure on your humanities researcher who is

> producing that magnum opus to push it into a REF-shaped or REF-timed output or else how could they justify their position?

While the "two tracks" problem was identified by a small number of schools, more than one respondent noted that making "for the REF" and "not for the REF" designations early in a project's development could have a number of important consequences. Such a designation could change the attention a researcher pays to open access, dictate the authors publication choice, affect aspects of the research itself, or, at worst, have implications for a researcher's career.

Conclusion

Study Limitations

This study represents an in-depth qualitative approach with a small sampling of librarians and information professionals throughout the UK. Further reflective work could extend to a greater number of respondents and analyze response data for trends based on location, institution size, or REF score. Further, the study focuses solely on library support for the "outputs" section of REF 2021 and does not consider the ways in which libraries supported the "impact case studies" or "research environment" sections. Future research could include attention to these sections and incorporate responses from REF administrators.

Lessons from REF 2021

The REF 2021 open access policy undeniably accomplished what it set out to do by making open access a priority for universities and requiring engagement with the scholarly publishing environment. Mandating open access on an aggressive three-month time frame created a green open access infrastructure across the UK that required new technology and workflows to be put in place. And yet, REF 2021 did not *incentivize* a move to open access; rather, it threatened to penalize those who failed to comply or did so poorly. As one librarian put it,

> The REF has been the big one, in which case there's quite a significant difference in the amount of funding that the university can secure. When funding is at stake, then, yes, that's not a carrot. That's a very large stick, and it's an effective one.

The metaphor of sticks and carrots came up in multiple interviews and seems to capture a feeling that, while REF 2021's open access policy was punitive to universities, it got the job done where incentivizing and encouraging had failed. The punitive "stick" approach did, however, present numerous challenges to universities. Respondents expressed in detail the complexities associated with creating and maintaining systems for deposit, outreach, and compliance as well as the added burden placed on researchers and libraries.

Going forward, REF 2021 infrastructure will be built on to push the boundaries of open access even further. UKRI's updated open access policy foreshadows the demands of the next REF, which appear likely to include instituting expectations for immediate open access at time of acceptance and requiring scholarly monographs to be made open.[30] This means new pressures placed on libraries, of which respondents were well aware.

> Big challenges ahead. That's quite a scary thing to think about. Trying to implement that here. Just getting people to embrace zero embargo. That's going to be really difficult. It's going to be a lot of work educating them [and] engaging with our community and getting that message out there.
>
> I think books are definitely going to be the next stage. I think that's a massive question, though. There's just so much unanswered about a transition to [OA] books or the scholarly monographs.
>
> I think we do know there's definitely going to be changes and monographs are likely to be included in the next REF.

Respondents in the study also identified an increased focus on open data as an expected change in the next REF. These anticipated new REF expectations mean that librarians and research information managers in the UK do not anticipate respite any time soon from accommodating REF's open access demands.

Academic librarians outside the UK would do well to take note of the REF 2021 open access policy, the dramatic gains made in the percentage of UK-based research made open, and the staggering amount of work undertaken by institutions to make it happen. Recent developments such as White House Office of Science and Technology Policy's August memo titled "Ensuring Free, Immediate, and Equitable Access to Federally Funded Research"[31] underscore how important it is that US academic librarians stay informed of responses to policy-driven open access in other countries. REF 2021 illustrates that such responses require processes of invention, implementation, reassessment, and communication. Despite the differences in higher education funding, the lessons from REF 2021 serve as a starting place for libraries in the US to imagine a response to federally-mandated open access and all that will be necessary to accommodate it.

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Appendix. Standard Interview Questions

1) Prior to REF 2021, what was the experience level of your faculty with making their work OA?
2) What structures did your university put in place to deal with number of deposits that were about to pour in?
3) What outreach occurred before and during the REF 2021 assessment period?
4) Do you feel that the REF 2021 open access policy would have been possible without the prior funder requirements from funders like UKRI (formerly RCUK) and the Wellcome Trust?
5) How did you account for articles already made OA through an APC (gold OA)?
6) How did you measure OA compliance?
7) What changes in scholarly publishing, if any, have happened or are likely to happen because of the REF 2021 open access policy?

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Assessing Diversity in Special Collections and Archives

Sarah R. Jones, Emily Lapworth, and Tammi Kim

In 2020, UNLV Special Collections and Archives conducted an internal audit of collections, strategic plans, and programming in order to assess how well it is meeting strategic goals of being more inclusive and increasing diversity and representation. In a data-driven institution, how can assessment be used to advocate for resources focused on diversity, equity, and inclusion? In conducting this analysis, UNLV hoped to answer the following query: how is progress measured if the goal is to preserve stories outside the traditional narrative (white, male, cisgender, heteronormative, etc.)? This article discusses strategies for assessing diversity in special collections and archives.

Positionality

The authors are in the early stages of adopting more inclusive practices and embedding them programmatically at their institution. The authors wish to be transparent about their own positionalities and identity. They work in a special collections library where the faculty are predominantly white and do not reflect the diversity of the student population nor the region's diverse communities. Two authors identify as white and one author identifies as Asian American. The authors acknowledge and accept responsibility and privilege for working at an academic institution, but also understand their limitations in perspective, understanding, and ability to create community relationships. They understand that in order for reparative work to be done, they must reckon with the complicity of the institution that creates these issues and perpetuates harmful practices.

Introduction

In 2020 and 2021, a global pandemic and numerous acts of violence across the United States highlighted the persistence of racism and white supremacy in all areas of American life, including in libraries and archives. Many organizations published statements on commitments to diversity, anti-racist practices, and improving representation within collections.[1] The Council of the Society of American Archivists (SAA) acknowledged that archives workers "continue our collective effort to repair the legacy of structural racism" and that the endurance and "vitality

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of American archives depends on an explicit commitment to social responsibility, justice, and anti-racism in the work that we do and the organizations we work within."[2] This commitment is also reflected in the Association of College and Research Libraries (ACRL) Code of Ethics for Special Collections Librarians: "As stewards of the cultural record, practitioners also bear a responsibility to represent historically underrepresented and marginalized voices, recognizing that diversity is complex and intersectional, and that silences, gaps, and poor description resulting from historical biases have the potential to do great harm."[3]

As many special collections and archives aim to build more diverse collections, equitable practices, and inclusive environments, it can be challenging to identify exactly how to move from statements to actions. How do archives meaningfully address centuries of racism, discrimination, and oppression? Fortunately, there is an increasing amount of literature, presentations, professional development, and other resources related to making archives and libraries more diverse, equitable, and inclusive.[4] Beyond collecting and preserving the records of marginalized communities, it is important that they are appropriately described, accessible, discoverable, promoted, and used.[5] Examples of diversity, equity, and inclusion (DEI) initiatives in archives include reparative description, inclusive reading rooms, community focused archiving, and best practices for sensitive materials such as protest records and Indigenous cultural materials.[6] An additional strategy for planning and implementing DEI work is to assess past initiatives and current holdings in the context of these values. A clear picture of the diversity and representation within an institution's collections, as well as the inclusiveness of past initiatives, can illuminate weaknesses that need to be addressed and strengths that can be built upon. Hard data can also demonstrate to administrators that more support is needed for DEI work, and to counteract the notion that "we are already doing this" or "we are already doing enough." However, assessment should not be used as an excuse to wait to take action in other ways; it can be implemented in parallel with other projects. It should complement other DEI initiatives, but it is not enough on its own.

This article describes strategies employed by the University of Nevada, Las Vegas Special Collections and Archives (UNLV SCA) to assess current collections and past collecting and outreach initiatives in the context of DEI values. The Oral History Research Center (OHRC) at UNLV SCA is well known for leading community documentation projects such as *Documenting the African American Experience in Las Vegas* (2012–17), *The Southern Nevada Jewish Heritage Project* (2014–18), *Latinx Voices of Southern Nevada* (2018–21), and *Reflections: The Las Vegas Asian American & Pacific Islander Oral History Project* (2020–).[7] These projects document local communities by collecting oral histories and archival records while also building relationships, raising awareness of these collections, and providing online access to select archival materials. However, these are grant funded projects, and most of the associated activities are deprioritized when the project funding ends. Materials related to these communities remain part of regular ongoing collecting, processing, and digitization work, but to a lesser extent. UNLV SCA continues to pursue new grant funding for similar projects, but new projects often focus on a different community.

How does one measure the long-term success of projects like these? When DEI initiatives are happening already, how do archivists successfully advocate for even more resources and more action? Driven by these questions, archivists at UNLV SCA analyzed various available data to assess the diversity and inclusivity of its collections and how DEI initiatives have been prioritized over time. The authors analyzed accession data and subject headings assigned to

archival collections and digital collections items to assess the diversity of SCA's collections. They also examined past strategic plans, collection initiatives, grant projects, and events to determine how DEI initiatives have been prioritized over time. In this article the authors share their rationale for undertaking this assessment, the various methods used, a summary of the results, and recommendations for other archives that wish to conduct similar assessments.

Literature Review

Historians and archivists have called for a more diverse historical record since the 1960s and 1970s. Cultural revolutions have increased the mainstream acknowledgement of cultural, racial, and ethnic inequities. Archivists today are simultaneously reckoning with an overabundance of documentation and lack of representation within collections. In Brian Keough's examination of documenting diversity in special collections, he succinctly lays out the history and practice of documentation strategy in archives during the 1970s and 1980s, which led to a wider call for collections of underrepresented groups.[8] Academic libraries also realized that in order to truly address diverse research and teaching needs, they needed to diversify their collections.[9] By the mid-1990s Louis Buttlar found that 83 percent of the academic libraries he surveyed were actively purchasing new multicultural materials.[10]

In 2010, Ciszek and Young outlined different strategies for academic libraries to assess the diversity of their collections. These strategies include collection analysis based on classification schemes such as the Library of Congress Classification System (LCCS), comparison to standard bibliographies, diversity codes applied to acquisition records, stewardship letters, circulation and use statistics, focus groups, interviews, and surveys. Regardless of the assessment method used, the authors emphasized that "without a shared vision and plan for diversity collections in place, differing opinions on how to increase the number of diversity-related materials in the collection may lead to libraries missing the mark when building collections" and institutions risk not building truly diverse collections due to chaotic or ill-aligned collecting policies and vague value statements.[11]

Increasing diversity in archives and special collections also requires a thoughtful and deliberate approach to collecting. Unlike general library collections, there are no rubrics or bibliographies to guide collection-building. Instead, collecting is guided by the unique mission and collection development policy of the organization and the communities it serves. Do the collections reflect the diversity of the communities? Are users able to find themselves within the archival record, or is their community excluded?

Aligning all practices within an archives or special collections to the same shared, comprehensive, and DEI-centered goals and policies is critical to ensure not only that the collections are diverse, but also that other facets of archives, such as description and access, are inclusive and equitable. Documented vision and mission statements, goals, and policies provide a framework for local DEI assessment. Assessment of DEI initiatives can help demonstrate value and commitment to the community, and push goals further. While many reading rooms and archives rely on anecdotal (qualitative) information to inform collecting and staff needs, structured assessment provides statistical (quantitative) data that can inform and strengthen requests to upper management and administration for more resources or support. Lisa Carter's 2012 article lays out the need for standardized practices of assessment in special collections and argues that special collections can no longer simply assume value, but must "shift from assumed value to evidence."[12] While Carter's article focuses more broadly on assessment

in special collections, her insight on articulating value with data over anecdotal evidence is relevant when articulating the diversity (or lack thereof) in archives:

> Special collections librarians and archivists have long employed instinctual and rhetorical strategies for articulating value. Individual curators hold deep and broad expertise in their areas of collecting…. While such expertise should continue to be highly valued, a longer-term, sustainable future for collections and programs depends on more objective evidence of relevance and efficient, strategic, and judicious prioritization of effort.[13]

Structured and documented assessment is beneficial to individual institutions, but widely sharing assessment data also benefits the wider archival profession. The profession-wide call for increased diversity, equity, and inclusion is clear. How can the profession improve if assessment is not openly discussed, results shared, and institutions held accountable? As Carter argues, "Assessment activities need to be not only grounded in shared best practices and tools to provide a basis for external benchmarking but also tailored to address local questions and concerns…. Each of our special collections and archives may face different challenges but they share a common framework."[14] The archival profession needs an infrastructure of best practices and recommended tools that can then be applied thoughtfully and with intention. Otherwise, Carter argues, assessment activities may not matter at all.

Literature and shared data assessing diversity and inclusion in archives often centers on the demographics of archivists, which is extremely important, but there is a lack of shared methods and data focused on collections, description, initiatives, and programming. The diversity of archival collections is rarely systematically assessed or reported on widely. The majority of collection assessment literature focuses on academic libraries' general collections, and few resources discuss assessing special collections and archives in a systematic way. As Griffin, Lewis, and Greenburg noted in their 2013 article on data-driven decision making, while professional literature on assessment in academic libraries is growing, "discussions of assessment methodologies for special collections and archives tend to be sparse and to focus on answering specific questions, usually related to technical services."[15]

Institutional Background

Founded in 1957, the University of Nevada, Las Vegas (UNLV) is a public land-grant R1 university of more than 31,000 students and is home to one of the nation's most diverse undergraduate student bodies.[16] UNLV is situated on the traditional homelands of the Nuwuvi, Southern Paiute People.[17] The Special Collections and Archives (SCA) division of the UNLV University Libraries documents the history, culture, and environment of Las Vegas, the Southern Nevada region, the global gaming industry, and the University. SCA's holdings include over 15,000 cubic feet of archival collections, over 32,000 books and periodicals, 1,800 maps, and 4,000 oral history interviews. As of 2021, SCA is composed of five units: Digital Collections, Public Services, Technical Services, the Center for Gaming Research, and the Oral History Research Center.

The Oral History Research Center (OHRC) conducts oral history interviews with members of the UNLV and Southern Nevada community, and has a history of leading grant-funded community documentation projects. Due to their strong relationships with community mem-

bers, OHRC staff also work with SCA curators to acquire archival collections. UNLV SCA's collecting strengths include architecture, "communities and groups," early Las Vegas, entertainment, gaming, Nevada Women's Archives, politics and government, southern and central Nevada, and water and the environment.[18]

SCA Technical Services (SCATS) processes and manages all of SCA's holdings. ArchivesSpace is used to create finding aids for oral history interviews and manuscript, photograph, and university archives collections.[19] Digital Collections (DC) provides online access to select materials from UNLV SCA and digitizes archival photographs, manuscript materials, newspapers, oral history interview transcripts and audio. Items are selected for digitization in consultation with all units of SCA. Digital objects are described using Dublin Core metadata, and archival description is reused or repurposed when possible. SCA Public Services is responsible for managing reference services, reproduction requests, instruction, and outreach. A collection may pass through the hands of OHRC, curators, SCATS, DC, and Public Services on its way to reaching a researcher; during each step of the way SCA aims to add value and build on the previous work of each unit.

Defining Diversity

To begin assessing diversity, special collections and archives need to define what their institution or repository considers "diverse." An institution may "focus on more 'traditional' facets of diversity like race, ethnicity, and gender, while others strive for maximum inclusivity by including sexual orientation, gender identity, gender expression, physical ability, and socioeconomic class."[20] Which underrepresented or marginalized communities or identities does the archives aim to represent and include in its collections, outreach, and activities? This should be clearly documented in guiding documents such as mission statements, collecting policies, and strategic plans. Assessment, accountability, staff training, outreach, and collecting are more efficiently achieved when explicit goals and policies are established.

Aside from time-limited, grant-funded initiatives, UNLV SCA does not have a defined collecting policy. The repository website lists "communities and groups" as one of UNLV SCA's general collecting strengths, which is further defined as racial and ethnic groups, women's organizations, civic and community organizations, and the LGBTQ community. The authors referred to the UNLV Libraries Diversity and Inclusion Statement for additional guidance on what facets of diversity to examine:

> We welcome everyone, including people of color, immigrants, adherents of all belief systems or religions and those that do not profess or practice a religion, people of all genders and sexual orientations, and all other members of marginalized communities or oppressed groups. We encourage discovery and learning in spaces where all people are respected and protected. Within our spaces, we seek to protect everyone from all forms of hostility and oppression, including sexism, misogyny, ableism, racism, classism, xenophobia, homophobia, transphobia, and religious persecution.[21]

Equal Employment Opportunity (EEO) regulations also specify protected characteristics that are often the basis of discrimination.[22] Based on these sources, the authors used the facets of race, ethnicity, gender, sexual orientation, religion, ability, class, age, and national origin as

a starting point for several rounds of coding subject terms applied to archival collections and digital objects. During the process of coding, the authors refined the categories of diversity represented in the data, and also identified specific topical categories that represent conscious collecting initiatives or topics of specific significance to UNLV SCA. For example: prostitution is legal in some counties in Nevada; SCA is the repository for the University Archives, therefore students should be represented; and "showgirls" is a major collecting area that falls under the category of "women" but was tagged separately to avoid skewing the data. The categories resulting from the coding of subject terms are listed below.

• Activism • African American • Asian American and Pacific Islander (AAPI) • Buddhism • Children • Criminal justice system • Christianity • Disability	• General diversity and discrimination terms • General religious terms • Hispanic/Latinx • Immigration • Indigenous • Islam • Judaism • Labor	• Latter Day Saint movement[23] • LGBTQ • Older people • Poverty • Sex work • Showgirls • Students • Veterans • Women

Terms related to activism, labor, immigration, and the criminal justice system were included because these topics are often, although not always, related to oppression and power struggles within society. Christianity is not a minority religious faith in the United States, but it is included because it is a religion and related subject terms are used to describe SCA materials. On the contrary, "white" as a race and "European American" as an ethnicity are not included because there aren't any related subject headings used to describe SCA materials. This is an example of white European identity being assumed to be the "default."

Strategic Plans

Strategic plans outline the top priorities of libraries and archives. The authors examined the strategic plans of both UNLV Libraries as a whole and the SCA division to see how diversity, equity, and inclusion priorities have been included over time. Strategic planning has not been practiced consistently or for very long at UNLV Libraries, so this analysis only provides insight into the recent past. From 2009 to 2015, UNLV Libraries strategic plans mainly addressed diversity as an organizational value to foster "a talented, diverse and empowered faculty and staff."[24] The 2015–2017 strategic plan was structured to align with UNLV's Top Tier goals, which listed an increased use and online availability of "unique, regional content" as key measures of success under research, scholarship, and creative activity.[25]

Beginning in 2015, SCA created a framework for ensuring that the division meets the goals of the Libraries' strategic plan, such as collecting materials on specific communities and topics, building community partnerships, increasing access to diverse collections, and creating inclusive descriptions. SCA once again developed goals in 2017 and in 2019 to align with UNLV Libraries' new strategic plan, which included specific themes and goals aimed to increase diversity, equity, and inclusion across the division. Some examples of goals include processing collections related to historically underrepresented communities, recruiting and

retaining diverse staff and student workers, and practicing inclusive archival description.[26] One of the challenges the authors observed in this analysis is that the goals do not list specific action items and are difficult to measure. Another concern with setting vague goals may point to an issue with performative allyship that does not flesh out specific and targeted action items beyond the vague idea that "we should be more inclusive." Developing SMART (specific, measurable, achievable, realistic, and time-bound) goals based on input from all stakeholders (users, communities, and staff) can help achieve a more meaningful process of strategic planning that is user-driven and clearly outlines the roles and responsibilities of staff members involved.

Developing data points to measure the success of goals such as counting the number of requested materials, reproduction requests, analytics for digitized items, and citation analysis can help in assessing the success of strategic goals. The authors recommend establishing procedures for conducting regular assessment and formally reporting on progress related to strategic plans and goals as a vital component of accountability.

Collecting Initiatives, Grants, and Outreach Events

Like many University Libraries, UNLV SCA regularly applies for and occasionally receives grant funding from a variety of federal, state, and private sources. Since 2010, UNLV SCA has received grant funding to work on twenty distinct projects, including community collecting, arranging and describing manuscript collections, and digitization of newspapers, archival collections, and photographs. These projects have sometimes been centered on particular communities in Las Vegas and included conducting oral history interviews, holding community events, and collecting archival materials. The authors analyzed available documentation of SCA's initiatives, events, and exhibits to determine to what extent diverse communities are represented, and if representation continued past the specific project or ceased with the conclusion of the collecting initiative.

Like other aspects of this collection assessment, diversity in name does not always align with diversity in reality. While some of the collections that were processed, digitized, or publicized as part of a grant project may document an underrepresented community or an individual with a marginalized identity, the grant was not specifically written to highlight or focus on that aspect of the collection. Only six of twenty grant-funded projects that received funding from federal, state, and private sources from 2010 to 2020 were written to specifically focus on diverse communities.[27]

In addition to assessing the subject matter of past (and future) grant projects, archives and special collections should consider if all aspects of the project align with DEI values. For example, a project focusing on the records of the local African American community is a good start, but how involved is the community with the project? Who makes the decisions about appraisal and access? Is the description work tailored to the specific history of the community and the needs and desires of stakeholders? Grant funding can definitely help efforts focused on specific communities, but archivists should be mindful to continue nurturing the relationships and initiatives that are established during short-term projects, and plan for their sustainability beyond short-term funding. Strategic plans and other high-level guiding documents should be used to establish DEI work as a long-term priority for permanent staff.

UNLV's grant projects inspire speaking engagements, events, and exhibits in the library, which were also analyzed. UNLV Libraries Administrative staff provided a spreadsheet of

Special Collections and Archives events that took place inside the Library.[28] The events in the spreadsheet were verified against blog posts on the SCA website and internal documentation, and missing events were added. Events were tagged with the diversity categories that were also used for subject heading analysis.

Of the ninety events in the provided list, twenty one were focused on diverse communities, or roughly 23 percent of the events. Additionally, when the dates of events were analyzed, the events typically took place during specially funded projects that focused on diverse collecting, such as *The Latinx Voices Project* (representing 6 percent of events) or the *Southern Nevada Jewish Heritage Project* (representing 10 percent of events). With only a few exceptions, the public events focused on diverse communities of Las Vegas were directly tied to the grant funding timelines. The data analyzed did not include events held outside the library, such as the recent "We Need to Talk: Conversations on Racism for a More Resilient Las Vegas" event series hosted by the director of the OHRC, Claytee D. White.[29] Although the series is a valuable addition to UNLV SCA's programming, events outside the Libraries that involve library staff may or may not be officially sponsored by UNLV Libraries and are not consistently documented.

The authors recommend that archives keep consistent records of their programming and events in order to better assess their diversity and inclusiveness, both in terms of subject matter and audience. In terms of audience, records of formal groups that archives staff presented to, or community venues where the events were held. However, the authors caution against collecting and recording data about individuals attending events, as this is a violation of privacy, presents challenges of providing access to the collected data in the future, and includes issues of categorizing identities without participants' consent.

Exhibits displayed in various areas of the Library were also assessed, and five out of fifteen are considered diverse by the authors' criteria. While this study only examined the topics of exhibits and events, it is valuable to also consider how accessible and welcoming they are. Where and when are they held? For example, is the location on a public transit route? Can there also be a virtual component? Is it scheduled during "working hours" (whatever those may be for the target community) or can it also be experienced asynchronously? Also examine whose voices events and exhibits elevate. Are academics and librarians the only people who speak at events and create exhibits? Can students and community members promote their work and share their experiences?

Accessions

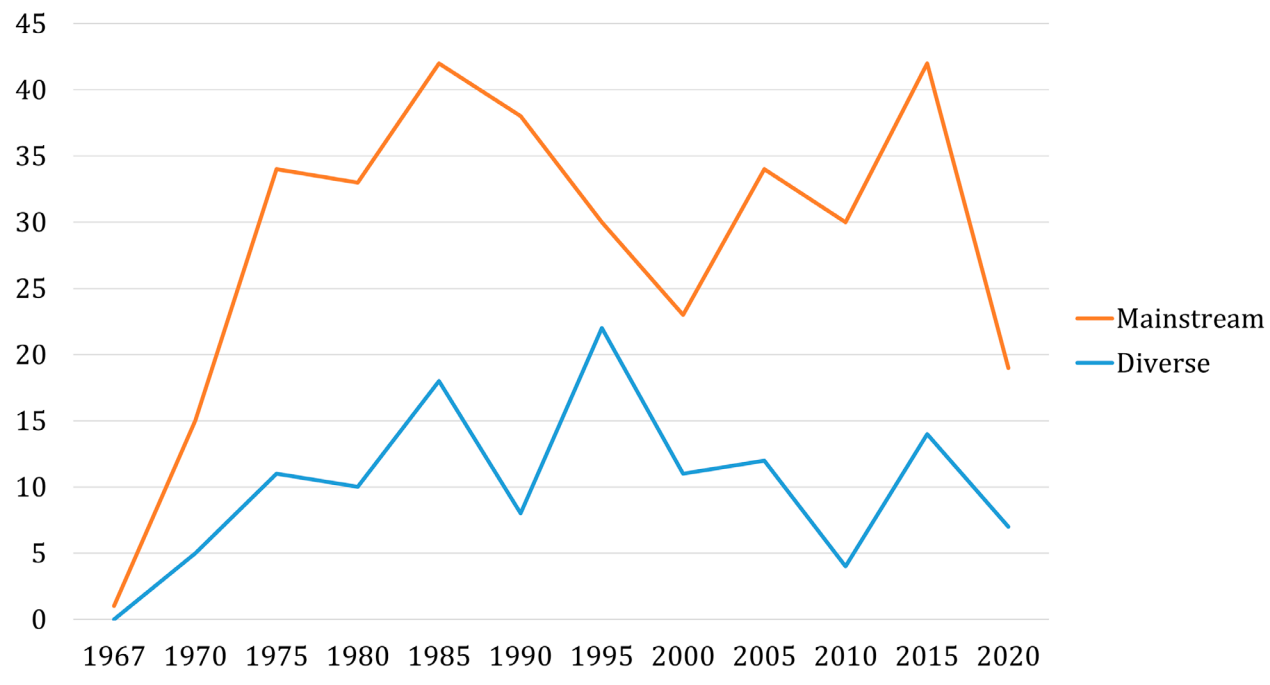
From 1967 to March 2020, SCA recorded 1,647 accessions that represent manuscript and photograph collections and university archives. Accession records in ArchivesSpace contain minimal information: most records list the accession number, accession date, a brief description of the materials, and name of donor. Accession data was then cross-referenced with the corresponding archival collections to determine what the collection is about based on the subject headings assigned and abstract notes in the finding aid. The accession data was compiled into a spreadsheet and coded based on the diverse categories established by the authors, as well as UNLV SCA's primary collecting areas.

Accession data was then marked as "diverse" or "non-diverse" based on the primary subject.[30] A "COUNTIF" formula was applied to count every time an accession was coded with a particular category. In total, 569 (34.6 percent) accessions were identified as diverse

based on the categories defined for this project. Over time there have been 313 accessions that include "women'' as a primary collecting area. Fifty accessions that were originally coded as about "women" were later recategorized upon reviewing the corresponding collections. These collections often include women's names in the collection title; however, a review of finding aid descriptions revealed that these were collections donated by women, but the materials themselves were not representative of women in Las Vegas and Southern Nevada history. Many of these accessions were related to photograph collections that contain photographs depicting locations around Las Vegas such as casinos and other landmarks.

Nevertheless, collections about women comprise the majority of all "diverse" collections (53.9 percent). The high number of collections about women may have direct correlation with the establishment of the Nevada Women's Archive (NWA) in 1994. The NWA was started as part of a statewide effort to collect and preserve the papers of women and women's organizations, and forty three (13.7 percent) of UNLV SCA's women's collections were acquired between 1994 and 1997.[31] Likewise, the establishment of community documentation grant projects like *Documenting the African American Experience in Las Vegas* (2012–17) and the *Southern Nevada Jewish Heritage Project* (2014–18) community projects show a similar increase in collections documenting those specific communities during the years the grant is active. The majority of African American (twelve out of twenty-eight) and Jewish related accessions (fifty-three out of fifty-eight) were acquired during the grant periods.

FIGURE 1
Number of Mainstream and Diverse Accessions per Year



Accession data is valuable to analyze diverse collecting over time, but UNLV SCA had to manually cross-reference collection descriptions to supplement the description in the accession records themselves. This method was partially subjective and based on the accessioning archivist's expertise and knowledge of SCA's collecting strengths. This may not be

as worthwhile as simply assessing the collections in their current state and focusing on the future. However, adding specific tags or subject headings to new accession records can facilitate accession-level analysis in the future. Ciszek and Young discuss the use of diversity codes as a method for quantitative collection-centered assessment. This type of assessment uses a list of pre-determined diversity codes that are entered into accession records at the point of acquisition. Reports can then be run on these codes in records to assess collection development efforts. However, Ciszek and Young also stress the importance of ensuring that the guidelines and methods for using diversity codes in assessment are well-defined and applied consistently across all acquisitions data.[32]

Overall, the number of diverse collections acquired by UNLV SCA has increased over the years; however these diverse collections remain in the minority of materials collected in any given year. Accession analysis and/or regular collection analysis can help archives track progress over time, especially in response to changing goals. It can also help gauge if collecting efforts initiated by grant funding are sustained over time. Due to the unstandardized and often sparse nature of accession records, it is important to plan ahead when setting assessment goals in order to reliably measure progress.

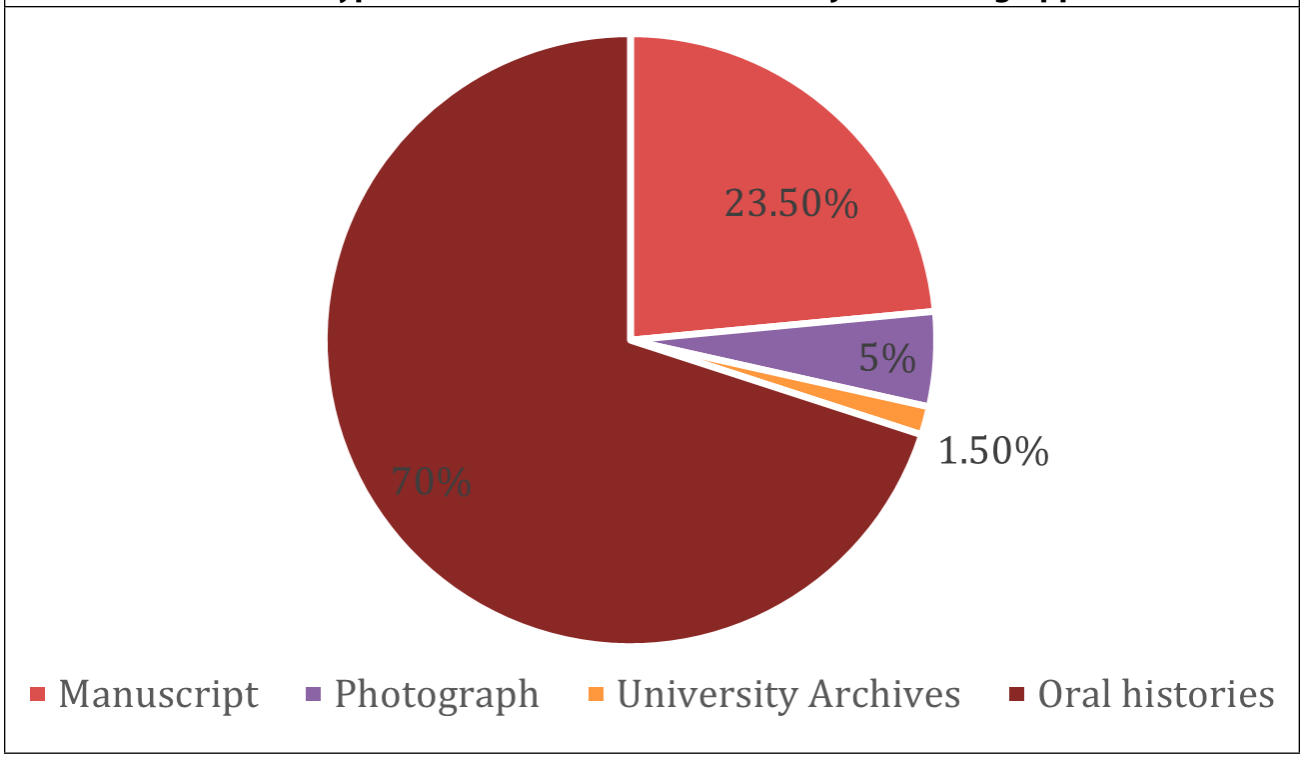
Archival Collections

SCATS uses ArchivesSpace, an open-source archival collection management application, to manage archival collection information for manuscripts, photographs, oral histories, and the university archives. SCATS uses ArchivesSpace to create and publish finding aids for collections, as well as maintain authorized and local name authorities and subject headings. In order to analyze the discoverability of diverse collections through the use of finding aids, it was determined that subject headings, and their use in finding aids, would be the most advantageous place to begin.

In spring of 2020, a full export of subject headings in ArchivesSpace was produced for analysis. The export listed 1,467 subjects, and the authors manually analyzed the list to determine what subject headings represented diversity based on the categories identified for this paper, which included historically excluded communities, socioeconomic status, sexual orientation, age, labor/activism, and disability. The list of diverse and inclusive headings was eventually narrowed down to 326 subjects. These subjects were grouped under broad categories. Using these as tags, the authors created a list of all associated finding aids linked to these subject headings in order to analyze whether these linked collections are indeed representative of diverse communities and identities. Usage statistics for manuscript and photograph collections compiled from the SCA Public Services were also analyzed to determine frequency of use by researchers. A number of questions were raised during the analysis. Are subject headings appropriately applied to collections considered to be diverse/inclusive? Are these collections being used? Why or why not?

From the snapshot produced in spring 2020, 23.9 percent of subject headings found in ArchivesSpace were classified as diverse, and 76.1 percent were not classified into a diversity category. Out of 4,596 finding aids in ArchivesSpace, 1,477 (32 percent) were linked to at least one diverse subject heading.[33] The collection type with the highest number of diverse subject headings was overwhelmingly oral histories with 1,035 (70 percent). This is partially due to the volume of oral histories described in ArchivesSpace using item-level description. In addition, recent initiatives in SCA to increase the diversity of collections have included collect-

FIGURE 2
Collection Types with at Least One Diverse Subject Heading Applied



ing a large number of oral history interviews.[34] Going forward, SCA plans to collect archival materials in addition to oral histories to increase the number of diverse collections that reflect the lived experiences represented in the communities' oral histories.

The diverse subject headings were further analyzed in conjunction with usage statistics for manuscript collections in the SCA Reading Room. As Ciszek and Young note, "Circulation and use statistics can also provide valuable insight into user needs in an unobtrusive way. By reviewing online catalog searches and the circulation statistics…libraries can determine subject areas where collection development needs to be focused."[35] The corresponding diversity subject areas for the top ten most used collections in the reading room are as follows: **women** (League of Women Voters of Las Vegas, Dunes Hotel and Casino Records, Mesquite Club Records, Minsky's Burlesque Records, Helen J. Stewart Papers, Charles P. and Delphine Squires Papers, Donn Arden Papers, and Sands Hotel Public Relations Records); **labor** (Las Vegas Chamber of Commerce Records); and **socioeconomic status** (Howard Cannon Papers). However, many of these collections that have subject headings under the category of "women" are hotel and casino corporate records that typically include many images of showgirls and dancers, and these images are some of the most frequently requested material. While women and showgirls *are* represented in these collections, the materials are not necessarily demonstrative of diversity or inclusive of all women in the Las Vegas Valley.

Analyzing usage statistics is common in special collections and archives, but is problematic because it only accounts for the materials that are described well enough to be discovered. As Ciszek and Young point out, "collection and use statistics focus solely on internal measures and fail to account for the wealth of diversity-related materials not included in the collection."[36] Even if collections representing marginalized communities and identities are available, they are more likely to be underdescribed or not described at all, limiting the potential

for discovery and use.

The nature of archival description presents unique issues in terms of access, discovery, and inclusion in relation to users. It also complicates the implementation of assessment methods such as collection analysis and usage statistics. While descriptive standards for archives are well documented and widely implemented, the practice of description is inherently personal and easily influenced by the individual humans and institutional policies responsible for creating it. Archivists are unable to escape personal and institutional bias, despite past efforts to remain neutral in archival description. Terry Cook notes that "archivists inevitably will inject their own values, experiences, and education, and reflect those of various external pressures, into all such research and decision-making."[37] Yet for both users and staff, the discovery and assessment of diverse collections depend on description.

Archival description also suffers from the same problems faced by academic library general collections in relation to the use of controlled vocabularies such as Library of Congress subject headings (LCSH). Besides bias and subjectivity in their application, subject headings are also problematic for many other reasons. Most access systems are now set up so that by default most users are keyword searching the entire description, rather than searching only by subject headings. Erin Baucom highlighted some of the issues related to the archival description of LGBTQ collections (which also hold true for many other communities and identities), including the diversity of labels and terms used in communities, changes in the use and meaning of terms over time, and the importance of self-identification.[38] Authority terms are often out-of-date and slow to change, and not reflective of how a group refers to itself. This is a well-documented issue and makes archival description, cataloging, and metadata creation challenging, and at times inappropriate and/or inaccurate.[39] Harmful description must be addressed in unique and creative ways, such as changing the display labels while maintaining the authority record in the backend of a system for search and retrieval purposes. Some other strategies to facilitate respectful and accurate description include collaborating with creators and the communities represented in collections, using alternative controlled vocabularies, hiring staff with subject expertise, and providing ongoing training, guidance, and resources for archives staff.[40]

UNLV SCA chose to analyze existing subject terms because they are valuable and standardized access points to collection materials, and the datasets were readily available for coding. However, current local practice for adding subject headings is inconsistent and varies by project, and quality control focuses on accuracy more than comprehensiveness (i.e., "Are the terms applied correct?" rather than "Are there *more* terms that should be added?" General guidance is that three to five subject terms should be added to each finding aid or digital object). Staff could search the rest of the collection descriptions for a variety of terms to locate collections to add subject headings for increased access. Either subject heading or keyword searching could also be used to identify collections for reparative redescription, additional processing, digitization, or promotion.[41] Jessica Tai highlights the need for archives to audit archival descriptions for "oppressive, euphemistic, or misrepresentative language," and advocates using a framework of cultural humility to redescribe archival materials.[42] The use of more inclusive controlled vocabulary terms and a more empathetic and inclusive approach to archival description in general improves access and discovery for users.

Digital Collections

UNLV Digital Collections provides public online access to a selection of digitized and born-

digital items from UNLV Special Collections and Archives. In the digital asset management system (DAMS) used at the time of this study, CONTENTdm, digital objects are grouped into twenty-three different digital collections. The collection titles and descriptions were reviewed to determine which ones are focused on traditionally underrepresented groups. Six out of twenty-three digital collections (26 percent) focus on underrepresented groups.

Google Analytics was used to compare how many unique page views per digital object and per item each collection received in 2019. However, the display of digital objects in different access systems can greatly affect assessment using web analytics. A digital object in CONTENTdm can be a single object, which is only one item (digital file), or a compound object, which consists of multiple items grouped together. Items within compound objects do not appear in search results, only the parent record of the compound object. However, in CONTENTdm there is no separate webpage for compound object parents. Parent-level metadata appears on each item page.

One of the easiest ways to isolate analytics for subsets of materials is using URL structure. UNLV filtered the Google Analytics data by URL (e.g. /digital/collection/cwu/id) to isolate the item pages of each digital collection. Contextual websites, landing pages, and search pages were excluded from the data. The six diversity-focused digital collections consisted of 14 percent of all digital objects, 42 percent of total items, and 17 percent of total unique page views.[43]

Thematic digital collections are a main entry point to UNLV Digital Collections materials, but other materials from and about underrepresented communities are present in UNLV's "catch-all" digital collections for photograph, oral history, and manuscript collections materials. Analysis by digital collection therefore does not take into account every "diverse" digital object. The structure of CONTENTdm facilitates analysis by digital collection, and web analytics can be easily filtered by digital collection because of the URL structure. The ease of assessment via web analytics depends on URL structure, or else a more intensive process of cross-referencing URLs and analytics data with the digital objects each URL corresponds to, and figuring out which digital objects are "diverse" (which could be determined by subject headings as discussed below). However, analytics data suffers from some of the same issues as in-person usage statistics, mainly that if an item is not described well it will be less discoverable and less used.

Subject terms in UNLV Digital Collections were analyzed by downloading Dublin Core metadata for each digital collection from CONTENTdm. A master spreadsheet of all items from all collections and all of their assigned subject terms was created. Every collection had slightly different metadata fields, so item records had up to four different fields with subject terms from different controlled vocabularies. OpenRefine was used to clean up the data, and then the terms were coded according to the categories outlined in the "Defining diversity" section of this article. The terms in the subject fields were from multiple different vocabularies and included topics, forms, events, titles, and personal, corporate, and geographic names. For this analysis, only topical terms were categorized. This was a labor-intensive process between cleaning the subject metadata of over 240,000 records and coding over 5,000 subject terms.

The authors found that 17,069 records (single objects, complex object parent records, or complex object child records) were assigned at least one subject term that was categorized as diverse.[44] Dividing this number by the total number of records that have subject terms assigned to them shows that 28 percent of the records with subject headings include at least one subject heading categorized as diverse.[45] This is most likely an underestimate of the number

of diverse items in UNLV Digital Collections because about 180,000 items (mainly complex object children) do not have any subject terms applied to them.

Digital Collections metadata suffers from many of the same problems as archival description. At UNLV, there are no consistent guidelines for applying subject terms, and quality control only assures that the subject headings applied are accurate, not that they are comprehensive. Controlled vocabulary terms are slow to change, yet UNLV still privileges mainstream vocabularies such as OCLC's FAST (Faceted Application of Subject Terminology). Although digital object metadata standards can be more prescriptive than archival description, digital object description is still highly subject to bias, especially since UNLV has not implemented any guidelines specifically for inclusive description, or undertaken any efforts in reparative description. Finally, subject heading analysis is not directly relevant to discoverability because searching by subject headings is not nearly as common as searching by keyword. In fact, the UNLV Digital Collections main search box defaults to keyword searching. Despite these caveats, this imperfect assessment of digital collections still provides estimates that can inform redescription efforts and digitization selection in the future.

Conclusion

Momentum for diversity, equity, and inclusion (DEI) work in archives is currently high, and many institutions and repositories have issued statements and revised their policies and strategic plans to prioritize DEI. Assessment can help archivists and administrators identify strengths and weaknesses within their programs and collections, and it also provides accountability to the communities they serve. Anecdotal examples and high profile initiatives can provide evidence that archives are working toward becoming more diverse and equitable, but a comprehensive analysis of quantitative data may show a different picture of how resources are being employed over time.

In this article, the authors shared their strategies for analyzing various data to gauge DEI efforts at UNLV SCA, including past strategic plans; collecting initiatives, grants, and outreach events; accessions of archival materials; and subject headings applied to finding aids for archival collections and metadata for digital objects. The authors found that DEI goals have consistently been included in strategic plans for the past ten years, and that community-focused grant projects have greatly contributed to increasing diversity and inclusion in collections and events. However, "diversity" (i.e., representation and inclusion of underengaged communities and identities) was a small proportion of the whole in many cases: 25 percent of grant-funded projects, 23 percent of events, 35 percent of accessions, 32 percent of archival collections, and 28 percent of digital collections records. As discussed above, this analysis was limited to one specific institution, and the methods used have their caveats and weaknesses but it demonstrates that more work and therefore more resources are needed to increase visibility, representation, and engagement. UNLV SCA is part of a research university where data-driven decision making is highly valued, so quantitative data can hopefully be effective in advocating for additional resources. The analysis also identified specific areas for improvement, including collecting, outreach, description, and digitization.

Assessment of DEI work should not replace or take away resources from doing actual DEI work (such as reparative description, outreach, community collaboration, etc.), but assessment using data that already exists and is relatively straightforward to analyze could help any archive identify strengths and weaknesses, and also strengthen requests for fund-

ing. Finally, it must be recognized that UNLV's assessment as described in this article was internally focused. Archives should proactively gather input from the communities they serve regarding the types of representation and DEI work they want the archives to pursue. For UNLV SCA and other academic archives and special collections, this includes collaborating with faculty to assess how collecting practices support research and teaching and identifying and filling gaps.[46] It also includes working with students, student groups, alumni, and the local community. Further research into assessment and DEI should focus externally as well as internally, and should explore how archives are accountable to the communities they serve. Such research should also explore whether archives and special collections are following through on promises many of them have publicly made, especially in the last two years.

Appendix A: Grants

Table of UNLV SCA grant-funded projects that received funding from federal, state, and private sources from 2010 to 2020. Projects coded as "diverse" are denoted in bold and italics.

Year(s)	Grant/Project	Funding Source
2020–present	***Reflections: Asian American & Pacific Islander Oral History Project***	External/Private
2020–2022	Inventing Hollywood: Preserving and Providing Access to the Papers of Renegade Genius Howard Hughes	National Endowment for the Humanities
2020–2021	Robert Paluzzi Panoramic Photograph Digitization Project	The Gladys Krieble Delmas Foundation
2018–2021	***Latinx Voices of Southern Nevada***	External/Private
2018–2019	Building the Pipelines: Large-Scale Digitization Models for Nevada Cultural Heritage	Library Services & Technology Act (LSTA) grant
2017–2018	Online Access for the City of Las Vegas Commission Minutes (1911–1960) and Ordinances	Las Vegas Centennial Commission
2017–2018	Early Las Vegas Newspapers Project	Las Vegas Centennial Commission
2017–2018	Raising the Curtain: Large-Scale Digitization Models for Nevada Cultural Heritage	Library Services & Technology Act (LSTA) grant
2016	***Workers Unite!: Increasing Public Access to the History of the Culinary Workers Union Local 226***	External/Private
2016	America's Great Gamble: A Project to Promote the Discovery of Sources about the Expansion of Legalized Gambling across the United States	National Historical Publications and Records Commission (NHPRC)
2012–2017	***Documenting the African-American Experience in Las Vegas***	Library Services & Technology Act (LSTA) grant; VegasPBS
2014–2018	***The Southern Nevada Jewish Community Heritage Project***	Library Services & Technology Act (LSTA) grant
2018–2020	NDNP cycle 3	National Digital Newspaper Program (Library of Congress)
2016–2018	NDNP cycle 2	National Digital Newspaper Program (Library of Congress)
2014–2016	NDNP cycle 1	National Digital Newspaper Program (Library of Congress)
2013	***Rebel Yell Digital Collection*** [student newspaper]	Library Services & Technology Act (LSTA) grant; UNLV CSUN and GPSA funding
2012	Dreaming the Skyline	Library Services & Technology Act (LSTA) grant
2011	Historic Landscape of Nevada	Library Services & Technology Act (LSTA) grant
2010	Menus: The Art of Dining	Library Services & Technology Act (LSTA) grant
2010	Southern Nevada: The Boomtown Years 1900-1925	Library Services & Technology Act (LSTA) grant

Appendix B: Accessions

Table of UNLV accession records by diversity category, 1967–2020.

Category	Number of Accession Records	Percentage of Diverse Accession Records	Percentage of All Accession Records
Asian American and Pacific Islander	16	2.8%	1.0%
African American	28	4.9%	1.7%
Activism/Labor	15	2.6%	0.9%
Hispanic/Latinx	5	0.9%	0.3%
LGBTQ	82	14.4%	5.0%
Indigenous	14	2.5%	0.9%
Children	1	0.2%	0.1%
Latter Day Saints movement	5	0.9%	0.3%
Judaism	58	10.2%	3.5%
Showgirls	18	3.2%	1.1%
Students	12	2.1%	0.7%
Veterans	2	0.4%	0.1%
Women	313	55.0%	19.0%

Appendix C: Subject Heading Analysis

Table of UNLV archival collections and digital objects subject heading analysis by diversity category.

Category	Number of Archival Collections	Percentage of Archival Collections	Number of Digital Objects	Percentage of Digital Objects	Population Estimates
Asian American and Pacific Islander	22	0.4%	49	0.08%	11.3%*
Activism	181	3.9%	1681	2.76%	
African Americans	247	5.4%	662	1.09%	13.1%*
Buddhism	1	0%	1	0.00%	< 1%†
Children	52	1.13%	2471	4.06%	23.0%*
Christianity	12	0.26%	492	0.81%	66%†
Criminal justice	65	1.41%	44	0.07%	
Disability	61	1.32%	60	0.10%	8.2%*
Diversity and discrimination	239	5.20%	167	0.27%	
General religious terms	52	1.13%	421	0.69%	73%†
Hispanic/Latinx	97	2.11%	22	0.04%	31.6%*
Immigration and emigration	16	0.34%	22	0.04%	22.2%*
Indigenous peoples	39	0.84%	476	0.78%	1.2%*
Islam	1	0%	1	0.00%	< 1%†
Judaism	212	4.61%	1773	2.91%	2%†
Labor	123	2.67%	899	1.48%	63.8%*
Latter Day Saint Movement	64	1.39%	45	0.07%	4%†
LGBTQ	132	2.87%	409	0.67%	5.5%
Older people	6	0.13%	153	0.25%	15.1%*
Poverty	30	0.65%	17	0.03%	12.8%‡
Sex work	32	0.69%	27	0.04%	
Showgirls	38	0.82%	1431	2.35%	
Students	7	0.15%	3412	5.60%	
Veterans	128	2.78%	50	0.08%	8.4%‡
Women	436	9.49%	6552	10.76%	50.1%*

Notes on the table above:

- The number of archival collections (OH, MS, PH, UA) in each category was calculated by counting the number of finding aids in ArchivesSpace with at least one subject term from the category applied.
- The number of finding aids with at least one subject term from the diverse category applied was divided by the total number of finding aids (4,596) to find the percentage of archival collections.
- The number of digital objects was calculated by counting the number of digital object records with at least one subject term from the category applied.

- Many complex digital object child records and some single objects and complex object parent records do not have any subject terms applied to them. Out of 240,999 digital object records total, 60,904 (25%) records had at least one subject term applied.
- The number of digital object records with at least one subject term from the category applied was divided by the total number of records with at least one subject term applied (60,904) to find the percentage of digital objects.
- *From the U.S. Census Bureau population estimates for Clark County, Nevada, July 1, 2019, https://www.census.gov/quickfacts/fact/table/clarkcountynevada/PST045219.
- †From the Pew Research Center 2014 U.S. Religious Landscape Study, Adults in Nevada, https://www.pewforum.org/religious-landscape-study/state/nevada/.
- ‡From https://censusreporter.org/profiles/05000US32003-clark-county-nv/.
- 73% of adults in Nevada say that religion is somewhat or very important in their life.
- 22.2% foreign-born persons estimated in Clark County Nevada in 2019.
- 63.8% of the population, age 16 or older, in the civilian labor force.
- LGBTQ population estimate from https://williamsinstitute.law.ucla.edu/visualization/lgbt-stats/?topic=LGBT&area=32#density
- For more information about sex work in Nevada, see K. Hausbeck, B. G. Brents, and C. Jackson (2006). "Sex Industry and Sex Workers in Nevada." In Dmitri N. Shalin, The Social Health of Nevada: Leading Indicators and Quality of Life in the Silver State 1–17. Available at: https://digitalscholarship.unlv.edu/social_health_nevada_reports/24.

Appendix D: Digital Collections

Table of UNLV digital objects, items, and page views in UNLV digital collections for projects representing diverse communities

Digital Collection Name	Topic	Percentage of Total Digital Objects	Percentage of Total Items	Percentage of Total Unique Page Views
African American Experience in Las Vegas	African American community	2%	2%	5%
Culinary Workers Union Local 226 Photographs	Labor union	2%	16%	2%
Rebel Yell Digital Collection	UNLV students	3%	13%	2%
Showgirls	Women	1%	0.4%	3%
Southern Nevada Jewish Heritage Project	Jewish community	4%	10%	4%
UNLV CSUN Minutes	UNLV students	2%	1%	0.03%
All others		86%	58%	83%

Notes

1. Trevor A. Dawes, "Statements and Accountability," Trevor A. Dawes personal website, June 4, 2020, https://trevordawes.wordpress.com/2020/06/04/statements/ [Accessed September 20, 2021].

2. "SAA Council Statement on Black Lives and Archives," Society of American Archivists, June 2, 2020, https://www2.archivists.org/statements/saa-council-statement-on-black-lives-and-archives#:~:text=June%202%2C%202020%E2%80%94We%2C,violence%20against%20the%20Black%20community.&text=As%20a%20profession%2C%20we%20stand,unequivocally%2C%20that%20Black%20Lives%20Matter [Accessed September 28, 2021].

3. "ACRL Code of Ethics for Special Collections Librarians," Association of College and Research Libraries, June 19, 2020, https://rbms.info/standards/code_of_ethics/ [Accessed January 7, 2022].

4. Some examples include Bergis Jules, "Confronting Our Failure of Care around Legacies of Marginalized People in the Archives," *On Archivy* (Nov. 2016), https://medium.com/on-archivy/confronting-our-failure-of-care-around-the-legacies-of-marginalized-people-in-the-archives-dc4180397280 [Accessed September 28, 2021]. Michelle Caswell, "Teaching to Dismantle White Supremacy in Archives," *The Library Quarterly: Information, Community, Policy* 87, no. 3, (Jul. 2017), https://www.journals.uchicago.edu/doi/full/10.1086/692299 [Accessed September 28, 2021]. Lae'l Hughes-Watkins, "Moving toward a Reparative Archive: A Roadmap for a Holistic Approach to Disrupting Homogenous Histories in Academic Repositories and Creating Inclusive Spaces for Marginalized Voices," *Journal of Contemporary Archival Studies* 5 (2018), https://elischolar.library.yale.edu/jcas/vol5/iss1/6 [Accessed September 28, 2021].

5. It may also be more appropriate *not* to collect or provide access to certain records. Post-custodial and community archiving models allow communities to retain custody of and agency over their own records, with a role for archivists to consult and/or provide certain services, such as online access, description, or online access to digital surrogates. See Bergis Jules, "Let the People Lead: Supporting Sustainability vs Dependency Models for Funding Community-Based Archives," *Medium*, November 3, 2017, https://medium.com/on-archivy/let-the-people-lead-supporting-sustainability-vs-dependency-models-for-funding-community-based-82f76d54c483 [Accessed September 21, 2021].

6. Kelly Bolding, "Reparative Processing: A Case Study in Auditing Legacy Archival Description for Racism," Slides presented at the Midwest Archives Conference, Chicago, IL, March 2018, https://docs.google.com/presentation/d/1MhOXx5ZlVjb_8pfvvFquMqLsUUlOHFFMT4js5EP4qnA/edit#slide=id.p. SAA Native American Archives Section and Human Rights Archives Section, "Toward Inclusive Reading Rooms: Recommendations for Decolonizing Practices and Welcoming Indigenous Researchers," *Archival Outlook*, January/February 2021. Livia Iacovino, "Rethinking Archival, Ethical and Legal Frameworks for Records of Indigenous Australian Communities: A Participant Relationship Model of Rights and Responsibilities," *Archival Science* 10 (2010): 353–72. Bergis Jules, "Preserving Social Media Records of Activism," *On Archivy* (Nov. 2015), https://medium.com/on-archivy/preserving-social-media-records-of-activism-26e0f1751869 [Accessed February 4, 2022]. First Archivist Circle, "Protocols for Native American Archival Materials," 2007, https://www2.nau.edu/libnap-p/protocols.html [Accessed September 28, 2021].

7. "Projects of the Oral History Research Center," UNLV University Libraries Special Collections & Archive, https://www.library.unlv.edu/speccol/ohrc/projects [Accessed October 26, 2021].

8. Brian Keough, "Documenting Diversity: Developing Special Collections of Underdocumented Groups," *Library Collections, Acquisitions, & Technical Services* 26, no. 3 (2002): 241–51, https://doi.org/10.1080/14649055.2002.10765857, p. 247.

9. Steven McKinzie, "A Multicultural Studies Collection Enhancement Group: A Model for Preemptive Collection Development in a Small Academic Library," *The Reference Librarian* 21, no. 45–6 (1994): 187–96, https://doi.org/10.1300/J120v21n45_18.

10. Lois Buttlar, "Facilitating Cultural Diversity in College and University Libraries," *The Journal of Academic Librarianship* 20, no. 1 (1994): 10–14, https://doi.org/10.1016/0099-1333(94)90128-7, p.10–11.

11. Matthew P. Ciszek and Courtney L. Young, "Diversity Collection Assessment in Large Academic Libraries," *Collection Building* 29, no. 4 (2010): 154–61, https://doi.org/10.1108/01604951011088899, p.154.

12. Lisa R. Carter, "Articulating Value: Building a Culture of Assessment in Special Collections," *RBM : A Journal of Rare Books, Manuscripts, and Cultural Heritage* 13, no. 2 (2012): 89–99, https://doi.org/10.5860/rbm.13.2.376.

13. Carter, "Articulating Value," 90.

14. Ibid, 94.

15. Melanie Griffin, Barbara Lewis, and Mark I. Greenberg, "Data-Driven Decision Making: An Holistic Approach to Assessment in Special Collections Repositories," *Evidence Based Library and Information Practice* 8, no. 2 (2013): 225, https://doi.org10.18438/B8D03M, p. 227. Another example is the "PACSCL Hidden Collections Processing Project," Philadelphia Area Consortium of Special Collections (2013), http://clir.pacscl.org/ [Accessed September 28, 2021].

16. The most recent issue of *US News & World Report on Campus Ethnic Diversity* (2022) ranked UNLV first (in a four-way tie) in ethnic diversity of undergraduates at national universities. https://www.usnews.com/best-colleges/rankings/national-universities/campus-ethnic-diversity [Accessed September 21, 2021].

17. "Land acknowledgement statement," University of Nevada, Las Vegas, https://www.unlv.edu/about/statements-compliance/land-acknowledgement [Accessed January 28, 2022].

18. "Collection Strengths," UNLV Special Collections and Archives, https://www.library.unlv.edu/speccol/collecting_strengths [Accessed September 28, 2021].

19. UNLV creates finding aids that are compliant with Describing Archives: A Content Standard (DACS) from the Society of American Archivists (2021) v2021.0.0.2, https://github.com/saa-ts-dacs/dacs [Accessed September 28, 2021].

20. Ciszek and Young, "Diversity Collection Assessment,"155–59.

21. "Mission Statement," UNLV University Libraries, https://www.library.unlv.edu/about/mission_statement [Accessed 28 September 2021].

22. United States Employment and Training Administration, "Race & Color, Protected Characteristics," United States Department of Labor, https://www.dol.gov/agencies/eta/apprenticeship/eeo/protected/race-color [Accessed September 28, 2021].

23. 97 percent of Mormons described Mormonism as a Christian religion, but many non-Mormon U.S. adults said the opposite. For this reason, and because the LDS movement has a distinct history in the Southwest, it is categorized separately in this study. "Mormons in America – Certain in Their Beliefs, Uncertain of Their Place in Society," Pew Research Center, 2012, https://www.pewforum.org/2012/01/12/mormons-in-america-executive-summary/ [Accessed September 28, 2021].

24. 2009–2011, 2011–2015 Strategic Plans, UNLV University Libraries.

25. 2015–2017 Strategic Plan, UNLV University Libraries.

26. 2015–2017 Strategic Plan, UNLV University Libraries.

27. See Appendix A for a table of all UNLV SCA grants from 2014 to 2020.

28. It should be noted that a number of events take place outside of the library; however these were deemed out of scope for this project. These off-campus events involve library staff but may not be officially sponsored or put on by UNLV Libraries.

29. "We Need to Talk: Conversations on Racism for a More Resilient Las Vegas," UNLV Special Collections and Archives and the Oral History Research Center (2020–21), https://www.library.unlv.edu/weneedtotalk [Accessed October 14, 2021].

30. See Appendix B for a table of accession records by diversity category.

31. "Collecting Strengths - Nevada Women's Archives," UNLV Special Collections and Archives, https://www.library.unlv.edu/speccol/collecting_strengths/nwa [Accessed October 26, 2021].

32. Ciszek and Young, "Diversity Collection Assessment," 157.

33. See Appendix C for the results of the subject heading analysis by diversity category.

34. Projects include *Documenting the African American Experience in Las Vegas, Southern Nevada Jewish Heritage Project, Latinx Voices of Southern Nevada,* and *Reflections: The Las Vegas Asian American & Pacific Islander Oral History Project.*

35. Ciszek and Young, 157.

36. Ibid., 158.

37. Terry Cook, "Evidence, Memory, Identity, and Community: Four Shifting Archival Paradigms," *Archival Science* 10 (2013): 102.

38. Erin Baucom, "An Exploration into Archival Descriptions of LGBTQ Materials," *The American Archivist* 81, no. 1 (2018): 65–83, https://doi.org/10.17723/0360-9081-81.1.65.

39. Melissa Adler, "Transcending Library Catalogs: A Comparative Study of Controlled Terms in Library of Congress Subject Headings and User-Generated Tags in LibraryThing for Transgender Books," *Journal of Web Librarianship*, 3, no. 4 (2009): 309–31, https://doi.org/10.1080/19322900903341099.

40. Karen Smith-Yoshimura, "Strategies for alternate subject headings and maintaining subject headings," OCLC Research, October 29, 2019, https://hangingtogether.org/?p=7591 [Accessed September 28, 2021]. Sine Hwang Jensen, Melissa S. Stoner, and Lillian Castillo-Speed, "Metadata Justice: At the Intersection of Social Justice and Cataloging," 2019 ACRL President's Program (blog). EDI Discussions Series, Association of College and Research Libraries, March 25, 2019, https://acrl.libguides.com/c.php?g=899144&p=6468942&t=34793 [Accessed September 28, 2021].

41. "Archives for Black Lives Anti-Racist Description Resources," Archives for Black Lives in Philadelphia's Anti-Racist Description Working Group (2019), https://archivesforblacklives.files.wordpress.com/2019/10/ardr_final.pdf. See also Noah Geraci, "Programmatic Approaches to Bias in Descriptive Metadata," Slides presented at Code4Lib 2019, San Jose, California (February 2019), https://osf.io/tyk6q/ [Accessed September 28, 2021].

42. Jessica Tai, "The Power of Words: Cultural Humility as a Framework for Anti-Oppressive Archival Description" in "Radical Empathy in Archival Practice," special issue, *Journal of Critical Library and Information Studies* 3 (2019).

43. See Appendix D for a table of results by digital collection.

44. See Appendix C for the results of the subject heading analysis by diversity category.

45. Many complex object child records and some single objects and complex object parent records do not have any subject terms applied to them. Out of 240,999 records total (25 percent), 60,904 had at least one subject term applied.

46. McKinzie, "Multicultural Studies Collection Enhancement Group," 189.

OA and the Academy: Evaluating an OA Fund with Authors' Input

Gail McMillan, Leslie O'Brien, and Edward F. Lener

The University Libraries at Virginia Tech established an Open Access Subvention Fund (OASF) in August 2012. Although it began as a two-year pilot project, the Fund has continued to the present. Anyone at Virginia Tech is eligible to apply for funding to offset the cost of an article processing charge to publish in an open access journal. To learn more about user perceptions of the OASF and open access in general, we surveyed everyone who had requested support. The survey, conducted during the fall of 2019, provided a means to gauge the needs of our users, seek feedback on the request and award process, and gather input on the fund guidelines. In this article, we review our findings in the hope that the lessons learned will be useful to other libraries in assessing similar open access subvention funds.

Introduction

There are many advantages to libraries supporting article processing charges (APCs). It expands the role of the library within the institution, and it directly supports the institution's authors by removing a barrier to publishing in open access (OA) journals. Caps on per-article funding provide price controls and the visibility of OA articles and journals' APCs provide transparency, both of which are missing from subscription journals.

The growth in institutional support of APCs has not matched the increase in the number of OA journals. But libraries like Virginia Tech took on the challenge to encourage, in a tangible way, OA publishing on campus. Subvention funds that support APCs raise awareness of the general benefits of OA publishing, encourage new ways of thinking about publishing digital scholarship and information access, and can promote reduced APCs through library memberships. Libraries also see subvention funds as part of an overall commitment to sharing ideas, research, and scholarship, which at Virginia Tech aligns with its Library's strategic direction to support the research endeavors of Virginia Tech faculty, students, and staff.

Virginia Tech is a Carnegie-classified R1 land-grant institution, with about 37,000 students, including 6,000 graduate students, and 2,000 faculty.[1] In 2020, Virginia Tech ranked in the top 5 percent in the US for research expenditures and in the top fifty research institutions with $556 million in research expenditures.[2] In March 2021, the Board of Visitors approved a

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university-wide open access policy that stemmed from an initiative by the Commission on Research, initially proposed in 2016. Prior to the campus-wide policy and following shortly on the first year of the OASF pilot project, University Libraries adopted its own open access policy in 2013.[3]

VT's University Libraries established an Open Access Subvention Fund (OASF) in August 2012 as a two-year pilot project. Everyone at Virginia Tech, i.e., all students, staff, and faculty, was eligible to apply for support to cover all or part of an APC to publish in an OA journal. When the pilot ended in June 2014, the Library was sufficiently satisfied with the results to continue the OASF indefinitely. Building on this initiative, the authors, McMillan and O'Brien, along with the VT institutional repository manager, Philip Young, surveyed members of the Association of Research Libraries (ARL) to document the strategies ARL members were using to address APCs and related policies and procedures. ARL published the findings from seventy-seven libraries in Canada and the United States that responded to the 2016 survey as SPEC Kit 353 in 2019.[4]

In contrast to many of the libraries surveyed for the SPEC Kit, Virginia Tech's APC awards have continued to increase year over year. Since the conclusion of the pilot project, the overall expenditure has risen by 500 percent. (This does not include any amounts spent by Virginia Tech authors on APCs not supported by the OASF.) By the end of fiscal year 2019, having received 662 requests and funded over 481 APCs, we realized that we had accumulated a wealth of data about OA publishing habits among members of the university community. To expand on this data, we conducted a survey of everyone in the VT community who had requested support since the Fund's inception. In devising the survey, our larger goal was to make better informed decisions regarding the future of the OASF. More specifically, we had three primary aims: 1) to gauge perceptions regarding the success of the OASF, 2) to improve the request and award process, and 3) to get input on the clarity of the OASF Guidelines.[5]

In fall 2020, we published a *Scholarly Kitchen* blog post[6] with some of our survey findings and intentions for further study. This *C&RL* article expands on that blog post in part by drawing comparisons between our survey and previously published surveys. While each institution's policies for funding APCs differ, as we found in our survey of ARL member institutions, we found similarities with other surveys that reinforce some commonly held views among researchers about OA journals. We highlight differences among Virginia Tech authors and those of previous studies of authors at other academic institutions that may be useful for libraries in assessing support for APCs.

Our survey respondents were overwhelmingly positive in their overall support of the program: 98 percent wanted the Library to continue to fund APCs. There was a greater divergence of opinion regarding certain elements of how the program operates and the criteria for awarding funds. Author feedback and surveys may help guide future decision-making processes as libraries monitor the changing landscape of OA publishing.

Literature Review

A number of articles have been published that survey attitudes of authors and information professionals about OA publishing and APCs. We focused our literature review on those articles that specifically address changing attitudes over time and whether those changes reflect any disciplinary or demographic differences. We were also interested in any findings that might contrast with or validate our own survey results.

A few early studies focused on perceptions of prospective authors with respect to the validity or quality of OA journals. Wilhelm Peekhaus and Nicholas Proferes[7] found that "perceptions and realities of the tenure and promotion system exercise a strong braking effect on the uptake of open-access publishing among faculty." Longitudinal surveys by Peekhaus and Proferes[8] and Wilhelm Peekhaus[9] provide comparisons of US library and information science faculty's perceptions. The studies found that familiarity with OA was a key factor in faculty's trust in its validity. Faculty become familiar with OA journals with time and experience; authors with more knowledge about OA journals are more likely to publish in them than their less-knowledgeable peers.[10] As OA journals become more mainstream, Carol Tenopir et al.[11] and Jie Xu[12] found that faculty are less likely to confuse them with predatory journals. Faculty can more easily compare OA journals whose impact factors have increased in recent years with high-profile non-OA journals.[13]

According to Tina Neville and Camielle Crampsie,[14] the top three criteria that lead authors at academic libraries in North America to submit manuscripts to journals are "(1) scope and fit to the topic, (2) whether the journal is peer-reviewed, and (3) the intended audience [of the journal]." In the case of OA journals, other factors come into play. David J. Solomon and Bo-Christer Bjork[15] note that authors must weigh the cost of APCs against the expected value of broad access to their work, while still considering the journal's appropriateness to the topic, its prestige (in some cases measured by the impact factor), and the speed of review and publication. This last criterion, perception of faster publication cycles, was noted in other studies too. From Jingfeng Xia's 2010 survey:

> The second advantage of publishing in OA journals, as recognized by the respondents, is the pace of online publishing. Scholars are tired of long publishing cycles in traditional print and hope the OA model can speed up the process.[16]

Authors are becoming increasingly confident in the validity of OA journals and better informed about the economics of traditional publishing models. One increasingly important factor in authors' decisions to publish in OA journals is availability of funding. Pablo De-Castro and Gwen Franck[17] note that funding from the European FP7 Post-Grant Open Access Pilot was of critical importance, especially for early career scholars, in publishing their research.

Another important factor is exposure. Surveys show that authors greatly value the wider accessibility that OA publishing makes possible. According to Gregory M. Nelson and Dennis L. Eggett,[18] authors they surveyed chose OA in part for the potential of increased citations to their work and to promote greater access for altruistic reasons. Xia[19] reports that "[scholars] wish for their research to reach out to a broad readership and to be shared by others without restrictions." Peekhaus and Proferes[20] note that "among those with open-access publishing experience, the predominant motivation was a commitment to the principle of free access to research, followed by perceived rapid speed of publication."

Hybrid-OA journals continue to be a point of contention when it comes to funding APCs. A widely held but sometimes disputed belief is that hybrid journals facilitate "double-dipping" on the part of publishers (for example, Peekhaus[21]). In general, researchers are less concerned about this issue than are librarians and scholarly communication experts. The FP7 Post-Grant Open Access Pilot restricted article funding to fully-OA journals. This resulted in a "significant number of complaints" from researchers.[22] Peekhaus[23] states that respondents

in a 2018 survey were "significantly more likely" to accept fees for hybrid journals than were those in his 2013 survey.

Methodology

As demonstrated in previous surveys of authors and information professionals, there is much information to be gleaned from authors' experiences with OA publishing. Authors' perceptions are vital to informing local policy and practice, as well as shaping broader discussions. On October 1, 2019, our survey was sent by email to the 812 VT faculty, students, and staff who had requested OASF support or had attended library-sponsored information sessions about the Fund. Two weeks later one reminder email was sent to those who hadn't yet responded. The survey closed on November 8, 2019. We received 269 responses, a 33 percent response rate.

Of the survey respondents, 77 percent received financial support at least once from the OASF. Responses from authors in the sciences (86 percent) greatly outnumbered those from arts, humanities, and social sciences (13 percent). Respondents self-identified as full professor (35 percent), associate professor (22 percent), assistant professor (20 percent), graduate student (13 percent) and as alumni, postdoc, scientist, and so on (10 percent). Of the respondents, 63 percent identified themselves as tenured or with continued appointment, 24 percent were on the tenure or continued appointment track, and 13 percent chose "not applicable." Respondents self-identified as male (55 percent), female (35 percent), or chose not to answer (10 percent).

The survey consisted of thirty-nine brief yes/no and multiple-choice questions with opportunities to add free text comments. We used Qualtrics to administer the survey and analyze the results. The study questions were intended to help gauge whether the OASF was serving the purpose for which it is designed, that is, enabling authors to engage in new transformational open publishing environments and encouraging new ways of thinking about digital scholarship and information access. The authors developed the questions and tested them internally before release to try to ensure clear wording and suitable response choices, to minimize library jargon, and to provide a logical flow for those taking the survey. We submitted the full survey instrument and accompanying documentation for Institutional Review Board approval prior to release. The questions fell into four categories:

1. Fund Awareness and Use. How did authors learn about the OASF? Did they tell others? Did the OASF support cover the full APC?
2. Fund Policy and Guidelines. How do VT authors perceive the Library's policies regarding funding eligibility? What about the guidelines? Is the OASF having an impact on certain disciplines more than others?
3. Attitudes toward Open Access Journal Publishing. What factors do authors consider when deciding where to submit a journal article? What about when submitting specifically to an OA journal?
4. Demographic Information. Questions about departmental and disciplinary affiliations, faculty/student status, and the like.

Findings and Discussion

Fund Awareness and Use

The good survey response rate and the continued increase in funding requests indicate that there is strong awareness of the Fund among faculty and graduate students. They reported learning about the OASF through colleagues, advisors, and departments. Outreach through

several classes proved effective, whether professional development or research methods. The library, not surprisingly, was a good source of information also, from subject liaisons, the web, and the online VT News.

Fund Policy and Guidelines

From the beginning, VT's OASF policy has extended support to everyone in the university community—that is to all faculty, students, and staff. While we are not unique in this regard, most other institutions have opted to limit eligibility for funding in some way. According to the SPARC 2014 "OA Funds in Action,"[24] only 33 percent of the universities reporting included students among their funded authors; 54 percent supported only graduate and professional students as authors. In SPARC's 2018 updated report,[25] 36 percent funded all students while 47 percent supported graduate and professional student authors.

Institutions sometimes included those designated "staff" in their OA fund support, according to the SPARC reports. In 2018 half of the universities reported supporting staff authors,[2] an increase over the 43 percent who reported supporting staff authors in the 2014 report.[27]

Two-thirds of our survey respondents agreed that the "OASF should be available to the entire VT community (i.e., faculty, staff, graduate and undergraduate students)." But 15 percent disagreed, and 18 percent weren't sure. Graduate students overwhelmingly agreed (90 percent), but only 25 percent of professors agreed that all members of the VT community should receive APC support. Associate professors were the most undecided (35 percent) of all the categories responding.

About one-third of the survey respondents reported that the OASF did not cover the full APC. They reported that they paid the balance from department or program funds (37 percent), federal grants (24 percent), college/institute funds (11 percent), and private foundation funds (8 percent). A few even used their personal funds (7 percent). Other sources mentioned in the comments included funds supplied by coauthors from other institutions, using start-up funds to pay the balance, and getting APC discounts.

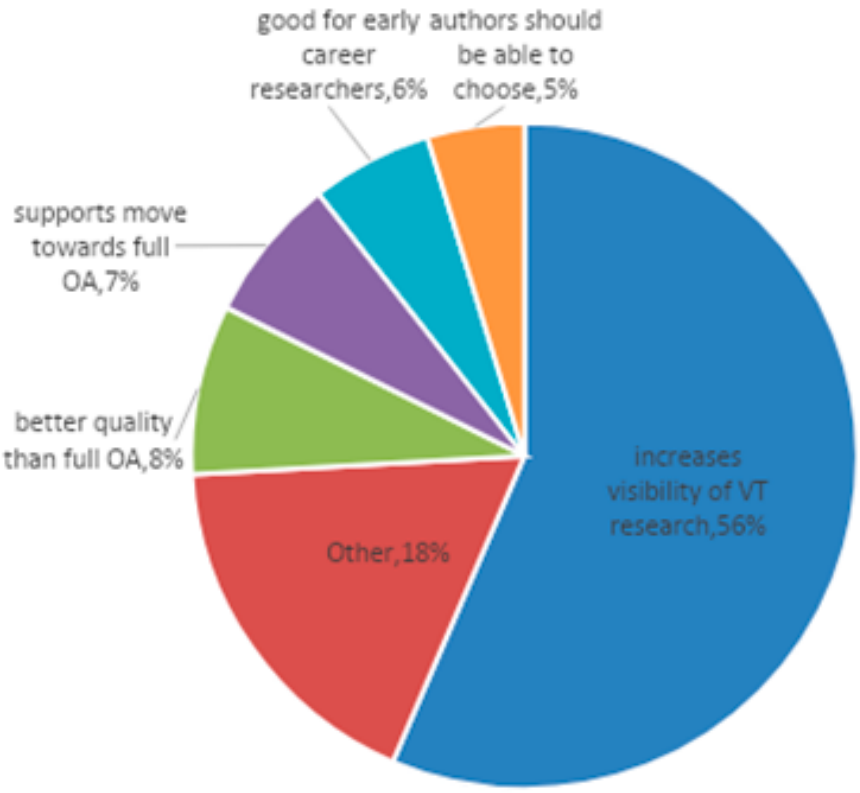
When asked if OASF support should go only to authors who have no other sources of funding available, 25 percent agreed, 56 percent disagreed, and 19 percent weren't sure. This question elicited over 125 comments, the most of any question. Over half of the comments mentioned that while they had funds, OA costs were high, and their funds were insufficient or earmarked for other purposes. Several made the case for treating all authors the same, like a university service, and others thought it was penalizing (their word) those who were successful in getting grants. Others saw the OASF as an incentive or as a reward for publishing their articles in OA journals.

Hybrid Journals

University Libraries' OASF originally supported APCs in hybrid journals, but this practice was discontinued as of January 2019. Similarly, 84 percent of the ARL SPEC Kit survey respondents did not fund hybrid journals. The reason for the change at VT Libraries was in part because it was difficult to verify that subscriptions for hybrid journals were being reduced as a result of APCs, which was a requirement for OASF support. The VT survey documented that this decision was not popular: 39 percent of respondents disagreed with the policy change, while 44 percent were not sure or had no opinion. Only 18 percent of respondents agreed that hybrid journals' APCs should not be funded.

The survey question about OASF support of hybrid journals triggered about 85 comments. Over half pointed out that an article in a hybrid journal is still open access, thereby reaching a wider audience than a paywalled article and increasing the visibility of VT research. Several commented that they see hybrid OA as a way for journals to move toward fully OA. Others felt that many OA journals are of a lower quality and these or hybrid journals could be where younger faculty and students could publish until they get established reputations. Several people expressed that the OASF policy on hybrid journals was restricting their freedom to choose where they publish.

FIGURE 1
Why Should APCs in Hybrid Journals Be Funded?



Factors Influencing the Decision to Publish OA Articles

We asked respondents to select up to five factors that influenced their choice of which journal to submit their article manuscript to. Impact factor and reaching appropriate audiences and readers were about equal (18.41 nearly and 18.14 nearly, respectively) as the most influential factors. This correlates with their top choice of reaching more readers and having more impact when asked what factors influenced their decision to publish OA and was reiterated in some of the concluding general comments. Of those who commented, 70 percent pointed out that they chose the most appropriate journal for their article (that is to say, reaching their target audience). A requirement by a grant or sponsoring agency to publish the research results in an OA publication was not a significant influencing factor, with only 5.6 percent of respondents choosing it.

Neville's and Crampsie's 2019 survey results found the top three criteria for author's choice of journal were "scope and fit to the topic," peer-review, and intended audience.[28] However, VT authors selected this topic fifth behind impact factor, audience, likelihood of being cited,

and publication quality. Having the least influence on VT authors' journal selection was the copyright policy and department's or college's list of prescribed journals.

When asked who influenced their decision to publish OA, faculty reported that they were most often influenced by their colleagues and secondly by their students. It is not surprising that advisors and mentors had the most influence on graduate students but the least influence on faculty. In their comments, several authors pointed out that it was their own decision or "personal ethics" that influenced their choice to publish OA.

Previous surveys cited by Solomon and Bork[29] and Peekhaus and Proferes[30] point to speed of publication as an important factor (among others) in authors' decisions to publish OA. Speed of publication was not a very important factor according to the VT 2019 survey respondents. Only 8.6 percent chose it as one of five contributing factors.

Attitudes toward Open Access Journals

Nearly 87 percent of the survey respondents reported that they did not have any trouble finding an OA journal in their disciplines. When asked how they used their OA articles once they were published, responses were fairly evenly divided among the following choices: deposited in VTechWorks (the VT repository, 20 percent), deposited in another repository (16 percent), linked from P&T/CA (promotion and tenure/continued appointment) dossier (16 percent), and linked to another article (15 percent). Nearly 23 percent assigned a Creative Commons license or retained their copyright. Twenty percent of the comments also mentioned linking their articles to personal, lab, or research websites. One surprising comment was, "I am doing an art gallery exhibition based on the publication."

However, the VT authors surveyed had mixed feelings about the quality of OA publications. A few were resolute in their opinions: "their reputation is terrible … It will be a waste of money to support OA papers in those journals." Others pointed out the benefits of increased citations and reaching a wider audience. The following comments illustrate broader thinking about OA publications: "VT OASF is a very creative idea to support publishing in a more diverse and accessible media." "Many open access journals take interdisciplinary approaches; thus allowing for a broader range of topics to be published."

VT authors expressed opposing views of the effect of OA on society publications. "OA is a business model that is directly competing with professional organizational publications." In contrast, a respondent noted that OA society journals are nothing new: "My main society's journal was founded as open in 1995. It's weird that we are in 2019 worrying about it (that is, the effect of OA)."

Others used the comments to point out the benefits for authors new to scholarly communication. "I think this program is exceptionally important for undergrad research and will help improve our undergrad placement in jobs and grad school" and "…this opportunity is very important for graduate students and amateur researchers who have not established their niche."

Of the 79 general comments we received, about a dozen mentioned promotion and/or tenure. None who commented felt that publishing in an OA journal "should be linked as a metric in P&T," though 56.3 percent said "yes" when asked "Should OA publishing be a positive factor in P&T/CA considerations?" They also pointed out in their general comments that the scholarly publishing model should change. "Universities need to join together to fight [the] pay-to-publish model because it runs up against the publish-or-perish model, and becomes

the pay-or-perish model." This comment indicates that some think that OA requires payment of APCs and are unaware that of the 16,577 journals indexed in the Directory of Open Access Journals, 11,855 (72 percent) did not have APCs (as of July 5, 2021).[31]

Views of Funded and Unfunded Authors

The OASF is open to the entire VT community, but we deny requests if authors have an active grant (for example from the National Institutes for Health, National Science Foundation (NSF), and other agencies that require OA for the research being published). While we do restrict the amount of the award (in 2021, $1,500 per article and $3,000 per author in a fiscal year), we have never closed the application process due to running out of funding. Non-hybrid OA journals that are peer reviewed are all eligible. If we have questions about the reputation of an unfamiliar journal, we check a variety of sources, such as DOAJ, Sherpa/Romeo, Committee on Publishing Ethics, and Open Access Scholarly Publishers Association for validation.

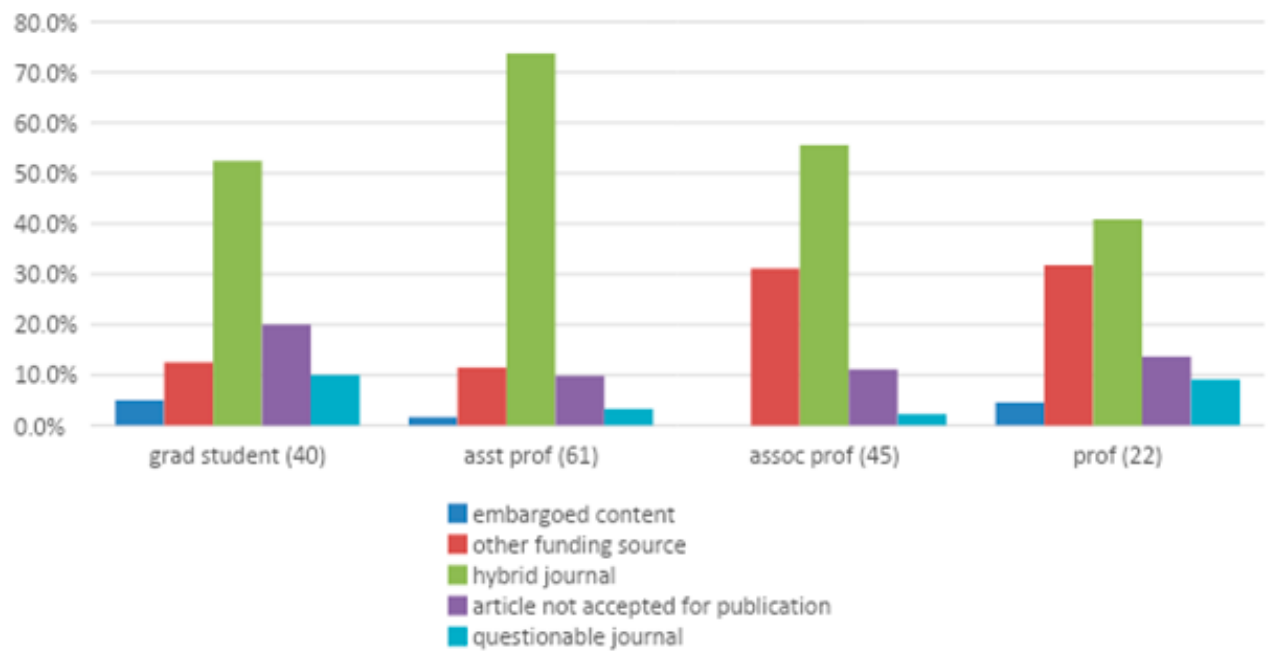
We were interested in the perspective of authors whether or not they had received OASF support for their OA articles. To contextualize the responses from unfunded authors, we analyzed our OASF data from FY2015 to FY2020 (in other words, all requests with funding outcome and the reasons for rejection).

We looked at the responses according to several categories, including by their academic classification (faculty rank or student status). In every classification, the principal reason for authors not receiving support from the OASF was because their articles had been accepted in hybrid journals. Assistant professors were much more likely than full professors (74 percent vs. 41 percent, respectively) to be denied support for a hybrid journal article.

About one-third of professors and one-third of associate professors applying for OASF support were denied because they had other sources of funding.

Throughout the history of the VT OASF, hybrid journals have been the main reason for not awarding support for APCs. At the beginning they accounted for 35 percent of the rejected

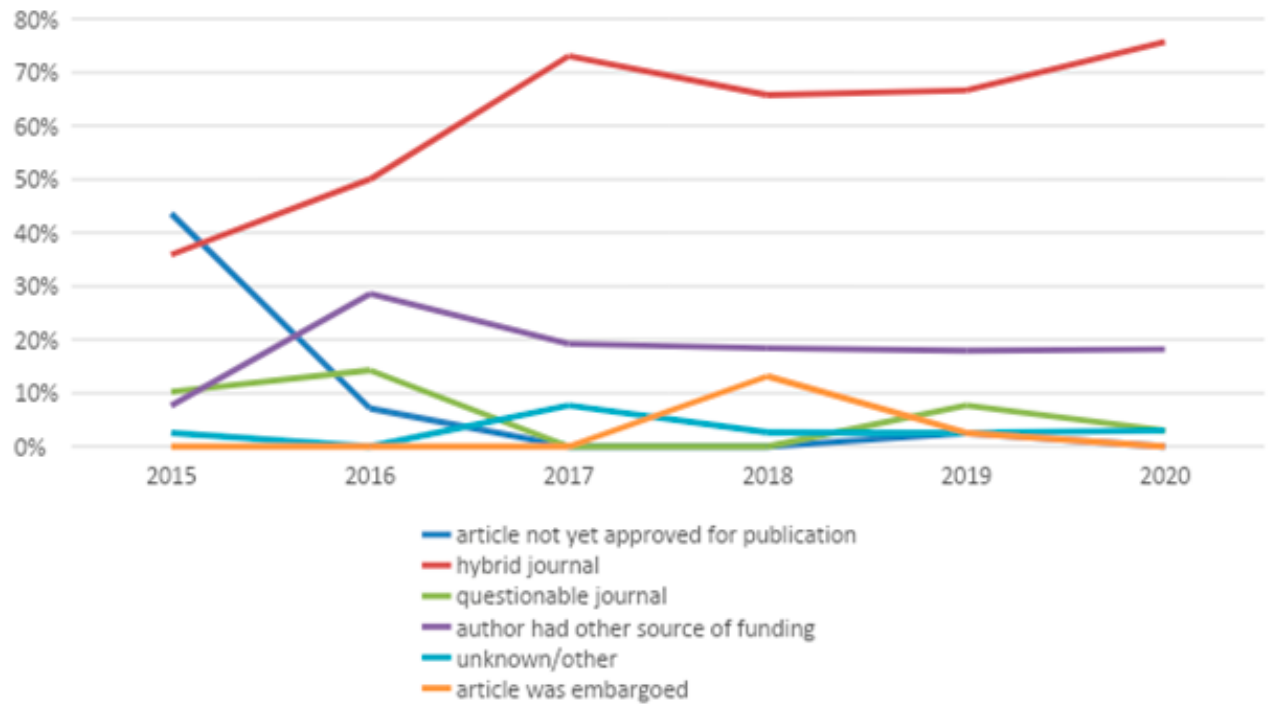
FIGURE 2
Rejected Funding Requests by Author's Classification



requests, increasing to 74 percent in FY20. From July 2015 through December 2018, the OASF supported hybrid journals if publishers reduced subscription costs based on the additional revenue they collected from OA APCs. While this change in policy may have initially reduced requests for support for articles in hybrid journals, the percentage has steadily risen since then. This might indicate that authors don't know how to differentiate a hybrid journal from one that is fully OA. Or, as was clear from the survey responses, many strongly believe that hybrid journals should qualify for support.

The second most frequent reason for not supporting a request was because an author had another source of funding, usually a current NSF grant. It is often difficult to determine if a grant actually supported an article, and authors often appeal the decision. Their arguments are usually convincing, for instance, the active grant is not the one that supported the research for the article support being requested.

FIGURE 3
Reasons for Rejecting Funding Requests



Looking at unfunded requests a bit more granularly allowed us to compare reasons for rejecting a request with a European Commission pilot initiative as reported by De-Castro and Franck. Both studies show that the article's acceptance in a hybrid journal was by far the most common reason for rejecting support requests. We strongly agree with them that "no-hybrid policy applied in the implementation of this APC funding initiative is a suitable mechanism to contain the costs and prevent further publishing market concentration."[32]

De-Castro and Franck[33] reported that 20 percent of the EC FP7 requests were rejected due to hybrid journals between 2015 and 2018. VT's rejection rate for the same time frame was 29 percent, and about 25 percent from 2015–2020.

Recognition for Publishing in OA Journals

We posed several questions to find out if, or how, authors were recognized for having published in OA journals. For most scholars, publishing an academic journal article does not involve any direct financial payment. Instead, rewards may manifest themselves in less tangible ways, loosely grouped under the general heading of prestige. Recognition for one's accomplishments may arise during annual performance or P&T/CA reviews, or special academic awards. Such considerations often extend well beyond any single article and may reflect more broadly on a researcher's scholarly record as a whole. But recognition is still a powerful motivating factor. It can play into an author's decision each time they consider where and how to publish their work as they seek to maximize its perceived value and potential impact.

We asked respondents to indicate whether and in what way they had been recognized for publishing in an OA journal: 14.1 percent indicated their OA publication was acknowledged by their academic unit, 7.2 percent by their unit head, and 9.3 percent during the P&T/CA process. Six percent of the responses fell into an "other" category. These included recognition from other colleagues in the field, professional societies, and the University Libraries.

However, by far the most frequent answer, 63.3 percent, was that authors were not recognized in any apparent way. This suggests that there is considerable room for improvement in this area. Finding mechanisms to enhance recognition and reward for publishing OA articles can only lead to more individuals choosing to do so. Interestingly, even though most felt they were not recognized themselves, 35.9 percent indicated they had encouraged a colleague at the university to publish OA articles. Also, 32.8 percent reported encouraging graduate students to publish their work OA.

Two questions related specifically to open access in relation to the P&T/CA process. Only 9.4 percent of the survey respondents indicated that publishing OA had been discussed as a part of this process, while 38.7 percent reported it had not. Another 51.9 percent said they were either unsure or that the question was not applicable to them (such as graduate students).

Open access is regularly considered as one factor during P&T/CA deliberations within the University Libraries at Virginia Tech. These deliberations are closed-door and confidential in nature, but the expectations are communicated to candidates by other means, such as the Libraries' Open Access Policy and its Procedures on Promotion and Continued Appointment. Having such a policy or procedures in place can be one way to show the importance attached by the unit to open access.

When asked whether respondents felt open access should be a factor in such deliberations, the question was not limited to those who had direct experience serving on a P&T/CA review committees. Here there was a much stronger affirmation of the perceived value of publishing open access when compared to the previous question asking about what had been observed in practice: 56.2 percent indicated that they believed OA should be a positive factor in these kinds of deliberations. Working to close that gap between what individuals say they think should be happening and what they have actually observed during P&T/CA decision-making will certainly not be an overnight process but is another way for institutions to reinforce the importance of publishing one's work as open access.

Conclusion

The comments often proved the richest source of information. Taken together with the survey questions they helped provide a much fuller picture of author attitudes and perceptions. From

both, it was evident that our authors greatly appreciate having the OASF available. The impact on OA was clear. The funds thus provided have made a real difference in their ability to publish their research in this manner. However, many authors wanted to see changes with regard to the finer details of how the funds are administered. They chafed at restrictions such as dollar caps or prohibitions on providing OASF support to authors who already had other sources of funding such as active grants available to them. Hybrid journals were another source of contention. Authors often do not understand the distinction the library makes between hybrid and Gold OA journals, or our concerns about "double-dipping" by publishers. Instead, authors want to publish their work in whatever journals they consider most prestigious in their respective areas of research. These are all valid concerns, especially when considered from an author's perspective. The challenge is how to balance these desires for as few limitations as possible against the libraries' need to contain costs and provide an equitable distribution of available funds.

Authors who had published their work OA often reported that they had received little or no recognition for having done so. That is a serious concern, as receiving appropriate recognition for their work can be a prime driver of authors' decisions about where and how to publish their research. Libraries cannot transform the entire academic culture on their own. But they certainly can be an important force in helping to bring such change about and should actively seek to create ways to showcase the work of OA authors at their institutions.

Education and outreach efforts are another important area which libraries need to continue to focus on. Awareness and acceptance of OA publishing in general has been increasing among authors. But there is still often considerable confusion and potential for misunderstanding. Workshops, informational web pages, focus groups, and other communication and education efforts can help bridge such gaps, and the value of one-on-one interactions should not be underestimated. Our library also seeks to encourage faculty to incorporate OA publication funds directly into their grant proposals. Libraries should continue to engage researchers in discussions about the economics of scholarly publishing and share data about the impact of OA articles.

Gaining a deeper understanding of total spending on APC costs across the institution can help better inform decisions on OA funding. This is not an easy task because funds often come from a wide range of departmental, college, institute, and other sources. At the prompting of the University Libraries, our university has recently added a designated code in the payment system that should improve our ability to track such expenditures.

These survey results will help to inform our future decisions and ensure that funds are allocated in the best manner. This is especially important as other options for supporting open knowledge ("subscribe to open" collections, open educational resources, open publishing, and so on) continue to grow and compete for a piece of the library budget. Virginia Tech Libraries have made a sizable commitment to supporting APCs for VT authors, devoting a total of more than $1 million. Regardless of the investment libraries make to an APC fund, or if they decline to participate in funding APCs at all, libraries have an important role to play in furthering the discussion about scholarly publishing and open access initiatives. Listening to and understanding their researchers' opinions about pathways and barriers to publishing is fundamental to their role.

Acknowledgements

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APPENDIX

Virginia Tech Open Access Subvention Fund Survey

OASF Awareness and Use

How did you learn about the VT Open Access Subvention Fund (OASF)? Select all that apply.

- □ Colleague
- □ Library Liaison
- □ NLI (Networked Learning Initiative)
- □ Other (please specify)

Did you attend an OASF Networked Learning Initiatives (NLI) or Professional Development Network (PDN) session?

- □ Yes
- □ No

Was the NLI/PDN session you attended helpful?

- □ Yes
- □ No

Did you pass information from the NLI/PDN session on to someone?

- □ Yes
- □ No

Have you received support from the OASF for an APC (article processing charge)?

- □ Yes
- □ No

Did the OASF support cover the full APC?

- □ Yes
- □ No

What other source(s) covered the APC balance? Select all that apply.

- □ Department/Program area/School funds
- □ College/Institute funds
- □ Federal grant funds
- □ Private foundation funds
- □ Personal funds
- □ Other (please specify)

OASF Policy Guidelines

The maximum award of $2000 per article is adequate.

- □ Agree
- □ Disagree
- □ Not sure

Why do you think $2000 per article is inadequate?

The OASF should prorate support among each of the VT authors for the purposes of calculating amounts towards the annual limit per author/coauthor.

- □ Agree
- □ Disagree
- □ Not sure

Why do you believe that the OASF should not prorate support among each VT author?

The OASF support should go only to authors who have no other sources of funding available.

- □ Agree
- □ Disagree
- □ Not sure

Why do you believe that OASF support should also go to authors with additional sources of funding available?

The OASF should fund only publishers who adhere to a Code of Conduct like those promulgated by OASPA and COPE.

- □ Agree
- □ Disagree
- □ Not sure

The VT OASF Guide provides the information I need to make a successful request for support.

- □ Agree
- □ Disagree
- □ Not sure

What additional information would have been helpful to you in making a request for support?

The VT OASF should not fund APCs in hybrid open access (OA) journals.

- □ Agree
- □ Disagree
- □ Not sure

Why should the OASF fund additional APCs in hybrid OA journals?

The OASF should be available to the entire VT community (i.e., faculty, staff, graduate and undergraduate students).

- □ Agree
- □ Disagree
- □ Not sure

The library should continue to fund APCs for scholarly peer-reviewed articles accepted for publication in open access journals.

- □ Agree
- □ Disagree
- □ Not sure

Why shouldn't the library fund APCs?

Have you taken advantage of the library-negotiated discounts with any OA journal publishers?

- □ Yes
- □ No
- □ Not sure

Open Access Journal Publishing

Select up to five factors influencing your choice about which journal to submit your manuscript to.

- □ APC (article processing charge)
- □ Appropriate audience/readers
- □ Copyright policy
- □ Impact factor
- □ Likelihood of being cited (visibility, exposure)
- □ List of department/college prescribed journals

- □ Number of subscribers
- □ Open access (free, public access)
- □ Page charges
- □ Publication quality
- □ Speed of publication/rapid dissemination
- □ Topic
- □ Other (please specify)

Select up to 3 people influencing your decision to publish OA.

- □ Administrator/Unit head
- □ Advisor/Mentor
- □ Colleague
- □ Librarian
- □ Student
- □ Other (please specify)

Select up to 3 factors influencing your decision to publish OA.

- □ Desire to see publishing models change
- □ Disciplinary norms
- □ Grant/sponsor requirement
- □ Greater likelihood of being cited
- □ Promotion & Tenure or Continued Appointment (P&T/CA) expectations
- □ Public good/Social responsibility
- □ Reaching more readers/Having more impact
- □ Support available through OASF
- □ Other (please specify)

Did you have trouble finding an OA journal in your discipline?

- □ Yes
- □ No

How have you used your published OA article? Select all that apply.

- □ Assigned a Creative Commons or other open license
- □ Deposited your article in VTechWorks
- □ Deposited your article in a repository other than VTechWorks
- □ Linked from your P&T/CA dossier
- □ Linked from your syllabus
- □ Linked to another article you wrote
- □ Retained the copyright to your article
- □ Other (please specify)

Indicate if you were recognized for publishing in an OA journal. Select all that apply.

- □ By your unit (i.e., department, school, etc.)
- □ By your unit head
- □ By your P&T/CA Committee
- □ Other (please specify)
- □ Not recognized

Have you encouraged any of the following to publish in OA journals? Select all that apply.

- □ Colleague at VT
- □ Colleague at another university/college

- □ Graduate student
- □ Undergraduate student
- □ Others (please specify)

Has OA publishing been discussed in a P&T/CA committee that you have served on?

- □ Yes
- □ No
- □ Not sure
- □ Not applicable

Should OA publishing be a positive factor in P&T/CA considerations?

- □ Yes
- □ No

Please provide any comments you would like to share about the VT OASF.

Demographic Information

What is your top-level unit affiliation within Virginia Tech?

- □ College of Agriculture and Life Sciences (CALS)
- □ College of Architecture and Urban Studies (CAUS)
- □ College of Engineering (COE)
- □ College of Liberal Arts and Human Sciences (CLAHS)
- □ College of Natural Resources and Environment (CNRE)
- □ College of Science (COS)
- □ Fralin Biomedical Research Institute
- □ Fralin Life Science Institute
- □ Institute for Creativity, Arts, and Technology (ICAT)
- □ Institute for Critical Technology and Applied Science (ICTAS)
- □ Institute for Society, Culture and Environment (ISCE)
- □ Pamplin College of Business
- □ University Libraries
- □ Virginia Tech Carilion School of Medicine and Research Institute (VTC)
- □ Virginia Tech Transportation Institute (VTTI) (15)

What department are you primarily affiliated with? If affiliated with more than one, provide a second option as appropriate.

- □ Affiliation 1
- □ Affiliation 2

What is your primary affiliation with Virginia Tech?

- □ Graduate Student
- □ Undergraduate Student
- □ Assistant Professor
- □ Associate Professor
- □ Professor
- □ Lecturer/Instructor/Adjunct
- □ Staff
- □ Other (please specify)

What is your academic appointment?

- □ Tenure/Continued appointment

- □ Tenure-track/Continued appointment track
- □ Not applicable

What race or ethnicity would you describe yourself as? Select all that apply.

- □ Non-Hispanic, White, or Euro-American
- □ Black, Afro-Caribbean, or African American
- □ Latino or Hispanic American
- □ East Asian or Asian American
- □ South Asian or Indian American
- □ Middle Eastern or Arab American
- □ Native American or Alaskan Native
- □ Other
- □ Prefer not to answer

With which gender do you most identify?

- □ Female
- □ Male
- □ Trans Female
- □ Trans Male
- □ Gender Variant/Non-conforming
- □ Not Listed
- □ Prefer not to answer

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The Impact of Decorative Images on Student Performance: A Two-Year Study of Online Library Modules

Alexander Deeke and Naomi Binnie

During a two-year period, over 1,900 undergraduate students completed a version of an online asynchronous library module either with or without decorative images. Two instruction librarians compared quiz scores and affective feedback from both versions to determine the impact decorative images had on student performance and analyzed the results through the lenses of multimedia and user experience studies. The study finds that decorative images have little impact on student performance and expounds on how these findings impact design concerns of future online library modules.

Introduction

Academic librarians have been increasingly tasked with creating asynchronous online tutorials and modules as part of their instruction portfolio over the past few years, and this trend has continued because of changes in higher education brought on by the COVID-19 pandemic. Although many librarians are skilled in-person teachers, developing asynchronous online instruction modules poses a unique set of considerations that may be new to many librarians.

One particularly challenging consideration for librarians is the inclusion and use of images, particularly decorative images.

Decorative images are defined as neutral images that are not directly relevant to an essential learning goal of the corresponding instruction content.[1] The use of decorative images is often a topic of conversation at conferences, on twitter, and during online module development meetings. Proponents of decorative images often see them as ways to make asynchronous modules look more interesting or visually appealing to students. Opponents of decorative images, on the other hand, point to potential accessibility concerns.

The authors wanted to better understand the impact of decorative images on student comprehension of library literacy concepts and skills taught via an asynchronous online learning module. The present study was designed to reveal the impact decorative images had on the ability of students in an undergraduate research program to complete asynchronous learning modules. The study of the relationship of decorative images and online learning is also novel

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in librarianship, and the authors hope this study contributes to the growing awareness and best practices for supporting online learners.

Literature Review

The literature around decorative images and online learning intersects across multiple areas of study. The primary intersections relate to research in multimedia studies, scholarship of teaching and learning, user experience, and heuristics.

Cognitive Load Theory

Multimedia research has established that people can learn better from words and images together.[2] However, the overuse of images can create a strain on students' cognitive load. Cognitive load theory (CLT) refers to the amount of effort and working memory required to process and learn a concept.[3] If a concept or task requires too much effort or working memory, then learning will be hampered.[4]

Cognitive load can be further defined in three categories, as explained by Ton de Jong:

> *Intrinsic cognitive load* relates to inherent characteristics of the content to be learned, *extraneous cognitive load* is the load that is caused by the instructional material used to present the content, and finally, *germane cognitive load* refers to the load imposed by learning processes.[5]

All categories of cognitive load express the level of effort required for the acquisition, storage, and use of biologically secondary information.[6] Biologically secondary information is best understood in comparison to biologically primary information. Biologically primary information is information or skills that can be learned without explicit instruction, such as a child learning to walk or learning the language spoken at home. Biologically secondary information, on the other hand, is information or skills that learners must make a conscious effort to learn and is received via explicit instruction, such as a parent teaching a child how to ride a bike.[7]

While de Jong argues that cognitive load is difficult to measure accurately, he discusses the recommendations that come from CLT: "present material that aligns with prior knowledge of the learner (intrinsic load), avoids non-essential and confusing information (extraneous load), and stimulates processes that lead to conceptually rich and deep knowledge (germane load)."[8]

To put CLT in a library instruction context, imagine a student in their first semester of college who needs to complete an online tutorial about using the library for basic research. The student is coming in with very little prior knowledge about how academic libraries work, so the intrinsic load will be higher for this student than for a student who has used the library before. The tutorial is accessed through a simple, user-friendly module on the learning management system Canvas; however, the student has never used Canvas before, resulting in an added extraneous load as they navigate through the tutorial. While the student completes the tutorial, they learn and create memories and schemas around how to use the library for research. This act of learning and creating long-term memories around instructional content is considered to be the germane load.

Extraneous cognitive load is of interest to librarians designing instructional content, particularly asynchronous online modules, because extraneous cognitive load is content that is not necessary for learning and that can be changed or adjusted.[9]

Richard Mayer and Roxana Moreno state that while meaningful learning requires a heavy amount of cognitive processing, instructional designers can mitigate this by designing material in ways that minimize any unnecessary cognitive load.[10] Gary Morrison and Gary Anglin suggest that providing examples, using a combination of visual and verbal aids rather than just one or the other, and providing interactivity are ways to mitigate cognitive load.[11] Findings from Mayer and Moreno also suggest that ways to mitigate cognitive overload are by aligning words with pictures, eliminating redundancy, and weeding out extraneous materials.[12]

Decorative Images

Decorative images inhabit a precarious position between multimedia learning theories and cognitive load theory, in part because of their relationship with the instruction content. Mayer defines types of images used in online learning as instructive, seductive, or decorative.[13] Instructive images are relevant to the learning goals and are directly related to the concepts being taught.[14] Seductive images are highly interesting but not directly relevant to the lesson. Decorative images are neutral material and are not directly relevant to the essential learning goals.[15] Shigeko Takahashi distinguishes instructional and decorative images as a difference of function with the latter providing an aesthetic experience.[16] Sascha Schneider et al. also defines decorative images as "pictures which do not provide information (or at least no learning-relevant information) but are included to enrich learning materials with pictures."[17]

It is important to note that the distinction between Mayer's definition of decorative and seductive images is often blurred in the literature. Some studies use the term "decorative image" to mean aesthetically pleasing and interesting, which is closer to Mayer's definition for seductive images.[18]

The impact of decorative images on learning is varied in the literature.[19] Alwine Lenzner, Wolfgang Schnotz, and Andreas Müller found that decorative images neither harm nor benefit the learning of seventh and eighth grade students as compared to instructional images.[20] Jennifer Wiley et al. found that college students did not hold expectations that decorative images would improve understanding.[21] Looking deeper into subtypes of decorative images, Sascha Schneider, Steve Nebel, and Günter D. Rey split decorative images into the subcategories of positive (conducive), negative (seductive), learning-context, and leisure-context, and found that positive and learning-context decorative images improve learning.[22] Additionally, Schneider et al. found that decorative images designed with human characteristics have a positive impact on learning processes.[23] Further research into the placement of decorative images that show either emotionally positive or emotionally negative decorative images by Maria Mikheeva et al. found that viewing positive images before negative images in a course results in enhanced learning at the beginning, while viewing positive images after negative images in a course decreases extraneous and intrinsic cognitive load toward the middle of the course.[24]

However, Allison Jaeger and Jennifer Wiley found that undergraduate students experienced poor metacomprehension, the ability for an individual to predict how well one will perform on a test after reading a text, in the presence of decorative images.[25] Halszka Jarodzka et al. found that while expert learners can differentiate between stimuli in images and determine the relevant information, novices may be distracted and unsure, and may retain incorrect information from images.[26] Additionally, Sascha Schneider et al. discovered in 2020 that university students who watched a video with decorative images performed worse than students who watched a video without decorative images. However, the same

study found that students shown decorative images during the video and also during the post-video survey were found to learn more than those without decorative images due to a memory cue effect.[27]

A theory called the *seduction effect* has been explored to explain why decorative images may harm student learning. The seduction effect is the impact an image or text has on a learner's ability to process information as deeply as should be expected.[28] The possible reasons why the seduction effect can take place are described as diversion, disruption, and distraction.[29] Jennifer Wiley defines each possible reason as:

- Diversion: the presence of an irrelevant image undermines learning by giving the reader a misconception about the true purpose of a passage.
- Disruption: the presence of additional information prevents the reader from building a coherent mental model from the text.
- Distraction: limited attentional mechanisms are responsible for poor learning when interesting-but-irrelevant images are presented alongside […] texts.[30]

While there are varying levels of support for each possible reason, the seduction effect is often considered the reason why decorative images may inhibit learning in some contexts.

Student Expectations & Behavior

Although the literature is split on the impact of decorative images on student learning, research in learner expectations and online behavior provides additional insights on the impact of decorative images.

User experience studies indicate that online decorative images may be ignored by learners. Eye tracking user studies from the user experience firm Nielsen and Norman report that some images, particularly "big feel-good images that are purely decorative" are "completely ignored" by users.[31] They found that users pay attention to "information-carrying images" that show relevant content to the task at hand.[32] Jakob Nielsen and Kara Pernice state that people ignore images for a variety of reasons, including when they are of poor quality or low contrast, but also when they are not related to content on the page, if they are boring, or if they are generic and look like stock art.[33] Nielsen and Pernice categorize unhelpful images as being obstacles.[34]

Although user experience studies indicate that decorative images may be ignored, users may have the expectation that decorative images are helpful to their heuristic or learning process. Michael Serra and John Dunlosky found that students reading text-only materials or text with photographs unrelated to the topic performed equally lower than students reading text with diagrams related to the topic.[35] However, the text-photograph group's metacomprehension scores were just as high as those of the text-diagram group. This difference indicates that students overrelied on a multimedia heuristic which "inappropriately biased their judgements in a situation—the photo group—where multimedia did not boost test performance."[36] Lenzner, Schnotz, and Müller found a similar heuristic in their 2013 study.[37]

Centering this study around extraneous cognitive load is important as this type of load, or content, is easy to change or modify depending on how it affects student performance. The authors decided that decorative images, as defined in the literature, serve as an ideal type of extraneous load to study due to their prevalence in asynchronous modules. The literature on the impact of decorative images in learning, user experience, and student expectations provides a helpful lens to interpret and discuss results.

Background

The study took place at the University of Michigan in Ann Arbor, Michigan. The University of Michigan is classified as a "R1: Doctoral University" according to the Carnegie Classification of Institutions of Higher Education, and has an undergraduate enrollment of over 30,000 students.[38] The study focused on a population of students enrolled in an undergraduate research seminar during 2018 and 2019.

The seminar was an optional, year-long research experience for early career undergraduate students consisting primarily of first- and second-year students as well as some transfer students. Students enrolled in the seminar received one to four general elective credits, and the seminar was open to students from all of the University of Michigan's schools, departments, and majors. Students were required to conduct research for up to twelve hours per week with a faculty member and attend a weekly seminar where they learned new skills related to scholarship and research.

Library Instruction & Asynchronous Modules

The undergraduate research seminar had a long-standing relationship with the University of Michigan Library, where librarians would provide workshops about library research at one of the required weekly seminars in the fall semester. In-person library instruction was replaced by asynchronous modules via the learning management system Canvas in 2017 as a pilot, which was fully converted in 2018.

In 2018 and 2019, students were required to complete three asynchronous online modules to learn about library research and information literacy. The present study focused on one module called "Reading a Scholarly Article," which consisted of two sections. The first section included two content pages introducing the topic, one video outlining how to read a scholarly article, and one graded quiz that served as a comprehension check from watching the video. The second section provided information on common parts of a scholarly article (e.g., abstract, methods) and walked students through a sample article. The second section included eleven content pages, four ungraded practice opportunities related to the sample article, and one graded cumulative quiz.

Methodology

The study population consisted of 1,941 students enrolled in an undergraduate research seminar during the fall semesters in 2018 and 2019. The students consisted primarily of first- and second-year undergraduate students along with some transfer students. The authors did not gather nor analyze any demographic or academic information about the population for this study.

Module Versions

The authors created two versions of the "Reading a Scholarly Article" module to test the effect of decorative images on student quiz performance in both 2018 and 2019. Both versions were completely identical in regard to the information presented and the number of content pages, videos, ungraded practice opportunities, and graded quizzes. The only difference was the inclusion or exclusion of decorative images in the eleven content pages in the second part of the module.

The version containing decorative images was designated as the *images version* and contained nine decorative images. The version without decorative images was designated as the *text-only version* and contained no decorative images.

Students were randomly assigned either an images version or a text-only version of the module and were required to complete the module for their seminar. Students completing the images version viewed content pages that included both text and a decorative image, while students completing the text-only version viewed content pages that only included text. Figure 1 demonstrates the content page "Abstract" that contains an image of pages from a book, and figure 2 demonstrates the content page "Abstract" that does not include an image (figures 1 and 2).

FIGURE 1
Content Page from the Images Version

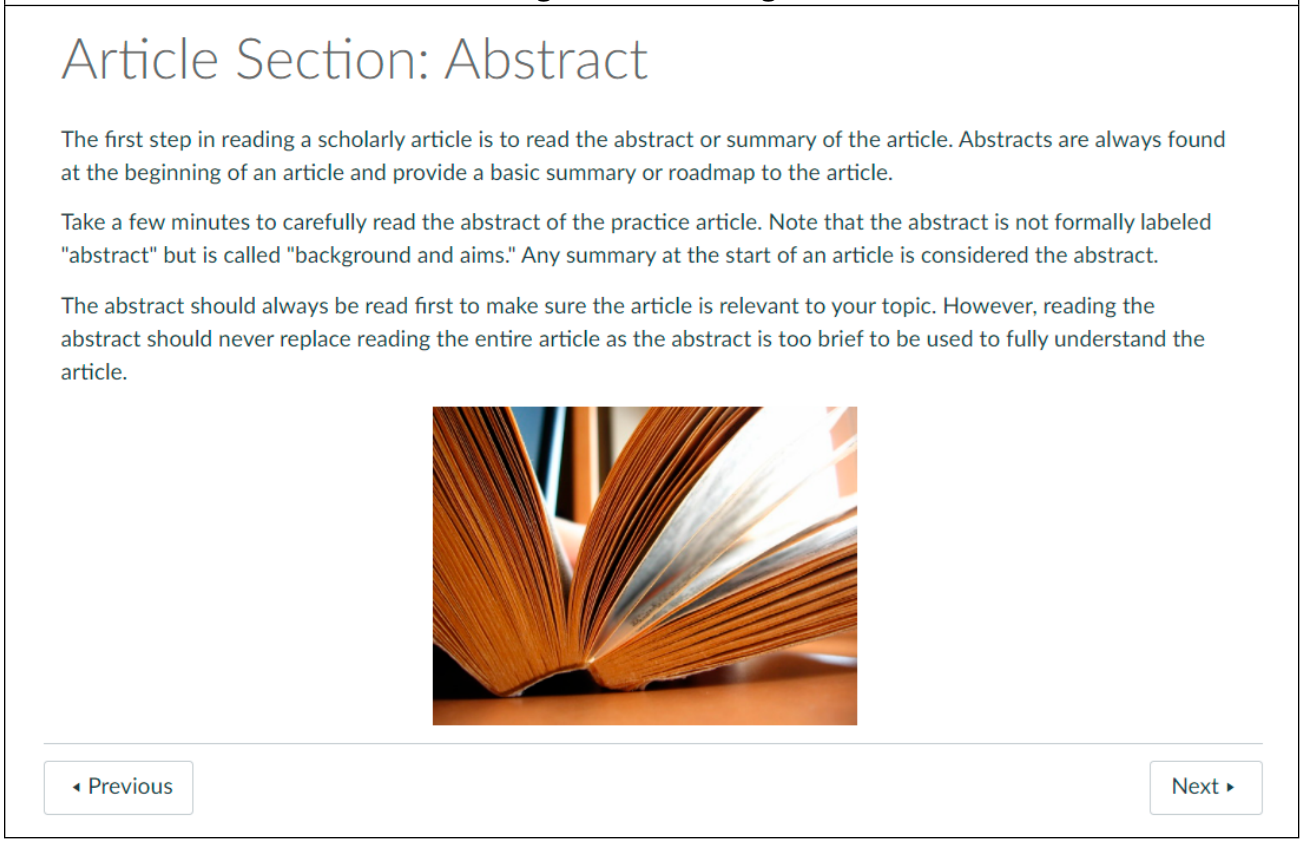

FIGURE 2
Content Page from the Text-Only Version

Decorative Images

The authors chose images that did not have a clear instructional purpose nor were intended to be visually interesting or distracting, following similar definitions of decorative images found in the literature.[39] Additionally, the chosen images fit the definition of online decorative images in user experience studies, as the authors considered them to be generic stock art images.[40] The authors did not control for factors such as images containing humans or human characteristics, nor did they break the images down into particular subcategories as done elsewhere.[41]

Using the definitions found in the literature, the following criteria can be applied to images that were selected for this study:

- The chosen images appear to be a generic image that would be considered stock art.[42]
- The image does not contain any information that is necessary for the student to view or comprehend in order to understand the content of what is being learned.
- The image does not explicitly convey a message, symbol, or attribute that may distract a learner, for either positive or negative reasons
- The image is related to the content being taught

For instance, the image of pages from a book in figure 1 was selected from a gallery of stock art, does not contain any information related to understanding or reading an abstract, does not contain entertaining information (unlike a meme), and is related to the concept of abstracts since an abstract is located on a page. All images used in this study can be found in appendix A.

Measuring Student Performance

The authors assessed student performance with a cumulative quiz of eight questions posted at the end of the module. An additional quiz that evaluated students' comprehension of an instructional video early in the module was excluded from the study.

The cumulative quiz included three questions related to identifying parts of a sample scholarly article and five questions related to concepts taught in the module. The conceptual questions were directly related to content pages that used decorative images. For this reason, the authors analyzed both the cumulative quiz scores and an adjusted score consisting of the five questions that directly related to the use of decorative images. Quiz questions can be found in appendix B.

Students were required to score 100 percent on the cumulative quiz to successfully pass the module and were allowed unlimited attempts. The authors isolated each student's first quiz attempt to evaluate student performance, and subsequent attempts were not evaluated.

Affective Survey

An affective survey was conducted for students enrolled in 2019 to measure their perceptions of each version of the module. All students received the same questions but were not required to answer any of them. Participants answered the affective survey immediately after completing and passing the cumulative quiz. The following affective questions were used:

Q1: How long did it take you to complete the module?
Q2: How much information presented in this module was new to you?
Q3: How challenging was it to complete this module?
Q4: How clear was the information presented?
Q5: How impactful were images in helping you successfully complete the module?

Canvas

The authors used the learning management system Canvas to build and administer both versions of the module, the graded cumulative quiz and the affective survey to students. Canvas was the learning management system already in place for the seminar when library instruction moved online, which is why it was chosen as the delivery system for all aspects of this study.

Although Canvas is relatively easy to use for implementing asynchronous modules, there are limitations to using it to accurately track the amount of time students are on it. For instance, if a student works on a module for thirty minutes, leaves for an hour lunch but keeps the module open on their computer and then finishes the module in thirty minutes after lunch, they could be recorded as taking two hours rather than the actual one hour they spent on the module. Due to this potential issue, the authors decided it would be more accurate to ask students about their perception of time (Q1) rather than looking at any time-related data generated from Canvas.

Statistical Analysis

Student online module quiz scores were analyzed by determining the mean, standard deviation, and number of scores and then tested via an unpaired t test using the software R Studio. The analyzed data was then compared within their respective year to test null hypotheses A and B:

- Null Hypothesis A: The mean cumulative quiz scores will be equal between the images and text-only versions of the final quiz for the module.
- Null Hypothesis B: The mean adjusted quiz scores will be equal between the images and text-only versions of the final quiz for the module

Student affective survey feedback in 2019 was aggregated and analyzed with a chi square test using the software R Studio to test null hypothesis C:

- Null Hypothesis C: The distribution of the affective feedback results will be the same between the images and text-only versions of the survey for the module.

A significance level (p-value) of 0.05 was used to determine if any differences in quiz scores or affective feedback were statistically significant.

Results

In the fall of 2018, 927 students completed the online module; 470 completed the images version and 457 completed the text-only version. The mean scores on the cumulative quiz for the images and text-only versions were 6.4681 and 6.5456, respectively, and 4.4915 and 4.5197 for the adjusted score. The p-value for these differences for the cumulative and adjusted scores were 0.3578 and 0.5858, respectively, indicating that differences were not statistically significant. The 95 percent confidence interval of the difference in cumulative scores and adjusted scores ranged from -0.243 to 0.088 and -0.130 to 0.073, respectively (figures 3 and 4).

FIGURE 3
Cumulative Quiz Scores 2018

	Images (n = 470)	**Text-Only (n = 457)**
Mean Score	6.4681	6.5456
Standard Dev	1.3225	1.2394
95% Confidence Interval	(-0.243, 0.088)	
p-value	0.3578	

FIGURE 4 Adjusted Quiz Scores 2018		
	Images (n = 470)	**Text-Only (n = 457)**
Mean Score	4.4915	4.5197
Standard Dev	0.8337	0.7372
95% Confidence Interval	(-0.130, 0.073)	
p-value	0.5858	

In the fall of 2019, 1,014 students completed the online module with 603 completing the images version and 411 completing the text-only version. The mean scores on the cumulative quiz for the images and text-only versions were 6.4303 and 6.3901, respectively, and 4.4975 and 4.4562 for the adjusted score. The p-value for the differences for the cumulative and adjusted scores were 0.6292 and 0.4123, respectively, indicating that differences were not statistically significant. The 95% confidence interval of the difference in cumulative scores and adjusted scores ranged from -0.123 to 0.204 and -0.058 to 0.140, respectively (figures 5 and 6).

FIGURE 5 Cumulative Quiz Scores 2019		
	Images (n = 603)	**Text-Only (n = 411)**
Mean Score	6.4303	6.3901
Standard Dev	1.2770	1.3393
95% Confidence Interval	(-0.123, 0.204)	
p-value	0.6292	

FIGURE 6 Adjusted Quiz Scores 2019		
	Images (n = 603)	**Text-Only (n = 411)**
Mean Score	4.4975	4.4562
Standard Dev	0.7600	0.8260
95% Confidence Interval	(-0.058, 0.140)	
p-value	0.4123	

Based on the statistical analysis of the images and text-only versions, there does not appear to be a statistically significant difference in mean quiz scores. As a result of this lack of evidence, neither null hypotheses A nor B could be rejected. These findings indicate that the use of decorative images in online modules did not have a significant negative nor positive impact on student performance, supporting findings in some previous studies.[43]

Affective Survey

In the fall of 2019, 985 students completed an affective survey that was distributed at the end of the module. 587 students took the survey after completing the images version of the module and 398 students took the survey after completing the text-only version. The survey was optional, as was each survey question.

The distributions of Q1 and Q3 indicate that both the images and text-only students perceived each version to take a similar amount of time and was similarly challenging. Most

students took less than 40 minutes to complete each version of the module and rated the modules as either a little challenging or not challenging. The Q1 and Q3 p-values of 0.1172 and 0.3770, respectively, indicate that the difference in the distribution for each question was not statistically significant (figures 7 & 8). The results of Q3 also mirror the 2019 cumulative and adjusted quiz scores (figures 5 & 6).

FIGURE 7
Q1: How Long Did It Take You to Complete the Module?

	Images (n = 587)		Text-Only (n = 397)	
Less than 30 minutes	174	29.64%	113	28.46%
30–39 minutes	162	27.60%	130	32.75%
40–49 minutes	98	16.70%	75	18.89%
50–59 minutes	83	14.14%	36	9.07%
60–69 minutes	46	7.84%	25	6.30%
70+ minutes	24	4.09%	18	4.53%
p-value	0.1172			

FIGURE 8
Q3: How Challenging Was It to Complete This Module

	Images (n = 587)		Text-Only (n = 398)	
Very challenging	32	5.45%	15	3.77%
Somewhat challenging	162	27.60%	124	31.16%
A little challenging	230	39.18%	159	39.95%
Not challenging	163	27.77%	100	25.13%
p-value	0.3770			

The distributions of Q2 and Q4 indicate that the perception of newness and clarity of information presented in each version was similar for both sets of students. Most students in both versions rated most or some of the information as being new and that the information was presented very or somewhat clearly. The Q2 and Q4 p-values of 0.2471 and 0.5050, respectively, indicate that the difference in the distribution for each question was not statistically significant (figures 9 & 10).

The distribution of Q5 indicates that the perception of images in helping students complete the module was similar in both sets of students. The majority of students in both versions rated images as being either very impactful or somewhat impactful. The Q5 p-value of 0.1672 indicates that the differences in the distribution were not statistically significant (figure 11).

FIGURE 9
Q2: How Much Information Presented in This Module Was New to You?

	Images (n = 587)		Text-Only (n = 397)	
Most of it was new	160	27.26%	116	29.22%
Some of it was new	290	49.40%	173	43.58%
A little of it was new	99	16.87%	83	20.91%
None of it was new	38	6.47%	25	6.30%
p-value	0.2471			

FIGURE 10
Q4: How Clear Was the Information Presented?

	Images (n = 586)		Text-Only (n = 398)	
Very clear	226	38.57%	162	40.70%
Somewhat clear	279	47.61%	185	46.48%
Somewhat unclear	64	10.92%	45	11.31%
Very unclear	17	2.90%	6	1.51%
p-value	0.5050			

FIGURE 11
Q5: How Impactful Were Images in Helping You Successfully Complete the Module?

	Images (n = 587)		Text-Only (n = 398)	
Very impactful	87	14.82%	55	13.82%
Somewhat impactful	265	45.14%	185	46.48%
A little impactful	124	21.12%	101	25.38%
Not impactful	111	18.91%	57	14.32%
p-value	0.1672			

The p-values for the differences in the distribution of answers for Q1 through Q5 were all above 0.05, indicating that the distributions were not statistically significantly different from each other (figures 7, 8, 9, 10, and 11). As a result of this lack of evidence, null hypothesis C could not be rejected. However, the inability to reject null hypothesis C provides important insights as to how decorative images influence students' perceptions of online modules.

Discussion

The findings of this study provide librarians with flexibility in deciding whether to use decorative images when designing online modules. The difference in quiz scores over two years between the images and text-only students indicate that images did not have a statistically significant impact on student quiz scores as well as very miniscule differences in actual quiz score differential. The lack of impact from decorative images is especially noticeable due to the fact that the higher scoring groups actually reversed between 2018 and 2019.

Although the quiz score findings support research conducted by Lenzner, Schnotz, and Müller on the lack of either positive or negative impact from decorative images, the authors of this study were surprised that the images did not lead to noticeable differences in cognitive overload.[44] This finding is due to the similar distributions across both module versions in the affective survey, but particularly in the areas of completion time and ease (figures 7 & 8).

The lack of cognitive overload may be a result of the modules containing a low amount of intrinsic and extraneous cognitive load related to the content students needed to learn. From the intrinsic perspective, the content pages were limited to one topic per page, and were presented at an introductory level to reading a scholarly article. The 2019 affective survey indicates that while many students from both versions perceived the information as new, which would raise cognitive load, a majority also rated the challenge of each version as a little or not challenging (figures 9 & 8). This dichotomy suggests that while most of the information in the module was new to the students, the topics themselves were introductory or basic

enough that learning them was relatively easy for college students, which in turn may have reduced the intrinsic load. From the extraneous perspective, the module content pages were intentionally short, and few of the content pages required students to scroll down to read all of the content. The fourth question from the 2019 affective survey also provides evidence that the content was presented in a manner perceived to be very or somewhat clear by over 85 percent of students in both versions, which may have reduced the extraneous load (figure 10).

These intrinsic and extraneous factors related to the introductory nature of the online module fit well within Mayer and Moreno's framework to mitigate cognitive load.[45] It is possible that the content and organization of the modules were designed to lower the cognitive load enough that the addition of decorative images would not cause cognitive overload for students. If so, it may be more important for a librarian to first think holistically about the instructional design of a module and the complexity of the topics being taught to determine if the cognitive load is low enough for decorative images to be included.

The quiz and affective survey results also indicate that the decorative images did not create a noticeable seduction effect on the images group. The images did not appear to distract students' attention, divert their learning from the content, nor disrupt them from creating a coherent mental model in a meaningful way.

One interpretation of why the seduction effect is not evident could be through the lens of user experience studies. Nielson, Norman, and Pernice's research indicates that online users ignore decorative images, especially if they are boring, generic, and look like stock art.[46] The decorative images chosen for the images version were stock images and photos, which could explain why students ignored them. This interpretation suggests that stock images may be best to use as decorative images in order to avoid the seduction effect in online learning.

It is also particularly surprising that there were similar results on Q5 of the affective survey between both groups' views on the impact images had on completing the module (figure 11). The authors expected a greater response of "a little impactful" or "not impactful" from the text-only group due to the fact that those students did not encounter any images. Instead, the text-only group answer distribution mirrored the images group distribution.

The authors hypothesize that the mirroring of the Q5 distribution is evidence of Serra and Dunlosky's multimedia heuristic, namely that both sets of students believe that images with text produce better learning.[47] The present study expands on Serra and Dunlosky's findings by demonstrating that the multimedia heuristic endures without the presence of images and without students being prompted to think about images before completing a module. In Serra and Dunlosky's study, students were asked about their beliefs concerning images and learning at the beginning of the experiment, which could have primed students to believe images were important.[48] The present study only asked students about the impact of images after the module was completed and still found evidence of a multimedia heuristic.

The multimedia heuristic may also explain why librarians often feel a need or pressure to include decorative images in online modules. This may be due to feedback from students who have an assumption that images improve learning in an online environment. It is also possible that librarians themselves have internalized this multimedia heuristic. An interesting follow-up study could examine if the multimedia heuristic is present in librarians. Further research into this area may also be beneficial to the area of usability testing of online tutorials.

Limitations

A number of limitations should be considered in this study. First, the study focused solely on decorative images. Further research is needed to determine the impact of decorative images in conjunction with instructive images, as online modules often use a combination of both.

Second, the context in which the module was completed is relatively rare in academic library instruction because most online modules created by librarians are not required to be completed as part of a credit bearing course. Further research is needed on the impact decorative images have on online modules that are not required but rather voluntary. This study also did not control for the type of screen used, nor did it compare students' perception of completion time to actual completion time.

Third, students in this study did not experience time constraints when completing the modules; however, some online tutorials require students to complete them in a set amount of time. Students under a time constraint could be more impacted by decorative images by adding cognitive load or distracting them from the instructional content. Additional research on the intersection of time constraints and decorative images on cognitive load would be beneficial.

Fourth, this study only examined student performance during the module. While this is an accepted methodology in research regarding the impact of images, the results cannot be used to measure the impact of decorative images on the long-term retention of information.[49]

Fifth, in the affective survey students were limited in their ability to answer Q5 because the option "not applicable" was not provided. The lack of this option may have impacted responses from the text-only group. However, the authors believe that this limitation is minimal due to the included Likert scale option of "not impactful" as an appropriate alternative.

Finally, it must be acknowledged that the definition of decorative images in the literature is problematic. Many definitions use the term "neutral" to describe decorative images, but claiming the neutrality of an image is inherently biased as it is based on the aesthetic preferences of the viewer. An acknowledgement of this issue may explain the blurring between the definitions of decorative and seductive images in the literature; however, this in turn makes it hard to find a standard definition or criteria to apply to either type of image. Further discussion into the definitions of image type and criteria is needed.

Conclusion

As online learning becomes increasingly prevalent in academic library instruction programs, this study should aid librarians in their understanding of online learning when creating asynchronous modules. A general takeaway from this study is that decorative images can be used in modules but should not be considered as a method to increase comprehension of material, nor should they be considered a significant barrier for students. These findings should provide balance to those who enjoy incorporating decorative images to those who find them potentially distracting.

However, the lack of impact from decorative images in this study does not give librarians carte blanche for their use. Librarians should prioritize the application of instructional design best practices to reduce the cognitive load students will experience from an online module and then decide whether to include decorative images. This is especially true if the module contains a variety of media, if students need to learn a new or unfamiliar technology, or if the concepts being taught are difficult to comprehend.[50]

Additionally, librarians need to be aware that while students expect images to aid in their learning, the evidence does not support this belief. Student feedback on online modules should be analyzed with the knowledge that students internalize this multimedia heuristic.

Acknowledgments

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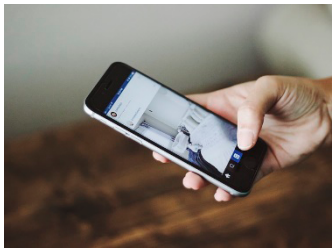
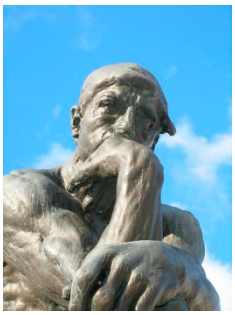
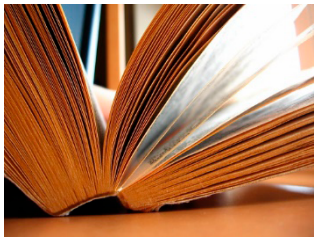
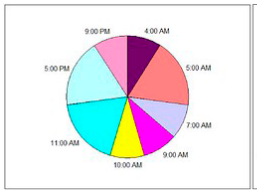
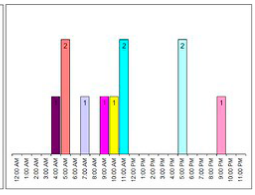
Appendix A. Decorative Images

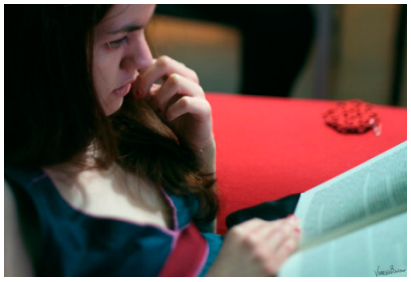












Appendix B. Cumulative Quiz Questions

Question 1: In which section will you most likely find the researcher's interpretation of the results?

- Results
- Introduction
- Discussions & Limitations
- Methodology

Question 2: Why is it important to gather background information before reading a scholarly article? Select up to two answers.

- To introduce yourself to technical words common in the field
- To find and read other scholarly articles written by the author
- To confirm the findings of the article
- Authors of scholarly articles already assume the reader is familiar with the general topic

Question 3: Who is the intended audience of the example scholarly article? (Link to article: "The invisible addiction: Cell-phone activities and addiction among male and female college students," https://doi.org/10.1556/jba.3.2014.015)

- General population
- Scholars in psychology
- Scholars in electrical engineering
- Scholars in computer science

Question 4: Why should you always read the abstract of an article first?

- To make sure the article is relevant to your topic
- To skip reading the introduction
- To find a quick quote for a paper
- To completely understand the article and to skip reading the entire article

Question 5: Based on the conclusion, which of the following are the three main points of the article?

- Addictive activities do not vary across genders
- Certain activities performed on a cell-phone are more likely to lead to dependence
- Time spent on a particular activity does not necessarily signal that the activity is addictive
- Students in college spend around nine hours daily on their phones

Question 6: Why is it important to take special note of words like "important" or "significant" in the results section?

- These phrases are signals from the author about technical language that is important to know
- These phrases are signals from the author of an important result
- Theses phrases are signals from the author about an alternate hypothesis
- These phrases are important keywords from the article

Question 7: When reading the methods section, which suggestion should you keep in mind?

- Circle the words you don't understand and look them up
- Skip words you don't understand
- Read the methods section first to get an overall sense of the article
- Ignore surveys and measurements used as they are only relevant to the current study

Question 8: According to the authors in the "Study Limitations" section, which of the following are two limitations of the study?

- The incorrect cell-phone addiction scale (MRCPAS) was used
- Sample was not chosen on a random basis
- Cell-phone addiction scale (MRCPAS) requires further psychometric evaluation
- Inadequate sample size

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Complex and Varied: Factors Related to the Research Productivity of Academic Librarians in the United States

Kristin Hoffmann, Selinda Adelle Berg, Kristine R. Brancolini, and Marie R. Kennedy

Academic librarians face multiple barriers in conducting the research that is expected in their work, yet they still manage to successfully complete it. This study aimed to identify the factors that contribute to their success. Through an online survey sent via email to a random sample of academic librarians in the United States, we gathered and analyzed quantitative data about education and experience, demographics, success factor statements, and research productivity to determine which factors are related to increased research output. We found that three categories of factors—Individual Attributes, Peers and Community, and Institutional Structures and Supports—contribute positively to overall research output. We identified several elements that academic librarians may want to pursue to increase research productivity, with Peers and Community identified as a category for exploration. Overall, we found that academic librarians are highly motivated to conduct research, yet the factors leading to their success are complex and varied.

Introduction

Academic librarians conduct and share results of their research for many reasons: to develop and thrive as professionals, to improve services and collections, to document the value of their work for students' and faculty academic success, and to contribute to the body of knowledge in library and information science (LIS). Librarians and their academic institutions benefit from librarianship that is informed by research and by the development of evidence-based practice. Academic librarians derive well-established benefits from conducting research: progress toward gaining promotion, tenure, and higher salaries; advancement in the profession and recognition; receptivity to change; increased skill in managing complex library operations through systematic study; and better service to and empathy with faculty researchers. Librarians who have some form of faculty status are required to produce scholarship for promotion or tenure and, regard-

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less of faculty status, most librarians employed by academic research libraries are expected to conduct and communicate the results of their research.

More than two decades of LIS research reveals that academic librarians struggle to overcome major barriers to research success, frequently identified as lack of knowledge and time to conduct and report the results of their research. However, despite barriers and challenges, many academic librarians achieve research success, which is generally associated with productivity—that is, conducting research that culminates in sharing results and findings. This study addresses the factors that contribute to that success, emphasizing identification of the most important factors.

Literature Review

The current study builds on the work of several researchers, primarily in the United States and Canada, who have been studying research productivity among academic librarians for decades. Early on, researchers tended to focus on barriers to research productivity,[1] but more recently there has been a shift in focus to research success factors.[2] Most of this research has been carried out by librarian-researchers, who are likely motivated to encourage and support their fellow academic librarians and themselves to be successful and productive researchers.

Time has been one of the most cited barriers to research success.[3] Supports that provide or protect time, such as sabbaticals, research leaves, and scheduling time for research, have been cited as among the most beneficial for research success.[4] Unlike teaching faculty, most librarians do not have protected time in the summer to work on their research.[5] This work schedule means that it is critical to find time for research during the year. Sassen and Wahl surveyed Association of Research Libraries (ARL) deans and directors and found that 98 percent of libraries where research is required also have flexible policies on devoting work time to research and publication.[6] However, it is understood that full-time teaching faculty have time during the academic year to work on research between classes and while working from home. Librarians typically lack this flexibility.

Much has also been written about faculty status and research, since the conditions of faculty status usually include tenure and/or promotion, which are earned in part through research. Estimates of how many academic librarians have some form of faculty status vary, but it is believed to be between 40 percent and 50 percent.[7] Tenure-track librarians have produced more research than librarians at similar institutions,[8] and "conducting research can contribute to career advancement for librarians, especially academic librarians on tenure track."[9] Sassen and Wahl's 2014 study found that 85 percent of ARL members grant tenure and/or continuing appointments; nearly all require publication for tenure or continuing appointment, and expectations for productivity are increasing.[10] Walters confirmed that "the relationship between faculty status and librarians' [research] productivity is strong and consistent across all sizes of institutions."[11] Not only is there a link between faculty status and research productivity, but "faculty status may actually encourage publication in the most respected journals."[12]

There is evidence that the research requirements of faculty status call for strong institutional support.[13] In a recent study of occupational stress and tenure-track librarians, Cameron, Pierce, and Conroy found that factors related to research support produced the most stress, but these stressors could be alleviated by research training and mentoring.[14] Other researchers confirm that the need for research training and institutional support is especially acute for early-career librarians on the tenure track, including librarians of color.[15] However, Hollister

found that 50 percent of academic libraries who grant faculty status to librarians also have a post-tenure review policy with a research requirement, suggesting that post-tenure librarians may need ongoing institutional support.[16] Couture, Gerke, and Knievel affirmed that tenured librarians benefit from mentoring and other institutional supports to achieve promotion to the highest ranks.[17]

Most academic librarians enter the profession with scant knowledge of research methods and incomplete information about research expectations in academic libraries. Faculty who have completed a PhD program begin preparing for a research career early in their graduate programs, but students in an MLIS program do not receive the same research preparation. Consequently, most librarians enter the profession feeling unprepared to conduct research.[18] Although more than 63 percent of LIS degree programs require a research methods course,[19] one research course is likely insufficient preparation. Studies over nearly twenty years show a declining belief that MLIS programs have prepared librarians to conduct research, from 30 percent to 17 percent.[20] To develop research skills and knowledge, librarians have turned to self-education, formal research courses, and continuing education. In response to demand for more research training,[21] the Institute for Museum and Library Services (IMLS) has funded three research institutes for librarians since 2013: the Institute for Research Design in Librarianship (IRDL), the Research Institute for Public Libraries (RIPL), and the Research Training Institute (RTI) for Health Sciences Librarians.

Research output takes numerous forms—posters, conference presentations, articles, book chapters, and more. These forms of output may have different weights for the purposes of promotion, tenure, and annual merit increases, depending on institutional priorities. According to Hollister's survey of tenured and tenure-track librarians in all types of academic libraries, the forms of research output that were most important for professional advancement were peer-reviewed articles (89 percent choosing Important or Very Important), conference presentations (78 percent), book chapters (68 percent), and books (59 percent).[22] In their survey of ARL library deans and directors, Sassen and Wahl found that the forms of research output most valued for promotion, tenure, and continuing appointment were books and peer-reviewed journal articles, followed closely by conference presentations, workshops, panels, and posters. However, respondents rated a wide range of research output as "acceptable."[23]

Recent studies have examined the role that peers and community play in research success. This includes mentoring, collaboration, and peer support. Studies have found that research mentoring is beneficial to both early-career and tenured librarians.[24] Sassen and Brannon found that research collaboration is associated with productivity.[25] This may account for the increase in coauthorship among librarians; for the past twenty-five years, between 40 percent and 50 percent of research published in LIS journals has been coauthored, and the trend is increasing.[26] In a study of coauthorship in seven LIS research journals from 2005 to 2014, 54 percent of the articles were coauthored and received on average more citations than the singly-authored articles.[27]

Many forms of peer support have contributed to research productivity. Writing groups and writing retreats have numerous benefits, resulting in networking opportunities, writing feedback, and publications. Tysick and Babb's case study of a writing group for untenured librarians described how the group helped librarians meet publication goals and created "a foundation for new librarians to comfortably and productively assimilate into the academic culture."[28] Writing retreats can help librarians by providing "protected time" for their writing

and a peer support network for feedback on their writing.[29] Yet another form of peer support is a library research and publishing group, which begins earlier in the research process and creates a research community as a catalyst for writing and publication.[30]

Researchers have been unable to identify the single most important support category or one or two most important research success factors. Comprehensive studies that have examined numerous previously identified success factors suggest that an integrated suite of factors contributes to research success for librarian-researchers.[31]

Aims

The purposes of this study were to identify what factors contribute to the research success of academic librarians in the United States and compare those findings with a 2016 study of academic librarians in Canada.[32] Research success is generally aligned with productivity and output. As such, we used research outputs as a proxy for research success and examined the relationships between research outputs and an array of factors that may influence productivity. The factors we examined were drawn from Hoffmann, Berg, and Koufogiannakis's extensive literature review across disciplines,[33] which identified three categories of factors that influence research productivity, shown in table 1.

TABLE 1
Factors Influencing Research Productivity across the Disciplines

Individual Attributes	Peers and Community	Institutional Structures and Supports
Demographics	Collaboration	Extrinsic Motivations
Education and Experience	Community	Institutional Supports
Intrinsic Motivations	Mentoring	
Personal Commitment to Research	Peer Support	
Personality Traits		

A follow-up study by Hoffmann, Berg, and Koufogiannakis in 2016 found that factors in these three major categories all had a positive effect on the research productivity of academic librarians in Canada.[34]

This current study is a partnership between Hoffmann and Berg and researchers conducting similar studies in the United States,[35] merging the interests of the two groups and placing the 2016 study in an American setting.

The current study posed the following research questions:

1. What factors have a positive effect on research productivity?
2. Which of three categories of factors identified by Hoffmann, Berg, and Koufogiannakis—Peers and Community, Individual Attributes, and Institutional Structures and Supports—are most influential for librarians' research productivity?[36]
3. How do the results of this study compare to the findings from Hoffmann, Berg, and Koufogiannakis's study of academic librarians' research productivity?[37]

The aim was not to describe the research environment of academic librarians in the United States, but rather to identify relationships between their research output and the factors that may influence their productivity.

Methods

This quantitative study used an online survey to collect data from a random sample of academic research librarians working in the United States. It replicates the 2016 Canadian study in the United States and examines additional variables from Kennedy and Brancolini.[38]

Study Population

The original study surveyed librarians working in seventy-five academic libraries in Canada, which included the vast majority of academic librarians in the country. In an effort to identify a comparably broad study population, we drew our sample from the three categories of doctoral-granting institutions in the U.S., as listed by The Carnegie Classification of Institutions of Higher Education: R1: Doctoral Universities – Very high research activity; R2: Doctoral Universities – High research activity; D/PU: Doctoral/Professional Universities.

Potential participants were academic librarians and archivists employed at 198 American institutions randomly selected from the list of Carnegie R1, R2, and Doctoral/Professional institutions. We randomly selected half the institutions on each list and excluded two institutions for which we could not find a library. The institutions included in this study are listed in appendix B. To identify the librarians at each institution, two of us and a research assistant visited each library's online directory and recorded in a spreadsheet the 6,416 email addresses of all employees we could identify as librarians or archivists. This sampling method raised a challenge in that it was difficult to verify that the recruitment email recipients met the study criteria, so we can only estimate the number of potential participants.

Recruitment and Survey Dissemination

Recruitment began after receiving clearance from our institutions' Ethics Review Boards. In October 2020, we sent each participant an initial email invitation and two follow-up reminders to participate in the study, each with an attached Letter of Information for Consent to Participate in Research and a link to the online survey. We emailed the study invitation to 6,416 potential participants.

Survey Design and Measures

As noted above, our study's goal was to capture the factors that may influence productivity. Questions about the factors were designed with bivariate variables, Yes or No, that could easily be used to calculate statistical measures. We revised the original data collection tool, designed for Canadian academic librarians, to reflect the American context. Our changes were to alter language, expand response options, and add questions of interest. The survey again followed four areas of interest.

Education and Experience

Expanding on the survey tool from the Canadian study, we added four questions related to professional training and research environment. We added a question about the delivery mechanism of the respondent's MLIS program, whether in person, online, or a combination of in person and online; two questions about the respondent's belief about whether their MLIS program had prepared them to read and understand research-based literature, or to conduct original research; and a question about whether the respondent's current position is in library administration. The latter three questions had response options of Yes or No.

We also changed response options for three questions in this section. For the question about years since completing the MLIS degree, we expanded the response field to include month of completion. For the question about formal research training since completing the MLIS, we revised response options to give more general training mechanisms. For the question about promotion and tenure, we changed the response options to reflect the types of positions held by academic librarians in the United States.

Demographics

We posed a series of demographic questions to identify whether there is a relationship between those variables and research productivity. We revised the response options to the question about gender identity.

Success Factor Statements

We presented fifty-three statements, requesting that the participant consider whether each statement applied to them and reply Yes or No. The statements focused on attitudes or beliefs about the research process ("I do research for my personal interest") as well as the respondent's research practice ("I have participated in a writing group"). Each statement expresses an element of one of the factors identified in table 1.

Research Productivity

We asked the participant to think over the last five years (January 2015–December 2019) and indicate how many times they had shared their LIS-related research using a range of mechanisms. A drop-down arrow permitted responses from zero to thirty for each mechanism.

We concluded the survey with two questions for open-ended comments. One question asked participants to add other factors that they felt we had not addressed, since we anticipated that the Yes or No answers might leave participants feeling that the complexities of their situations were not captured. The other question invited participants to share other ways in which they had distributed their research.

The survey instrument is in appendix A.

Analysis

We calculated descriptive statistics (counts and percentages for categorical/nominal responses, means and standard deviations for continuous measures) for survey items. We also calculated a weighted output score for each participant, based on the data from the Research Productivity section of the survey. Because different research outputs vary in perceived value and effort and each participant reported different kinds of output, the weighted output score allowed us to represent all of a participant's research output with one number.

In the 2016 Canadian study, the authors used a paired comparison analysis to arrive at a weight for each type of output, shown in table 2. Paired comparison analysis is a simple and direct way to quantify attributes of items

TABLE 2
Weights for each Type of Research Output

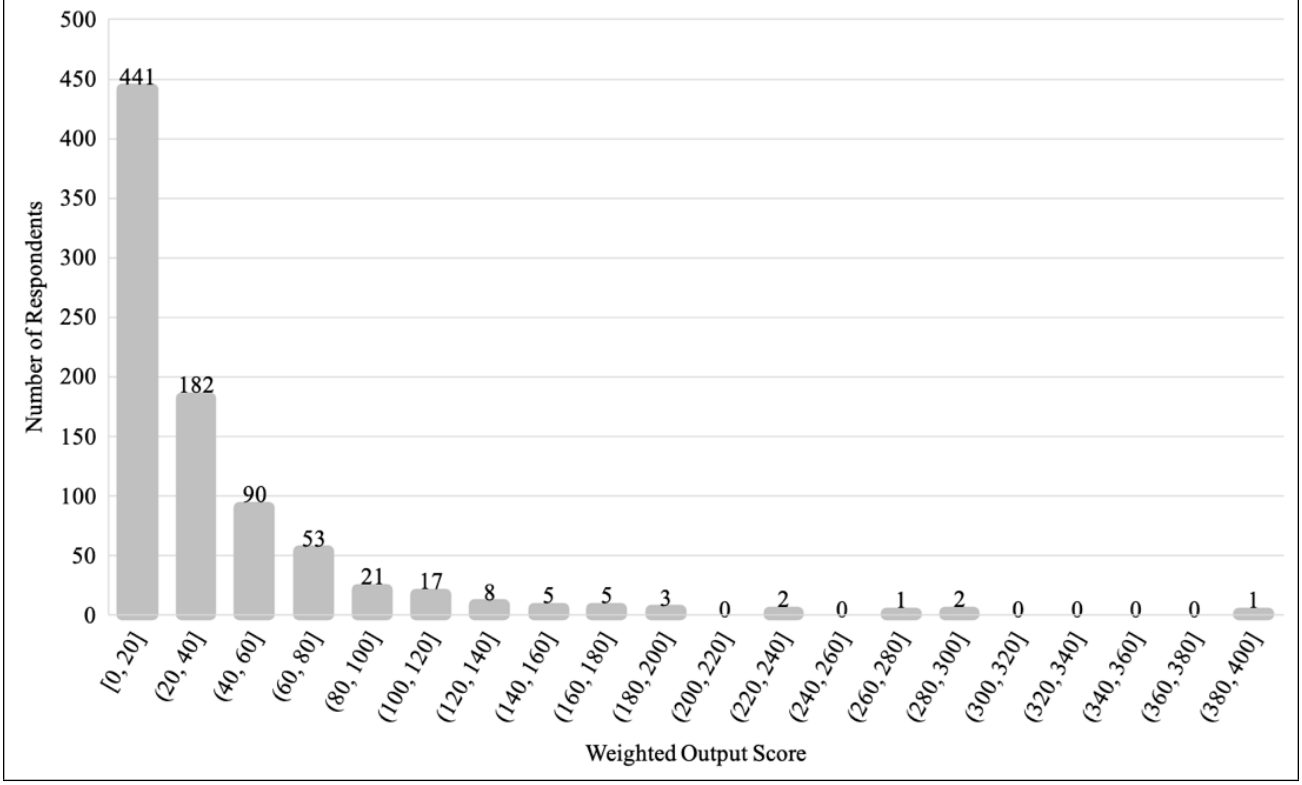
Output Type	Weight
Book review	0
Poster	0.5
Presentation	1
Conference proceeding	1
Non-peer-reviewed article	3
Book chapter	5
Edited book	6
Peer-reviewed article	9
Authored book	10

in comparison to one another. For this pairwise comparison, we created a table where each researcher compared the perceived value of each publication type to the other publication types and assigned the higher valued item a score from zero to three. Our scale: no difference in value = 0, slightly more value = 1, moderately more value = 2, a lot more value = 3. We then consolidated the results, and each publication type was assigned a final score.

We used the same weighting as in the Canadian study, to allow for comparison between the two studies' findings. We added book reviews as a type of output and conducted a paired comparison analysis to arrive at a weighting of zero for book reviews.

To determine how to analyze the survey results, we examined the distribution of weighted output scores for all participants, which is shown in figure 1. The mean weighted output over five years was 30.0, and sixty-eight participants reported no research output during that period.

FIGURE 1
Histogram of Participants' Weighted Output Scores (*n* = 831)



Since the weighted output scores do not approximate a normal distribution, we used non-parametric statistical tests to examine the relationship between weighted output score and the identified factors. For variables with two nominal groups, we used the Mann-Whitney U test. For variables with more than two groups, we used the Kruskal-Wallis ANOVA. For both tests, the null hypothesis is that there is no difference between the distributions; when the null hypothesis is rejected, the difference in the distributions is significant at the .05 level.

We used a stem and leaf plot in SPSS to identify extreme values. All weighted output scores above 95 were outliers and therefore were removed from analysis. We also decided to focus our analysis on participants who had demonstrated some regular engagement with

research, so we set a lower limit of three for weighted output score. We therefore analyzed the subset of responses where the weighted output score was between three and ninety five, inclusive. To ensure that we were not omitting a homogenous subset of participants (e.g., all those who are new to the profession) by excluding those with a weighted output score below three, we examined that set of participants and their responses to the variables for demographics, education, and work experience. There were some differences in the distribution of some variables (e.g., the ratio of participants with tenure was lower), but we are confident that all variables were well represented in the subset of responses with weighted output scores between three and ninety five.

The survey questions addressed eleven factors that are grouped into the three overarching categories shown in table 1. Each question mapped to one of the factors, as shown in appendix A. To determine whether the factors had an effect on research productivity, we tested variables at three levels: the three overarching categories, the factors within those categories*, and the individual statements or questions that formed the components of each factor. At all three levels, we tested against three measures of research productivity: weighted output score, number of peer-reviewed journal articles, and number of conference presentations. While the weighted output score is a single value that represents all of a librarian's output, and peer-reviewed articles are widely recognized as a standard of quality for scholarly output, our experience as professionals is that conference presentations are a common type of output for academic librarians.

Coding of Open-ended Questions

One of the final questions in the survey was, "Can you think of other factors that were not fully captured in the previous questions that have affected your research productivity?" We coded each response to identify the unique factors described. We then mapped the factors mentioned in the comments to the eleven factors we had already determined to see how respondents elaborated on those factors or if they described new factors. Finally, we reviewed and confirmed each other's assigned codes.

Results

We received 125 "mail undeliverable" messages, so 6,291 potential participants received the invitation. We received 1,125 survey responses for an 18 percent response rate, with respondents self-reporting their eligibility to meet our selection criteria. After removing incomplete responses, we had 831 responses for a usable response rate of 13 percent. As described in the Analysis section, we analyzed the subset of responses where the weighted output score was between three and ninety five, inclusive; there were 637 responses in this subset.

We reviewed four measures to see if our participants formed a representative sample of academic librarians: workplace category, gender, age, and years since completion of MLIS degree. Appendix C shows tables and charts of these measures. At 72 percent of respondents, women are likely overrepresented in our sample, but on measures of workplace category, age, and years since MLIS, we are confident that our participants comprise a representative sample.

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* We could not test Demographics or Education & Experience as factors, because the forms of these questions did not lend themselves to being combined in aggregate. We could only test the individual questions within these two factors.

Research Productivity

Participants reported a range of output mechanisms, both in type and amount. They reported producing over ten thousand items; some participants reported no research output and others reported distributing several dozen items. Conference presentations were 43.5 percent of the total reported output, followed by peer-reviewed articles (14.1 percent) and posters (12.9 percent), as shown in table 3. These three output types comprised 70.5 percent of the total reported output. This is similar to the Canadian study, where presentations were 48 percent of output and the top three types of output accounted for 72 percent of all reported publications. However, in that study, non-peer-reviewed articles were the second-most reported type of output and peer-reviewed articles were third. Authoring or editing a book was the least frequently reported type of output.

TABLE 3
Participants' Reported Research Output over the Past Five Years (January 2015–December 2019)

Output Type	N	Min	Max	Mean	Median	St. dev.	Total No. Reported	% of Output Reported
Presentation	821	0	30	5.4	4	6.1	4,415	43.5
Peer-reviewed article	802	0	30	1.8	1	3.1	1,426	14.1
Poster	810	0	20	1.6	1	2.4	1,312	12.9
Book review	789	0	30	1.2	0	3.8	938	9.3
Non-peer-reviewed article	776	0	30	.9	0	2.3	723	7.1
Book chapter	789	0	12	.7	0	1.2	575	5.7
Conference proceeding	785	0	13	.7	0	1.4	565	5.6
Edited book	771	0	30	.2	0	1.2	112	1.1
Authored book	771	0	4	.1	0	.4	77	0.8
Totals							10,143	100

In response to the open-ended question inviting participants to tell us other ways they shared research results, they mentioned mechanisms such as blogs, exhibitions, self-publication, social media, technical reports, and webinars or workshops.

Education and Experience

Within the factor of Education and Experience, five elements were significant: workplace category, tenure status, additional advanced degrees, years since MLIS (or equivalent), and whether respondents believed that their MLIS program prepared them to read research-based literature or to do research. The other elements of Education and Experience—delivery format of MLIS program, research training received either during or after their MLIS program, working on an additional advanced degree, and being in library administration—were not significantly related to research output.

Workplace category was significant in that participants at D/PU institutions produced significantly less weighted output or peer-reviewed articles than those at R1 or R2 institutions and reported significantly fewer conference presentations than those at R1 institutions, as shown in table 4. For tenure status, shown in table 5, those who have tenure or are eligible

TABLE 4
Mean Research Productivity for Workplace Category

		Weighted Output Score			Peer-reviewed Articles			Conference Presentations		
Workplace Category	**N**	**Min.**	**Max.**	**Mean**	**Min.**	**Max.**	**Mean**	**Min.**	**Max.**	**Mean**
R1	403	3	93	28.5	0	8	1.5	0	30	6.0
R2	143	3	94.5	31.5	0	7	1.7	0	30	5.6
D/PU	85	3	82	18.9	0	5	0.9	0	25	4.3

TABLE 5
Mean Research Productivity for Tenure Status

		Weighted Output Score			Peer-reviewed Articles			Conference Presentations		
Tenure Status	**N**	**Min.**	**Max.**	**Mean**	**Min.**	**Max.**	**Mean**	**Min.**	**Max.**	**Mean**
Tenured or eligible for tenure	310	3	94.5	31.3	0	8	1.8	0	30	5.8
Eligible for promotion only	206	3	92	25.4	0	8	1.2	0	30	5.5
Eligible for neither	120	3	87	23.6	0	7	1.1	0	30	5.4

for tenure produced significantly more weighted output and peer-reviewed articles than those who are only eligible for promotion or who aren't eligible for either. Tenure status was not significant for conference presentations.

Having an additional advanced thesis-based degree is positively significant for all three output variables tested ($n = 635$, weighted output $p = 0.000$, peer-reviewed articles $p = 0.018$, conference presentations $p = 0.007$). Having any additional advanced degree, thesis-based or not, is positively significant only for weighted output ($n = 635$, weighted output $p = 0.008$).*

* The complete statistical details are in appendix D.

TABLE 6
Mean Research Productivity for Years since MLIS

		Weighted Output Score			Peer-reviewed Articles			Conference Presentations		
Years Since MLIS	**N**	**Min.**	**Max.**	**Mean**	**Min.**	**Max.**	**Mean**	**Min.**	**Max.**	**Mean**
0 – 4	75	3	86.5	24.5	0	8	1.4	0	25	5.2
5 – 9	143	3	94.5	28.1	0	7	1.5	0	30	6.1
10 – 14	130	3	93	34.8	0	8	1.9	0	30	6.6
15 – 19	97	3	84	23.3	0	6	1.2	0	24	4.7
20 – 24	64	3	88.5	30.5	0	6	1.8	0	30	6.4
25 – 29	44	3.5	63	23.6	0	4	1.3	0	22	4.3
30 – 34	42	3	88	28.1	0	4	1.1	0	30	6.0
35 – 39	18	4	87	23.5	0	7	1.4	0	7	3.7
40 – 44	9	4	55	16.2	0	2	0.3	0	9	3.6
45 +	6	6	85	30.3	0	5	1.2	0	15	5.5

In terms of years since MLIS shown in table 6, participants who completed their MLIS between ten to fourteen years ago had significantly higher weighted output scores than participants who completed their MLIS zero to four years ago, and significantly higher scores than those who completed their degree fifteen to nineteen years ago. Time since MLIS was not significant for peer-reviewed articles or conference presentations.

Participants' belief that their MLIS degree prepared them to read research-based literature was positively significant only for peer-reviewed articles ($n = 636$, $p = 0.048$). Participants' belief that their degree prepared them to do research was positively significant only for conference presentations ($n = 637$, $p = 0.031$).

Demographics

Within the factor of Demographics, two elements were significantly related to research productivity: marital status and whether a respondent cared for dependents. Marital status was significant both for weighted output score and peer-reviewed articles, but not for conference presentations, as shown in table 7. Caring for dependents was positively significant for weighted output ($n = 611$, $p = 0.046$) and number of peer-reviewed articles ($n = 611$, $p = 0.017$); participants who cared for dependents produced more research. Caring for dependents was not significant for number of conference presentations ($n = 611$, $p = 0.616$).

TABLE 7
Mean Research Productivity for Marital Status

		Weighted Output Score			Peer-reviewed Articles			Conference Presentations		
Marital Status	**N**	**Min.**	**Max.**	**Mean**	**Min.**	**Max.**	**Mean**	**Min.**	**Max.**	**Mean**
Unpartnered	171	3	89	25.0	0	7	1.2	0	30	5.7
Partnered	436	3	94.5	29.6	0	8	1.6	0	30	5.7
Prefer not to answer	28	3	51	18.3	0	4	1.0	0	11	4.1

Success Factor Statements

At the level of the three overarching categories, we found that all three categories were significant for weighted output score and peer-reviewed articles; however, only the Peers and Community category was significant for conference presentations.

The nine factors other than Education and Experience and Demographics comprised the Yes or No questions, and so we could test both the factors and the individual components. When we tested the factors against the weighted output score and number of peer-reviewed articles, all were significant and almost all of the individual components were significant. However, when we tested the factors against the number of conference presentations, three factors were not significant: Extrinsic Motivations, Institutional Supports, and Personality Traits. Many more individual components also were not significant on their own.

Tables 8, 9, and 10 show the significant components for the factors within the categories of Individual Attributes, Peers and Community, and Institutional Structures and Supports, respectively. These tables also show how many participants responded Yes to each component. Detailed results of the Mann-Whitney tests are in appendix D.

Within the Individual Attributes category, all three factors were significant for weighted output score and number of peer-reviewed articles. All individual components were signifi-

TABLE 8
Components of the Individual Attributes Category, Their Significance as Determined by the Mann-Whitney U Test, Significant at the .05 Level, and the Percentage of Respondents Answering Yes to Each Component

Factors and Components	Weighted Output Score	Number of Peer-reviewed Articles	Number of Conference Presentations	Percent Answering Yes
Intrinsic Motivations				
I do research to contribute to more informed decision making in librarianship.	significant	significant	significant	77
I do research to contribute to better library services.	significant	significant	significant	79
I do research for my personal interest.	significant	–	significant	77
I do research for professional growth.	significant	significant	significant	88
I do research to contribute to greater library visibility on campus.	significant	significant	–	56
I do research to advance my career.	significant	significant	significant	76
I do research to build stronger relationships with faculty members.	significant	significant	–	45
I do research to build a professional reputation for myself.	significant	significant	significant	74
I do research to contribute to a stronger profession.	significant	significant	significant	79
Personal Commitment to Research				
I always have a research project that I'm working on.	significant	significant	significant	46
I schedule dedicated time for research.	significant	significant	significant	42
I am currently working on a research project.	significant	significant	significant	64
I have participated in activities that support LIS research (e.g. peer review, editor of a journal, providing writing assistance to a colleague, etc.).	significant	significant	–	76
I do research that is meaningful to my practice.	significant	significant	significant	84
I consider research to be a priority.	significant	significant	significant	49
I believe it is important for librarians to contribute to the profession via research.	significant	significant	significant	88
I read research literature on a regular basis.	significant	significant	–	56
I work on research outside of regular work hours.	significant	significant	significant	68
I have used personal funds to support my research and dissemination (e.g.: personal professional development funds or self-funded).	significant	significant	significant	52
Personality Traits				
I can achieve my research goals.	significant	significant	–	67
I am confident about my research abilities.	significant	significant	–	62
I finish the research projects that I start.	significant	significant	–	59
I can easily identify questions that could be answered through research.	significant	significant	significant	68

TABLE 8
Components of the Individual Attributes Category, Their Significance as Determined by the Mann-Whitney U Test, Significant at the .05 Level, and the Percentage of Respondents Answering Yes to Each Component

Factors and Components	Weighted Output Score	Number of Peer-reviewed Articles	Number of Conference Presentations	Percent Answering Yes
I enjoy speaking with colleagues about my research.	significant	significant	significant	87
I enjoy presenting at conferences.	significant	–	significant	81
I do research to satisfy my curiosity.	significant	–	–	81
Publishing gives me a personal sense of satisfaction.	significant	significant	–	86
I enjoy doing research.	significant	significant	significant	80
I enjoy writing for publication.	significant	significant	–	59

TABLE 9
Components of the Peers and Community Category and Their Significance as Determined by the Mann-Whitney U Test, Significant at the .05 Level, and the Percentage of Respondents answering Yes to Each Component

Factors and Components	Weighted Output Score	Number of Peer-reviewed Articles	Number of Conference Presentations	Percent Answering Yes
Collaboration				
I have done research with other people (co-researchers) at my institution.	significant	significant	significant	69
I have done research on my own.	significant	significant	significant	85
Community				
I feel like I belong to a research community.	significant	significant	significant	46
I have consulted with an expert to get help on a specific aspect of my research.	significant	significant	significant	49
I have a network of peers at my institution with whom I talk about research.	significant	significant	–	59
I know people who have similar research interests to mine.	significant	significant	significant	79
I attend conferences in order to connect with others who have similar research interests.	significant	–	significant	78
I have a network of peers from other institutions with whom I talk about research.	significant	significant	significant	58
Professional associations are a source of research community for me.	–	–	significant	64
Mentoring				
I have been mentored in relation to research activities.	significant	significant	–	35

TABLE 9
Components of the Peers and Community Category and Their Significance as Determined by the Mann-Whitney U Test, Significant at the .05 Level, and the Percentage of Respondents answering Yes to Each Component

Factors and Components	Weighted Output Score	Number of Peer-reviewed Articles	Number of Conference Presentations	Percent Answering Yes
I have mentored others in relation to their research activities.	significant	significant	significant	44
Peer Support				
I have participated in a peer support group related to research.	significant	significant	significant	42
I ask my colleagues for feedback on my research.	significant	significant	significant	71
I have participated in a journal club.	significant	significant	–	16
I have participated in a writing group.	significant	significant	significant	32

TABLE 10
Components of the Institutional Structures and Supports Category and Their Significance as Determined by the Mann-Whitney U Test, Significant at the .05 Level, and the Percentage of Respondents Answering Yes to Each Component

Factors and Components	Weighted Output Score	Number of Peer-reviewed Articles	Number of Conference Presentations	Percent Answering Yes
Extrinsic Motivations				
I have received merit increments or promotion due to my research activities.	significant	significant	significant	39
I am (formally or informally) expected to participate in research and scholarship.	significant	significant	–	76
I do research only because it is a requirement of my job.	–	–	–	23
Institutional Supports				
I have received funding for my research.	significant	significant	significant	33
I have hired a research assistant to help with research tasks.	significant	significant	significant	10
I have taken a sabbatical or other kind of leave to work on a research project.	significant	significant	–	17
I have space where I am able to work effectively on my research.	significant	significant	–	69
I have time to do research within my job.	significant	significant	–	52
I am encouraged and supported by my library to do research.	significant	significant	–	69

cant for weighted output score, but three of twenty-nine statements were not significant for peer-reviewed articles. For conference presentations, Personality Traits was not a significant factor, and fewer than half of that factor's individual components were significant. On average, 69 percent of participants responded Yes to the statements in this category, ranging from 42 percent for "I schedule dedicated time for research" to 88 percent for "I do research for professional growth."

Within the Peers and Community category, all four factors were significant for all three types of research output variables, and only a few individual components were not significant. On average, 55 percent of participants responded Yes to the statements in this category, ranging from 16 percent who said they had participated in a journal club to 85 percent who said they had done research on their own.

In the Institutional Structures and Supports category, both Extrinsic Motivations and Institutional Supports were significant for weighted output score and number of peer-reviewed articles, but neither factor was significant for number of conference presentations. For all three output variables, the component "I do research only because it is a requirement of my job" was not significant; this was the only component that was not significant for any of the three output variables. On average, 43 percent of participants responded Yes to the statements in this category, ranging from only 10 percent who have hired a research assistant to 76 percent who said they are formally or informally expected to participate in research.

Open-Ended Comments

In an open-ended question, we asked participants to describe other factors that had affected their research productivity, and 476 participants provided comments. Unlike the statistical analysis, which we conducted only for the subset of participants with weighted output between three and ninety, we analyzed all comments, independent of weighted output score. Most comments elaborated on an element of one of the eleven factors we had identified. The Institutional Supports factor received the most comments of the eleven factors and, unsurprisingly, many of these comments elaborated on time and workload, which are well-documented impediments to research productivity.

Respondents also commented on how changes in personal circumstances and professional context (including the COVID-19 pandemic, as we have described elsewhere[39]) affected their research productivity. Two other noteworthy themes in the comments were concern about the quality of research from academic librarians and the ambiguity of the definition of research in academic librarianship. Additional exploration of these concepts and their potential impact on research productivity may be helpful.

Discussion

Significance of Overall Categories

Our primary research question was: What factors and elements have a positive effect on librarians' research productivity? Our analysis shows that all three categories of factors—Individual Attributes, Peers and Community, and Institutional Structures and Supports—contribute positively to overall research output, as measured by the weighted output score and number of peer-reviewed journal articles.

However, an interesting difference appeared when we tested the factors and elements against number of conference presentations—for this measure of research output, only the

category of Peers and Community was significant. Within the Individual Attributes category, the factors of Intrinsic Motivations and Personal Commitment to Research were significant, but the overall category was not. Neither of the factors in the Institutional Structures and Supports category was significant. It is perhaps unsurprising that the Peers and Community category was significant, since conferences are a communal aspect of the profession; however, this finding raises additional questions about the nature and value of librarians' research output. What kinds of research outputs do librarians, administrators, and associations want to encourage, and do we need to emphasize different success factors for different research outputs?

In both the original Canadian study and this study of librarians in the United States, all three broad categories were significant when looking at weighted output and number of peer-reviewed articles. The Canadian study did not specifically examine conference presentation output, so we cannot compare those findings. In the current study, all nine factors were significant for weighted output and number of peer-reviewed articles, whereas in the Canadian study Intrinsic Motivation was not significant for number of peer-reviewed articles. As well, more elements within the Demographics and Education & Experience factors were significant in the current study. The fact that more factors and elements were significant may be due to this study's larger sample size, which had 831 responses compared to 556 responses to the Canadian survey.

Regardless of the type of output, no single main factor contributes to research productivity. Nuance and individual situations are important. Individual situations vary widely, as do the factors that help any one individual be a successful researcher.

Implications for Increasing Research Productivity

It is also instructive to examine how many participants responded Yes to the individual elements that comprise the factors we tested. When we tested the elements against weighted output scores and number of peer-reviewed articles, most of them were significantly related to research output, but there was much variation in how many participants responded Yes to each element, from 10 percent who said they had hired a research assistant to 88 percent who said they believe it is important for librarians to contribute to the profession via research.

One of our motivations for doing this study was to provide librarians and library administrators with data regarding how to better support librarians' research. Statements that were significant *and* where fewer participants answered Yes may point to changes in behavior, policy, or practice that could have a positive impact.

More participants answered Yes to the statements in the Individual Attributes category than in the other categories. This suggests that individual librarians already exhibit many behaviors and traits that contribute to research success. Indeed, the Intrinsic Motivations factor had the highest percentage of Yes responses to the individual elements. This is a positive sign that academic librarians are highly motivated to do research. Nevertheless, the elements that were significant for all output types and where fewer than half of respondents answered Yes may point to things that individuals can do to help themselves be productive researchers:

- I schedule dedicated time for research. (42 percent)
- I always have a research project that I'm working on. (46 percent)
- I consider research to be a priority. (49 percent)

The statements in the Institutional Structures and Supports category had, on average, the fewest participants answering Yes. We call on library administrators and others in positions

of power in libraries or associations to consider how they could provide supports that would allow more librarians to answer Yes to elements such as these:

- I have hired a research assistant to help with research tasks. (10 percent)
- I have received funding for my research. (33 percent)
- I have received merit increments or promotion due to my research activities. (39 percent)

The third category, Peers and Community, was the only category that was significant for all output types. Again, in this category it is likely not within an individual's power to effect change, but rather we need collective efforts as a profession and a community of researchers. Collective efforts addressing the following elements may hold the most potential for positively affecting librarians' research endeavors:

- I have participated in a writing group. (32 percent)
- I have participated in a peer support group related to research. (42 percent)
- I have mentored others in relation to their research activities. (44 percent)
- I feel like I belong to a research community. (46 percent)
- I have consulted with an expert to get help on a specific aspect of my research. (49 percent)

Limitations

Participants received the survey invitations in October 2020, during the COVID-19 pandemic. This may have lowered our response rate and may have also affected the way people answered the survey. It was evident from comments in open-ended questions that people were experiencing significant professional and personal impacts due to the pandemic.[40]

Our study reflects a self-selection bias: those who are engaged and interested in doing research may have been more likely to participate. Respondents also self-reported their eligibility to meet our selection criteria.

Using bivariate variables (Yes or No answers) facilitated our analysis, but also limited individuals' ability to express detail and variance in their responses and restricted the scope of statistical tests we could run.

Finally, quantitative research cannot fully represent individuals' experiences and environments. Respondents were asked to choose the *best* answer; however, standardized and preselected responses mean that surveys cannot capture the subtleties of an individual's situation.[41] We received comments that contradicted some of our quantitative findings; however, the nature of this study means that those comments are not sufficient to help us explore those contradictions. As such, this study is unable to reflect the complexity of the environment and the experiences of academic librarian researchers.

Conclusions

This quantitative research reaffirms the importance of all three categories of factors evaluated: Peers and Community, Individual Attributes, and Institutional Structures and Supports. Academic librarians' success in research requires personal commitment and action as well as organizational, institutional, and community support. It is noteworthy that many librarians have achieved high research productivity making use of various available supports at individual, community, and institutional levels. As such, librarians need practices, supports, and administrative policies that meet their individual needs.

Additional qualitative research is needed to better understand the experiences of librarian-researchers, since a quantitative approach is not able to capture the complexity of individual

situations and environments. In particular, our findings point to the need to investigate the impact of institutional culture and climate, the value placed on and the respect held for research within the profession, and ambiguities about the definition and role of research in academic librarianship. Overall, we find that many academic librarians are highly motivated to conduct research, yet the factors leading to their success are complex and varied.

Data availability: Kristin Hoffmann, Selinda Adelle Berg, Kristine R. Brancolini, and Marie R. Kennedy. "Factors Related to Research Productivity for Academic Librarians - Survey Instrument and Data." Scholars Portal Dataverse, V1, 2022. https://doi.org/10.5683/SP3/U5JAW8

Appendix A. Survey instrument

In the survey text below, each question is annotated with an abbreviation to indicate the factor to which it is mapped. These annotations are provided for this paper and were not included in the survey instrument.

D Demographics
EE Education and Experience
EM Extrinsic Motivations
IM Intrinsic Motivations
IS Institutional Supports
PCR Personal Commitment to Research
PT Personality Traits
COL Collaboration
COM Community
M Mentoring
PS Peer Support

Factors Influencing Research Productivity

We are inviting individuals working in *select* academic libraries who hold an MLIS or equivalent degree to participate in a research study examining the factors influencing the research productivity of academic librarians.

Please indicate if you identify as having an MLIS or equivalent degree.
If you identify as having an MLIS or equivalent degree, you will continue to the second eligibility question and then to the research study information and consent for participation.
If you identify that you do not hold an MLIS or equivalent degree, this will be the last question of the survey.

- □ Yes, I hold an MLIS or equivalent degree
- □ No, I do not hold an MLIS or equivalent degree

Where are you currently employed? EE
To select your university: Select the state and then select your University.
Please note that the sample for this research is limited to librarians at the 198 institutions within the list below. If you are not a member of one of these institutions, you are not invited to participate in this research.
Drill-down menu of the 198 randomly selected institutions (see appendix B for full list).

The survey is expected to take less than 20 minutes and includes questions related to: a) Education and Professional Experience; b) Factors Influencing Research Productivity; c) Demographic Information; d.) Research Outputs;

Some of the questions are simple yes or no questions and require you to choose the answer that best reflects your situation or your feelings.

The study seeks participation from academic librarians, who are and who are not active researchers, and who work at one of the 198 randomly selected institutions from the Carnegie

classifications lists of R1, R2, and Professional/Doctorate. For this study, we are defining research as "an undertaking intended to extend knowledge through a disciplined inquiry and/or systematic investigation" (TCPS, Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans, 2018).

The researchers are interested in academic librarians' contributions to library and information studies (LIS) research. While it is recognized that librarians may undertake research outside of LIS, the researchers are gathering information in this study only on LIS-related research.

By taking this online survey I am indicating that I have read the information letter and voluntarily agree to participate in the research study.

Please remember to print a copy of the information letter for your records.

What year and month did you complete your MLIS degree (or equivalent)? EE
Drop-down menus of years and months

How was your MLIS program delivered? EE

- □ In person
- □ Online
- □ Combination in person and online

Do you believe that your MLIS program (or equivalent) adequately prepared you to read and understand research-based literature? EE

- □ Yes
- □ No

Do you believe that your MLIS program (or equivalent) adequately prepared you to conduct original research? EE

- □ Yes
- □ No

During your MLIS program (or equivalent), did you complete any of the following: EE
Check all that apply.

- □ Research methods course
- □ Independent research study
- □ Thesis
- □ None of the above

Since completing your MLIS (or equivalent), have you taken any formal research training? EE
Check all that apply.

- □ Doctoral degree LIS course(s) (e.g., research methods, statistics)
- □ Master's degree non-LIS course(s) (e.g., courses in other departments)
- □ Doctoral degree non-LIS course(s) (e.g., courses in other departments)
- □ Continuing education program(s) outside your organization (e.g., courses, workshops, conference programs)

- □ Staff development program(s) provided by your organization
- □ None of the above
- □ Other, please specify…

Do you have an advanced degree in addition to your MLIS (or equivalent)? EE
Check all that apply.

- □ Yes, thesis-based Masters
- □ Yes, non-thesis-based Masters
- □ Yes, doctoral-level degree
- □ No additional degree
- □ Other, please specify…

Are you currently working towards an additional degree? EE
Check all that apply.

- □ Yes, thesis-based Masters
- □ Yes, non-thesis-based Masters
- □ Yes, doctoral-level degree
- □ No additional degree
- □ Other, please specify…

Do you have tenure or are you in a position eligible for promotion or tenure? EE

- □ I have tenure or am in a position eligible for promotion and tenure
- □ I am in a position eligible for promotion only
- □ I am not in a position eligible for promotion or tenure

Is your current position in library administration? EE

- □ Yes
- □ No

Please indicate whether or not each statement applies to you.
(Presented in random order)

PCR	I consider research to be a priority.	Yes | No
PCR	I am currently working on a research project.	Yes | No
PCR	I always have a research project that I'm working on.	Yes | No
PCR	I do research that is meaningful to my practice.	Yes | No
PCR	I believe it is important for librarians to contribute to the profession via research.	Yes | No
PCR	I work on research outside of regular work hours.	Yes | No
PCR	I schedule dedicated time for research.	Yes | No
PCR	I have participated in activities that support LIS research (e.g., peer review, editor of a journal, providing writing assistance to a colleague, etc.).	Yes | No
PCR	I have used personal funds to support my research and dissemination (e.g., personal professional development funds or self-funded).	Yes | No
PCR	I read research literature on a regular basis.	Yes | No
IS	I am encouraged and supported by my library to do research.	Yes | No

IS	I have time to do research within my job.	Yes | No
IS	I have space where I am able to work effectively on my research.	Yes | No
IS	I have taken a sabbatical or other kind of leave to work on a research project.	Yes | No
IS	I have hired a research assistant to help with research tasks.	Yes | No
IS	I have received funding for my research.	Yes | No
COM	I have a network of peers at my institution with whom I talk about research.	Yes | No
COM	I know people who have similar research interests to mine.	Yes | No
COM	Professional associations are a source of research community for me.	Yes | No
COM	I attend conferences in order to connect with others who have similar research interests.	Yes | No
COM	I feel like I belong to a research community.	Yes | No
COM	I have consulted with an expert to get help on a specific aspect of my research.	Yes | No
COM	I have a network of peers from other institutions with whom I talk about research.	Yes | No
COL	I have done research with other people (co-researchers) at my institution.	Yes | No
COL	I have done research on my own.	Yes | No
PS	I have participated in a peer support group related to research.	Yes | No

Please indicate whether or not each statement applies to you.
(Presented in random order)

PS	I have participated in a writing group.	Yes | No
PS	I have participated in a journal club.	Yes | No
PS	I ask my colleagues for feedback on my research.	Yes | No
EM	I have received merit increments or promotion due to my research activities.	Yes | No
EM	I am (formally or informally) expected to participate in research and scholarship.	Yes | No
EM	I do research only because it is a requirement of my job.	Yes | No
PT	I enjoy doing research.	Yes | No
PT	I enjoy writing for publication.	Yes | No
PT	I am confident about my research abilities.	Yes | No
PT	I can achieve my research goals.	Yes | No
PT	I enjoy presenting at conferences.	Yes | No
PT	I enjoy speaking with colleagues about my research.	Yes | No
PT	Publishing gives me a personal sense of satisfaction.	Yes | No
PT	I can easily identify questions that could be answered through research.	Yes | No
PT	I do research to satisfy my curiosity.	Yes | No
PT	I finish the research projects that I start.	Yes | No
IM	I do research to advance my career.	Yes | No
IM	I do research for my personal interest.	Yes | No
IM	I do research to contribute to better library services.	Yes | No
IM	I do research for professional growth.	Yes | No
IM	I do research to build a professional reputation for myself.	Yes | No
IM	I do research to contribute to more informed decision-making in librarianship.	Yes | No
IM	I do research to contribute to greater library visibility on campus.	Yes | No
IM	I do research to build stronger relationships with faculty members.	Yes | No

IM	I do research to contribute to a stronger profession.	Yes | No
M	I have been mentored in relation to research activities.	Yes | No
M	I have mentored others in relation to their research activities.	Yes | No

We are asking a series of demographic questions to try to understand whether or not there is a relationship between these factors and research productivity. There is research outside of the profession of librarianship that indicates that there is a relationship between some personal factors and research productivity.

What month and year were you born? D
[Prefer not to answer]
Drop downs for month and year

How would you describe your marital status? D
- □ Single
- □ Married
- □ Living with partner
- □ Divorced
- □ Separated
- □ Widowed
- □ Other, please specify…
- □ Prefer not to answer

Do you have children or adults who depend on you for care? D
Check all that apply.
- □ Child(ren) under 18 years of age
- □ Child(ren) over 18 years of age
- □ Other adult dependent upon me for care
- □ No children or dependent adult
- □ Prefer not to answer

To which gender identity do you most identify? D
- □ Female
- □ Male
- □ Other
- □ Prefer not to answer

Thinking back over the last five years (January 2015 – December 2019), please indicate how many times you have disseminated your LIS-related research in each of the following venues. Choose 0 (zero) if you have not disseminated in a venue.
The researchers are interested in academic librarians' participation in research related to library and information studies (LIS). While it is recognized that librarians may undertake research outside of LIS, do research that is not disseminated, or disseminate research in non-traditional formats, in this question the researchers are gathering information about specific ways of disseminating LIS-related research.

Published a book review	Drop-down 0-30
Presented a poster at a conference (both peer reviewed and not)	Drop-down 0-30
Gave an oral presentation at a conference (both peer reviewed and not)	Drop-down 0-30
Published in conference proceedings	Drop-down 0-30
Published a non-peer-reviewed journal article	Drop-down 0-30
Published a peer-reviewed journal article	Drop-down 0-30
Published a chapter in a book (contributed chapter)	Drop-down 0-30
Authored a book (solo or coauthor)	Drop-down 0-30
Edited a book (collection of contributed chapters)	Drop-down 0-30

Can you think of other factors that were not fully captured in the previous questions that have affected your research productivity? If so, please share them here.
Open text box

The scholarly landscape is changing, and researchers are disseminating their research outputs in new ways. Please list any ways that you have disseminated your research that were not included in the previous question.
Open text box

Appendix B. Selected Institutions for Recruitment in this Study, by Type of Carnegie Class

R1	R2	Professional/Doctoral
Arizona State University-Tempe	Azusa Pacific University	Adelphi University
Binghamton University	Baylor University	Augusta University
Boston College	Brigham Young University-Provo	Aurora University
Boston University	Catholic University of America	Baker University
Brandeis University	Clark Atlanta University	Belmont University
Carnegie Mellon University	Clark University	Bethel University
Case Western Reserve University	College of William and Mary	Brandman University
Columbia University in the City of New York	CUNY City College	Campbell University
Cornell University	Delaware State University	Concordia University-Portland
Dartmouth College	DePaul University	D'Youville College
Drexel University	East Tennessee State University	Daemen College
George Washington University	Eastern Michigan University	Dallas Baptist University
Georgia Institute of Technology-Main Campus	Florida Agricultural and Mechanical University	Drake University
Georgia State University	Florida Institute of Technology	Elon University
Indiana University-Bloomington	Fordham University	Ferris State University
Johns Hopkins University	Howard University	Fielding Graduate University
Mississippi State University	Illinois State University	Gannon University
Montana State University	Jackson State University	Gardner-Webb University
New York University	Kent State University at Kent	George Fox University
Northwestern University	Lehigh University	Hofstra University
Oklahoma State University-Main Campus	Loyola University Chicago	Immaculata University
Oregon State University	Marquette University	Indiana State University
Princeton University	Marshall University	Lamar University
Rensselaer Polytechnic Institute	Michigan Technological University	Lincoln Memorial University
Stanford University	Missouri University of Science and Technology	Lindenwood University
Stony Brook University	Montclair State University	Loyola University New Orleans
SUNY at Albany	New Mexico State University-Main Campus	Mary Baldwin University
Syracuse University	Northern Arizona University	Maryville University of Saint Louis
Temple University	Northern Illinois University	Misericordia University
Texas A & M University-College Station	Oakland University	Mississippi College
Texas Tech University	Old Dominion University	National Louis University

R1	R2	Professional/Doctoral
The University of Texas at Arlington	Rutgers University-Newark	Our Lady of the Lake University
The University of Texas at Austin	Saint Louis University	Palm Beach Atlantic University
The University of Texas at Dallas	San Diego State University	Pepperdine University
University at Buffalo	Seton Hall University	Samford University
University of Alabama at Birmingham	Southern Illinois University-Carbondale	Seattle Pacific University
University of Arizona	Stevens Institute of Technology	Shenandoah University
University of California-Irvine	SUNY College of Environmental Science and Forestry	Simmons University
University of California-San Diego	Texas A & M University-Corpus Christi	Southern Illinois University-Edwardsville
University of California-Santa Barbara	Texas Christian University	St Catherine University
University of Colorado Denver/ Anschutz Medical Campus	Texas Southern University	St John's University-New York
University of Georgia	The University of Texas at San Antonio	Texas A & M University-Commerce
University of Hawaii at Manoa	The University of Texas Rio Grande Valley	Texas Woman's University
University of Louisville	University of Akron Main Campus	The College of Saint Scholastica
University of Massachusetts-Amherst	University of Colorado, Colorado Springs	The Sage Colleges
University of Miami	University of Denver	The University of Findlay
University of Michigan-Ann Arbor	University of Idaho	The University of Texas at Tyler
University of Missouri-Columbia	University of Louisiana at Lafayette	Touro College
University of Nevada-Las Vegas	University of Maryland Eastern Shore	Towson University
University of New Hampshire-Main Campus	University of Maryland-Baltimore County	Trinity International University-Illinois
University of North Carolina at Chapel Hill	University of Massachusetts-Boston	Union Institute & University
University of North Texas	University of Massachusetts-Dartmouth	Union University
University of Oklahoma-Norman Campus	University of Massachusetts-Lowell	University of Central Arkansas
University of Oregon	University of Missouri-Kansas City	University of Hartford
University of Pennsylvania	University of Missouri-St Louis	University of Indianapolis
University of Rochester	University of Nebraska at Omaha	University of Michigan-Flint
University of South Carolina-Columbia	University of New Orleans	University of Northern Colorado

R1	R2	Professional/Doctoral
University of Southern Mississippi	University of North Carolina at Charlotte	University of Saint Joseph
University of Virginia-Main Campus	University of Rhode Island	University of San Francisco
University of Washington-Seattle Campus	University of San Diego	University of St Thomas
University of Wisconsin-Milwaukee	University of South Dakota	University of the Pacific
Vanderbilt University	University of Tulsa	Valdosta State University
Washington State University	Western Michigan University	Valparaiso University
Wayne State University	Wright State University-Main Campus	Washburn University
West Virginia University	Yeshiva University	Western Kentucky University
Yale University		Widener University
		Wilkes University

Appendix C. Demographic Measures of Representativeness

TABLE 1
Workplace Categories of Participants (*n* = 824)

Workplace Category	Number of Participants	Percentage of Participants	Percentage of Potential Participants
R1	512	62.1	57.8
R2	188	22.8	30.2
D/PU	124	15.0	11.9

TABLE 2
Gender Identity of Participants (*n* = 826)

Gender Identity	Number of Participants	Percentage of Participants
Women	595	72.0
Men	179	21.7
Other	24	2.9
Prefer not to answer	28	3.4

FIGURE 1
Age Ranges of Participants (*n* = 764)

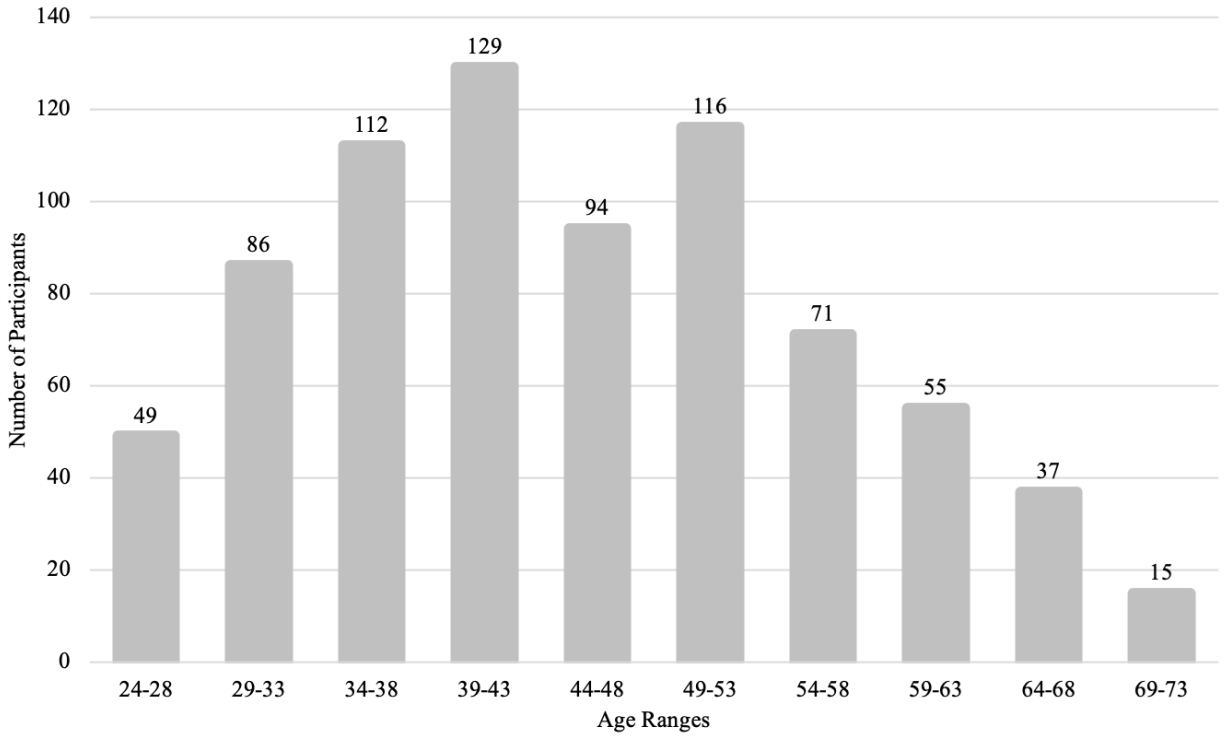
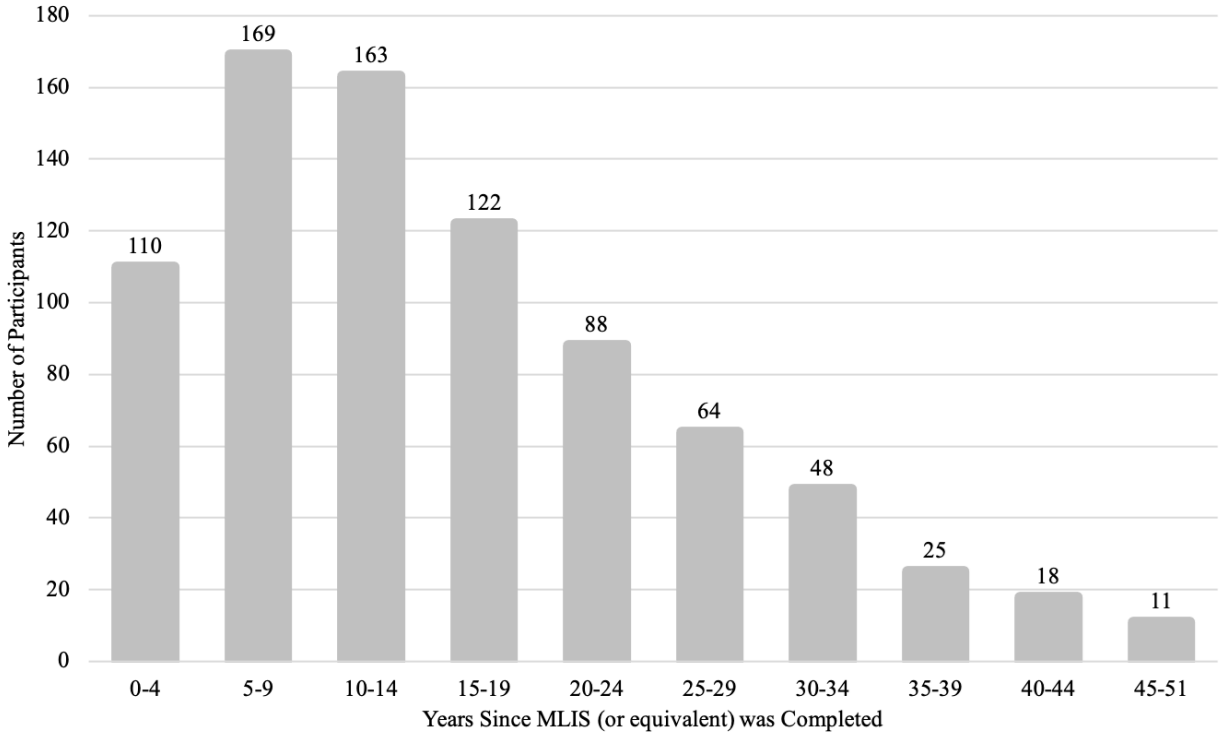


FIGURE 2
Number of Years since Participants Completed Their MLIS (or Equivalent) (*n* = 818)



Appendix D. Detailed Statistical Results

The following tables show the number responding to each statement (n) and the p-value obtained from the non-parametric Mann-Whitney U test. Statements are significant at the .05 level.

As described in the paper, when we ran the Mann-Whitney U test we decided to focus our analysis on those participants who had demonstrated some regular engagement with research, and we therefore set a lower limit of three for weighted output score. The analysis presented here was therefore done with the subset of 637 responses, where the weighted output score was between three and ninety five, inclusive. Not all participants answered each Yes or No statement; n ranged from 629 to 637.

TABLE 1
Components of the Individual Attributes Category and Their Significance as Determined by the Mann-Whitney U Test, Significant at the .05 Level

Factors and Components	N	Weighted Output Score	Number of Peer-Reviewed Articles	Number of Conference Presentations
Intrinsic Motivations				
I do research to contribute to more informed decision-making in librarianship.	634	p=0.000	p=0.000	p=0.005
I do research to contribute to better library services.	633	p=0.003	p=0.030	p=0.001
I do research for my personal interest.	633	p=0.000	p=0.219	p=0.007
I do research for professional growth.	633	p=0.000	p=0.001	p=0.000
I do research to contribute to greater library visibility on campus.	634	p=0.005	p=0.003	p=0.214
I do research to advance my career.	633	p=0.000	p=0.000	p=0.000
I do research to build stronger relationships with faculty members.	634	p=0.005	p=0.020	p=0.220
I do research to build a professional reputation for myself.	630	p=0.000	p=0.000	p=0.000
I do research to contribute to a stronger profession.	632	p=0.000	p=0.000	p=0.003
Personal Commitment to Research				
I always have a research project that I'm working on.	635	p=0.000	p=0.000	p=0.000
I schedule dedicated time for research.	633	p=0.000	p=0.000	p=0.002
I am currently working on a research project.	633	p=0.000	p=0.000	p=0.000
I have participated in activities that support LIS research (e.g., peer review, editor of a journal, providing writing assistance to a colleague, etc.).	636	p=0.000	p=0.000	p=0.075
I do research that is meaningful to my practice.	632	p=0.000	p=0.000	p=0.001
I consider research to be a priority.	632	p=0.000	p=0.000	p=0.000
I believe it is important for librarians to contribute to the profession via research.	634	p=0.006	p=0.036	p=0.038

TABLE 1
Components of the Individual Attributes Category and Their Significance as Determined by the Mann-Whitney U Test, Significant at the .05 Level

Factors and Components	N	Weighted Output Score	Number of Peer-Reviewed Articles	Number of Conference Presentations
I read research literature on a regular basis.	634	p=0.003	p=0.040	p=0.358
I work on research outside of regular work hours.	635	p=0.000	p=0.014	p=0.002
I have used personal funds to support my research and dissemination (e.g., personal professional development funds or self- funded).	635	p=0.000	p=0.009	p=0.000
Personality Traits				
I can achieve my research goals.	632	p=0.000	p=0.000	p=0.421
I am confident about my research abilities.	634	p=0.000	p=0.000	p=0.169
I finish the research projects that I start.	633	p=0.000	p=0.000	p=0.368
I can easily identify questions that could be answered through research.	636	p=0.000	p=0.009	p=0.001
I enjoy speaking with colleagues about my research.	634	p=0.000	p=0.006	p=0.000
I enjoy presenting at conferences.	636	p=0.020	p=0.978	p=0.000
I do research to satisfy my curiosity.	635	p=0.008	p=0.484	p=0.274
Publishing gives me a personal sense of satisfaction.	634	p=0.000	p=0.000	p=0.104
I enjoy doing research.	634	p=0.000	p=0.009	p=0.035
I enjoy writing for publication.	629	p=0.000	p=0.001	p=0.349

TABLE 2
Components of the Peers and Community Category and Their Significance as Determined by the Mann-Whitney U Test, Significant at the .05 Level

Factors and Components	N	Weighted Output Score	Number Of Peer-Reviewed Articles	Number Of Conference Presentations
Collaboration				
I have done research with other people (co-researchers) at my institution.	637	p=0.000	p=0.000	p=0.021
I have done research on my own.	635	p=0.000	p=0.000	p=0.007
Community				
I feel like I belong to a research community.	634	p=0.000	p=0.000	p=0.024
I have consulted with an expert to get help on a specific aspect of my research.	635	p=0.000	p=0.002	p=0.044
I have a network of peers at my institution with whom I talk about research.	634	p=0.000	p=0.000	p=0.140
I know people who have similar research interests to mine.	633	p=0.000	p=0.000	p=0.001

TABLE 2
Components of the Peers and Community Category and Their Significance as Determined by the Mann-Whitney U Test, Significant at the .05 Level

Factors and Components	N	Weighted Output Score	Number Of Peer-Reviewed Articles	Number Of Conference Presentations
I attend conferences in order to connect with others who have similar research interests.	634	p=0.005	p=0.296	p=0.000
I have a network of peers from other institutions with whom I talk about research.	636	p=0.000	p=0.000	p=0.000
Professional associations are a source of research community for me.	634	p=0.323	p=0.694	p=0.002
Mentoring				
I have been mentored in relation to research activities.	636	p=0.000	p=0.000	p=0.082
I have mentored others in relation to their research activities.	632	p=0.000	p=0.000	p=0.029
Peer Support				
I have participated in a peer support group related to research.	632	p=0.000	p=0.000	p=0.000
I ask my colleagues for feedback on my research.	634	p=0.002	p=0.003	p=0.030
I have participated in a journal club.	633	p=0.000	p=0.000	p=0.520
I have participated in a writing group.	637	p=0.000	p=0.000	p=0.000

TABLE 3
Components of the Institutional Structures and Supports Category and Their Significance as Determined by the Mann-Whitney U Test, Significant at the .05 Level

Factors and Components	N	Weighted Output Score	Number of Peer-Reviewed Articles	Number of Conference Presentations
Extrinsic Motivations				
I have received merit increments or promotion due to my research activities.	633	p=0.000	p=0.000	p=0.002
I am (formally or informally) expected to participate in research and scholarship.	634	p=0.000	p=0.000	p=0.090
I do research only because it is a requirement of my job.	630	p=0.718	p=0.059	p=0.236
Institutional Supports				
I have received funding for my research.	633	p=0.000	p=0.000	p=0.000
I have hired a research assistant to help with research tasks.	636	p=0.001	p=0.007	p=0.010
I have taken a sabbatical or other kind of leave to work on a research project.	636	p=0.001	p=0.000	p=0.157
I have space where I am able to work effectively on my research.	634	p=0.001	p=0.000	p=0.936

TABLE 3
Components of the Institutional Structures and Supports Category and Their Significance as Determined by the Mann-Whitney U Test, Significant at the .05 Level

Factors and Components	N	Weighted Output Score	Number of Peer-Reviewed Articles	Number of Conference Presentations
I have time to do research within my job.	636	p=0.000	p=0.000	p=0.620
I am encouraged and supported by my library to do research.	635	p=0.001	p=0.000	p=0.738

TABLE 4
Elements within the Demographics and Education and Experience Factors and Their Significance as Determined by the Mann-Whitney U Test, Significant at the .05 Level

Factors and Components	n	Weighted Output Score	Number of Peer-Reviewed Articles	Number of Conference Presentations	Percent Answering Yes
Demographics					
Do you have children or adults who depend on your for care? (Responses combined to compare those who have no dependents with those who replied that they have any dependent(s).)	611	p=0.046	p=0.017	p=0.616	39
Education and Experience					
Is your current position in library administration?	636	p=0.081	p=0.343	p=0.812	21
Do you have an advanced degree in addition to your MLS or equivalent? (Responses combined to compare those with any advanced degree and those who have none.)	635	p=0.000	p=0.062	p=0.112	53
Do you have an advanced degree in addition to your MLS or equivalent? (Responses combined to compare those with a thesis-based advanced degree and those who have none or a non-thesis-based degree.)	635	p=0.018	p=0.018	p=0.007	32
Are you currently working toward an advanced degree? (Responses combined to compare those with any advanced degree and those who have none.)	632	p=0.484	p=0.468	p=0.798	8
Do you believe that your LIS master's degree adequately prepared you to read and understand research-based literature?	636	p=0.132	p=0.048	p=0.577	64
Do you believe that your LIS master's degree adequately prepared you to conduct original research?	637	p=0.064	p=0.051	p=0.031	32

TABLE 4
Elements within the Demographics and Education and Experience Factors and Their Significance as Determined by the Mann-Whitney U Test, Significant at the .05 Level

Factors and Components	n	Weighted Output Score	Number of Peer-Reviewed Articles	Number of Conference Presentations	Percent Answering Yes
During your MLS program (or equivalent), did you complete any of the following:… (Responses combined to compare those who completed any of these with those who did none.)	637	p=0.831	p=0.947	p=0.805	68
Since completing your MLS (or equivalent), have you taken any formal research training? (Responses combined to compare those who completed any training with those who did none.)	630	p=0.900	p=0.378	p=0.271	74

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How Multilingual Is Area Studies? Citation Patterns of German Studies Scholars at American Institutions

Tara Murray Grove

Academic libraries invest significant resources for developing collections of foreign-language materials, so it is important for librarians to understand how scholars use these materials. This study uses citation analysis to investigate how frequently scholars in the United States cite sources in languages other than English, taking German Studies as an example where one would expect to find multilingual scholarship. The results indicate that American scholars do incorporate foreign-language sources into their scholarly outputs, but the rate varies significantly between disciplines. Area studies collections should be developed to support discovery and use of diverse materials, including those in languages other than English.

Introduction

Developing collections of foreign-language materials in academic libraries requires resources beyond those needed to develop collections of domestic materials. These additional resources include using a variety of vendors for acquisitions, language expertise for selection and cataloging, and even travel to international book fairs to make purchases. It is, therefore, important for librarians to understand how scholars in their institutions use foreign-language materials so that they can develop and maintain collections strategically.

Discussions of trends in scholarly communication tend to frame library collections and services as a unified whole. The primary vehicle of communication for scientists (and, to a somewhat lesser extent, social scientists) is the recent journal article, and the rising costs for libraries to provide access to these journals has, appropriately, been a prominent topic of discussion and study. At the same time, many libraries are moving print collections off-site and purchasing fewer print books, leading some to wonder if we are witnessing the death of the book. An acquisitions librarian at a major university went so far as to declare, in 2001, "The scholarly monograph is dead."[1] The reality is that scholarly communication is nuanced and varies by field. This circumstance is reflected in disciplinary library collections. Humanists, the primary users of foreign-language collections, typically use monographs, print collections, and older works more than scholars in other disciplines. Previous research has established the importance of the monograph for humanities scholars,[2] as well as the tendency of humanities

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scholars to cite older works more often than scientists.[3] Print has remained dominant in the humanities,[4] but researchers have called for continued examination of digital publishing as it becomes more sophisticated and online sources mature into the age of peak citation for print sources, which is generally more than ten years in the humanities literature.[5] For the humanities, it appears that the scholarly monograph is evolving rather than dying. As both scholarship practices and library collections change, the question of language, and the extent to which humanities scholars use multilingual collections, deserves further study.

This study investigates how frequently scholars in the United States cite sources in languages other than English, using German studies as an example where one would expect to find multilingual scholarship. German studies is a logical area to begin this investigation. Previous studies have found that, after English, German is one of the languages most frequently cited by American humanities scholars, regardless of discipline.[6] In addition, because scholarship practices in the United States are similar to those in Germany,[7] it is unlikely that a different culture of citation learned from foreign sources would influence German studies scholars. While area studies is inherently multidisciplinary, the German studies scholars whose works are included in this study are primarily humanists working in literature, culture, history, and philosophy. The exception is linguistics, where scholarly communication practices more closely align with the social sciences.

Literature Review

A number of previous studies have looked at the frequency with which humanities scholars writing in English cite foreign-language sources. Many of these studies have deliberately examined only fields where primary sources are not predominantly in a non-English language to avoid a natural skewing toward that language. While useful for some purposes, this approach neglects humanities fields related to a language or geography (area studies). We may assume that area studies scholars use primary sources in the language of their field of study, but prior research has shown that scholars favor secondary sources in their native language.[8]

A few studies have examined foreign-language and area studies disciplines, including German studies. Batts examined a 1969 sample of literary criticism journal articles in English, French, and German, and found that for all three languages, when the language of the article differed from the language of the topic (for example, an author writing in English about German literature), about 60 percent of the secondary sources cited were in the language of the topic and about 30 percent in the language of the article, with the remaining 10 percent in other languages.[9] When the language of the article and topic were the same, the number of sources in that language was 90 percent. Batts concluded that scholars favor sources in their native language, regardless of the language of their topic of study, and ignore potentially important sources in other languages.

Cullars also looked specifically at the language of sources used by English-speaking scholars of foreign literature, using a sample of 30 monographs. He found that "the scholar will cite the original text and some secondary sources in the language of the text, but the bulk of the remaining references will be to English-language sources."[10] References in the language of the original text made up 64 percent of the total, including both primary and secondary sources. Citations to other languages were only 2 percent of the total, indicating that scholarship might be bilingual but is not truly multilingual.

Both Cullars and Batts attempted to distinguish native English speakers in their studies. Cullars relied on biographical information, and for cases where biographical information was not available excluded "authors with foreign surnames," a questionable practice.[11] Batts simply assumed that scholars were writing in their native language and publishing in the journals of their home country.

In another study, this time examining French and German literary monographs, Cullars found that these scholars also predominantly cite sources in the language of their writing (75 percent for German and 84 percent for French), and that English is the most frequently cited foreign language.[12]

Collins and Rutledge looked at the literature of German studies as a whole, using a random sample from an annual bibliography of the field. Not surprisingly, they found that the majority of publications were in German (80 percent), with English making up the second-largest portion (12.8 percent), providing further evidence of the dominance of English in scholarly communication.[13]

Ostos examined citation patterns of faculty in Latin American studies at a large American university and found that 42 percent of monographs cited were in languages other than English. Of these, only 11 percent were owned by the university library, versus 44 percent for the English-language titles, "indicating a major gap in local holdings for the non-English language titles needed by researchers."[14] Although Ostos found significant citation of non-English sources, the majority of monographs cited were in English.

Giullian and Monroe-Gulick analyzed publications by faculty in Slavic and Eurasian studies at the University of Kansas and found that even though the topic of study was closely linked to other languages, English sources made up 76 percent of book citations and 85 percent of journal citations.[15] A recent analysis of East Asian studies by Li found that only about half (53 percent) of citations in doctoral dissertations were to East Asian materials.[16]

Citation studies of humanities fields where literature in a foreign language is not the topic of study have found that humanities scholars in general do cite foreign language sources, but that the rates vary widely by discipline. In an analysis of five decades of citation data from four humanities disciplines, Kellsey and Knievel found that 78.2 percent of citations were to English-language materials, but the discipline-specific results ranged from 65.3 percent English-language sources in art to 99.7 percent in philosophy.[17] The most common language cited after English was French (5.3 percent) followed closely by German (4.7 percent). In another study of eight humanities disciplines, the same authors again found differences between the disciplines. The authors concluded that the "most consistent result of this study is the variation among the citation patterns of the various humanities fields."[18]

A later study by the same authors doesn't specifically address language in the discussion but does include the data gathered on language in an appendix.[19] Overall, 12.8 percent of citations from the sample, which included four humanities disciplines, were in languages other than English, and the discipline-specific percentages ranged from 3.2 percent in English literature to 30.5 percent in classics. Similarly, Li's analysis of East Asian studies found a great deal of variation, and Li noted that "dissertations focusing on linguistics topics tend to cite very few East Asian materials."[20]

Citation analysis is just one method used to examine the sources used by scholars. A UK study conducted structured interviews with selected faculty members. The literature review included in this study indicates that the decline of the monograph is on the publishing side, and

not a result of declining demand for the format from scholars. The analysis of the interviews suggests that "the monograph remains the single most valued means of scholarly publishing and communication within the A&H field."[21] Brockman et al. conducted a qualitative study of humanities scholars at a large research university to better understand how these scholars interact with the library and engage in research activities. The analysis verified earlier studies, finding that humanities scholars continue to use older sources.[22]

Overwhelmingly, citation analyses of humanities scholarship have found that the monograph is far from dead, and in fact remains a central part of scholarly communication. McDonald found that humanities scholars and social scientists (based on a sample of publications authored by forty-seven Caltech faculty) cite books and journals at about equal rates, and these rates did not vary significantly over a seven-year time period (1994–2000).[23] Literature faculty cited books at the highest rate (78 percent), although this is based on a small sample of citations from only thirteen publications. Thompson analyzed a sample of monographs on 19th-century English and American literature and found that of the secondary sources cited, 67 percent were books and 18 percent were periodicals.[24] If book chapters are included in the book category, the figure for citations to books climbs to 81 percent. Not surprisingly, primary source citations were overwhelmingly to books (79 percent). In a more recent study covering the years 2004–9, Kellsey and Knievel found that 69 percent of citations from their humanities sample were to books.[25] For all of the disciplines included in the sample (philosophy, classics, English, and history), the percentage of citations to items more than twenty-five years old at time of citation was substantial, ranging from 27 percent to 39 percent. Similarly, in an analysis of citation data extracted from dissertations at Notre Dame, Kayongo and Helm found that 73 percent of citations from the arts and humanities dissertations were to books versus 23 percent to journals, while for all other disciplines citations to journals outnumbered citations to books.[26] The same study also found that the average age of cited sources was significantly greater in the arts and humanities, at 33.4 years versus an overall average age of 19.1 years. Looking specifically at Slavic and Eurasian studies, Giullian and Monroe-Gulick found that even in this multidisciplinary field (including humanists and social scientists) there were more citations to books (54 percent) than to journals (32 percent).[27] The sample included publications from 2005 to 2013, and the average publication date of cited sources was 1998. Similar to Thompson,[28] Giullian and Monroe-Gulick suggest that not only do scholars continue to cite older works, but that "a work must stand the test of time before being cited more often."[29] Conkling and his coauthors analyzed two samples of dissertations representing the pre-web (1990–93) and post-web (2003–6) periods to see if new methods of accessing the literature had changed citation patterns. Their analysis showed enough variation, both within and among disciplines, that results were difficult to generalize, but one interesting finding is that the age of cited material overall increased,[30] perhaps because electronic journal back files and databases have made older articles easier to find and obtain.

Methods

This study employs citation analysis of publications by German studies scholars based at institutions in the United States to determine what kinds of sources are incorporated into scholarly outputs. Citation data provide more direct information about scholarly communication than other types of data such as library usage statistics or faculty requests for materials. Usage statistics, such as circulation and journal download counts, are relatively easy to obtain

but do not tell the whole story of how scholars engage with the literature. Faculty requests fail to measure use of materials already obtained by approval plan or librarian selection and overlook the role of the library collection in scholars' discovery. Citation analysis, the method used for this investigation, measures which kinds of sources are incorporated into scholarly outputs. It has been used by many prior studies on foreign languages and scholarly communication, facilitating comparisons.

The population analyzed includes the citations from all known publications of the faculty in departments of German studies, German language, or German literature at the fourteen Big Ten Academic Alliance (BTAA)[31] member universities from a single year (2017). The BTAA is selected for several reasons:

- Drawing publications from multiple institutions avoids disproportionate influence by the citation habits of any one scholar or department. This is especially important because German studies departments tend to be relatively small.
- Focusing on publications by faculty at large research universities with robust library collections and interlibrary loan services avoids most problems of lack of access to foreign language books and journals.
- Because the primary goal is to inform collections decisions at American universities, and because differences in scholarly communication across English-speaking countries are beyond the scope of this study, only institutions in the United States are included.

In cases where German studies is part of a broader area studies department, the publications of faculty focusing on areas where German is not the primary language, such as Scandinavian or Slavic studies, are excluded. Most German studies departments include faculty with backgrounds in various disciplines and with appointments in other departments, for example history, linguistics, and philosophy, and these are included. Publications, for the purpose of this study, include monographs, contributions to edited volumes, and journal articles. Publications in both German and English are included, and no attempt is made to distinguish between native and non-native English speakers, because the goal of the study is to find communication patterns of scholars at American institutions regardless of background. Publications such as editorials and opinion pieces containing no citations or only a few citations were excluded. Publications were identified from curriculum vitae and publication lists available on university department websites and from literature searches in WorldCat, MLA International Bibliography, Arts and Humanities Citation Index, Germanistik Online Datenbank, Linguistics and Language Behavior Abstracts, and Penn State University Library's federated search. Following the above criteria, a total of fifty-seven publications from scholars at fourteen universities were selected for inclusion in this analysis.

The citing publications were entered into a spreadsheet, assigned an identifier, and coded by format (monograph, book chapter, or journal article), language (English or German), and discipline (literature and culture, history, philosophy and rhetoric, or linguistics). All of the citations from these publications were then entered into a second spreadsheet and linked to the citing publication by identifier. A total of 3,821 citations were collected. The citations were coded by language, format, and age (determined by subtracting the date of the citation from the date of the citing publication). Citations were not coded as primary and secondary sources. While some previous studies have made a distinction between primary and secondary sources, in this dataset separating primary and secondary sources would have required a close reading of some texts. While primary sources in German studies may be more likely

than secondary sources to be in a language other than English, the publications included in this study did also cite secondary sources in non-English languages. In addition, some publications cited English-language primary sources or primary sources in translation.

Results

The majority of sources cited in all publications included in the study are in English (64 percent), and a significant minority are in German (34 percent). Only two percent of citations are to sources in a language other than English or German (mostly other European languages). In English-language publications, a slightly higher percentage of sources cited are in English (66 percent), while in German-language publications, closer to half of the sources cited are in German (45 percent) (see figure 1).

FIGURE 1
Percentage of Citations to English and German Sources by Publication Language

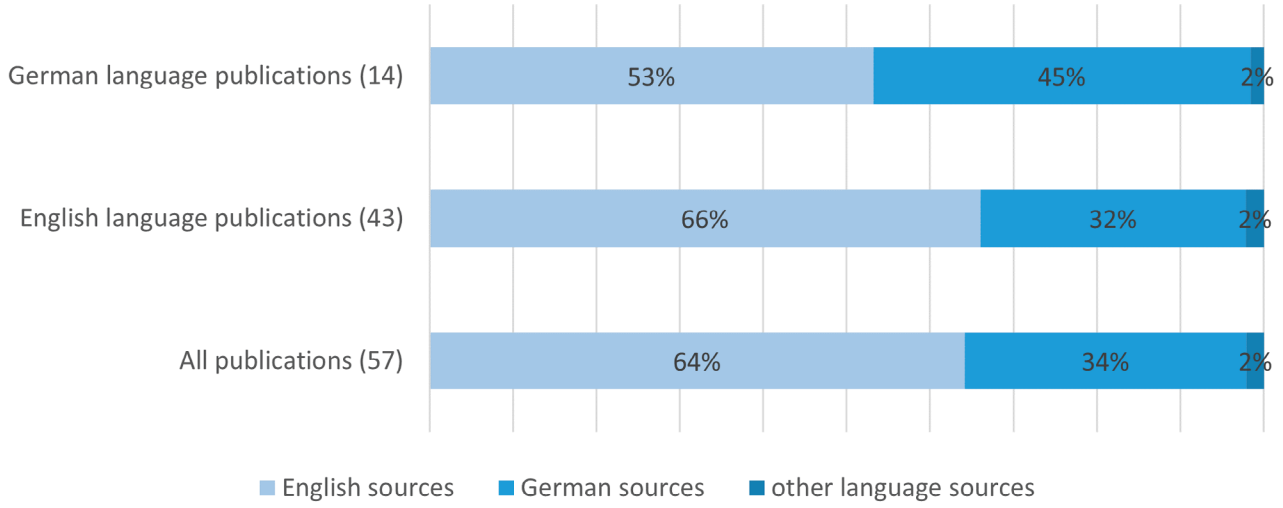
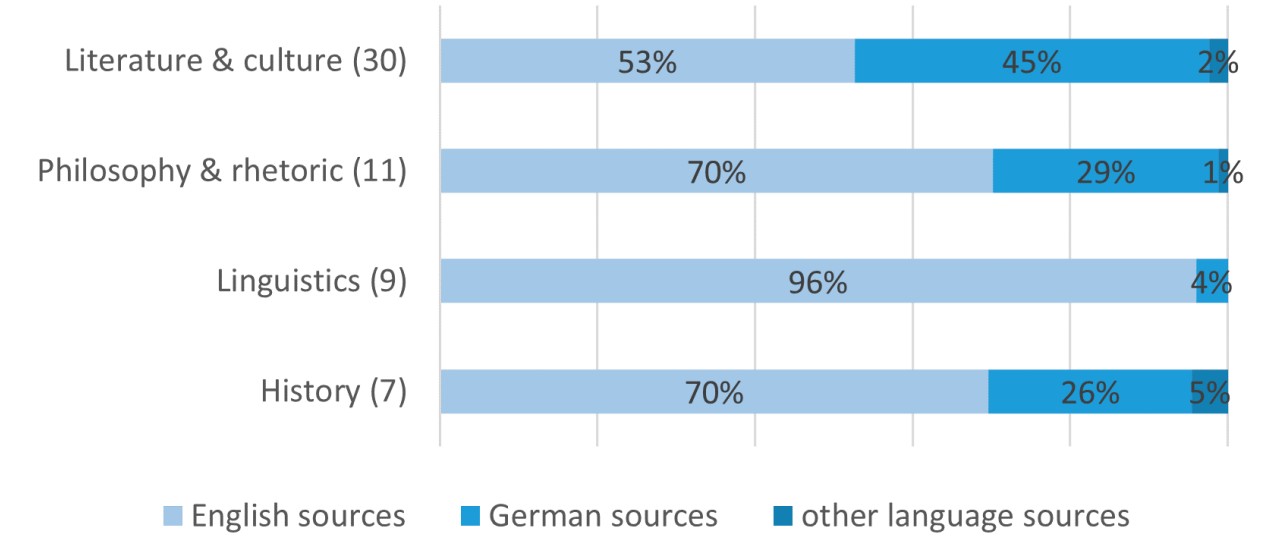


FIGURE 2
Percentage of Citations to English and German Sources by Discipline



Citation patterns in this sample vary significantly by discipline (see figure 2). All of the publications in history and linguistics are written in English. Linguistics, at least in the departments at the universities in this study, appears to be an almost monolingual discipline, with 96 percent of sources cited in English. The history publications in this sample, on the other hand, even though they are all written in English and favor English-language sources, cite sources in more different languages than publications in other disciplines, with 5 percent in languages other than English and German. The literature and culture publications cite the most German-language sources (45 percent), which reflect citations to the texts being studied in the original language as well as citations to German-language scholarship. In rhetoric and philosophy, publications in both English and German heavily favor English-language sources (70 percent). Interestingly, the rhetoric and philosophy publications in this sample written in German cite more English-language sources (78 percent) than the publications written in English (67 percent) (see figures 3 and 4).

FIGURE 3
Percentage of Citations to English and German Sources for English Language Publications by Discipline

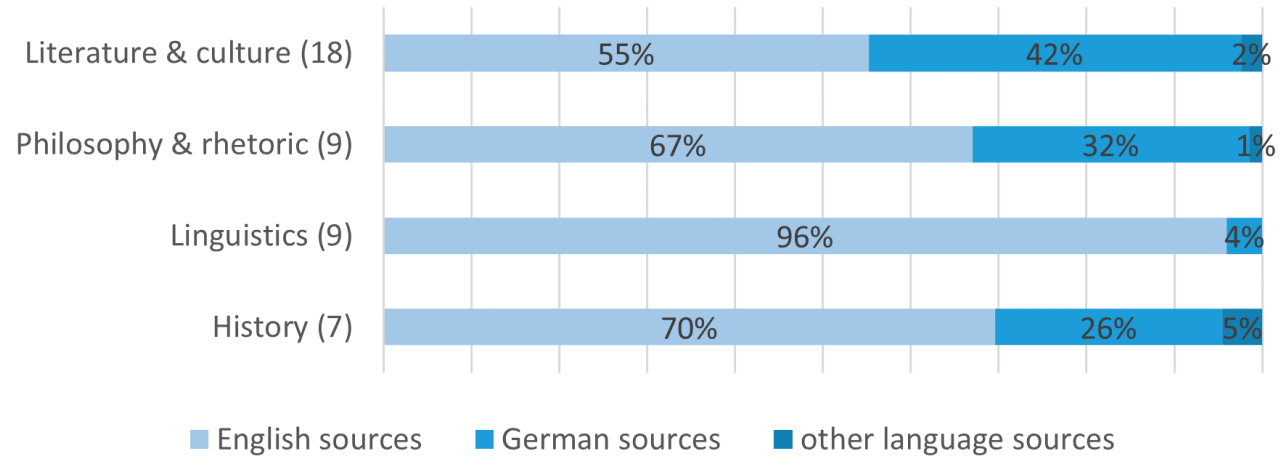
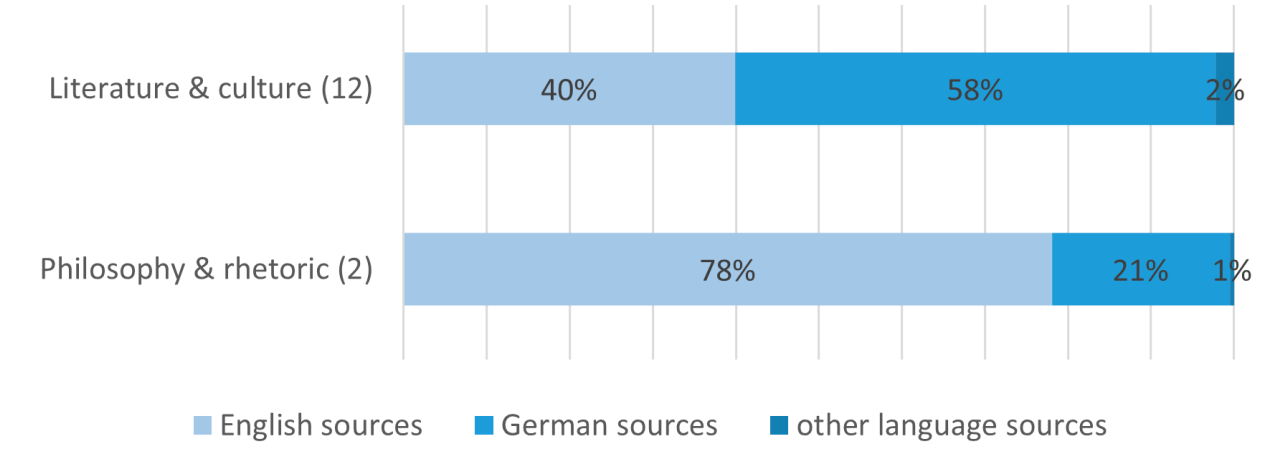


FIGURE 4
Percentage of Citations to English and German Sources for German Language Publications by Discipline



The language of cited sources also varies by source type (see figure 5). A significantly higher percentage of journal articles cited were in English (80 percent), compared to books (57 percent), book chapters (59 percent), and other types of sources, such as dissertations, manuscripts, websites, newspaper articles, and films (60 percent). Nearly half of the citations in the sample were to books (45 percent), with similar numbers of citations to book chapters (21 percent) and journal articles (27 percent), and relatively few citations to other types of sources (7 percent).

For both German and English publications, the age of sources cited follows a predictable pattern, with the majority of sources cited being less than twenty-five years old (see figure 6). The main language difference is in the very old sources (fifty or more years old). Regardless of

FIGURE 5
Percentage of Citations to English and German Sources by Type of Source

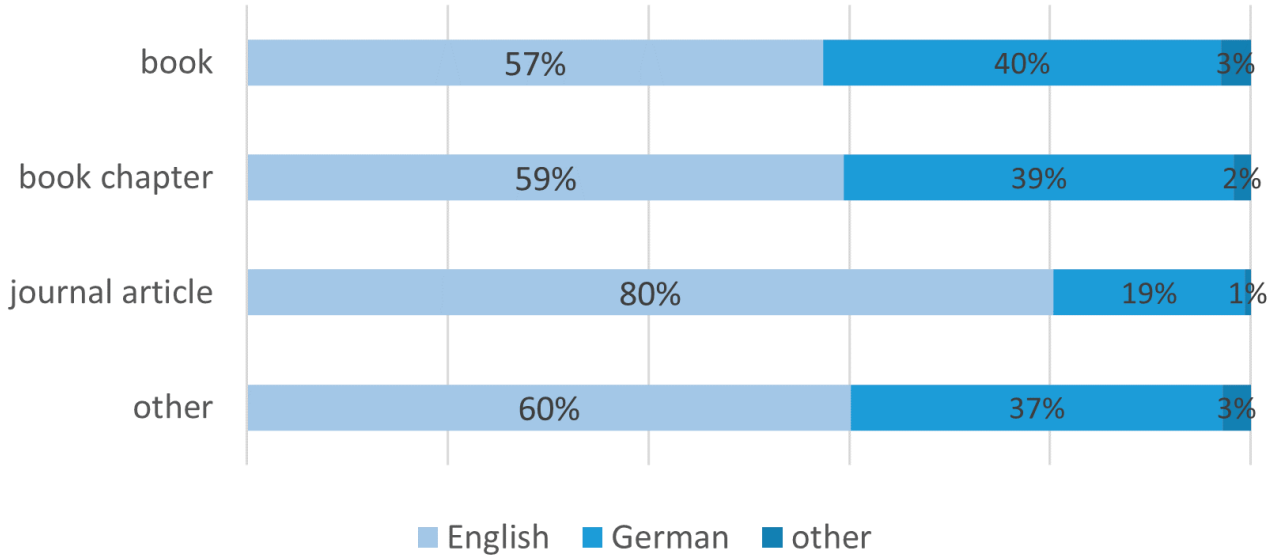
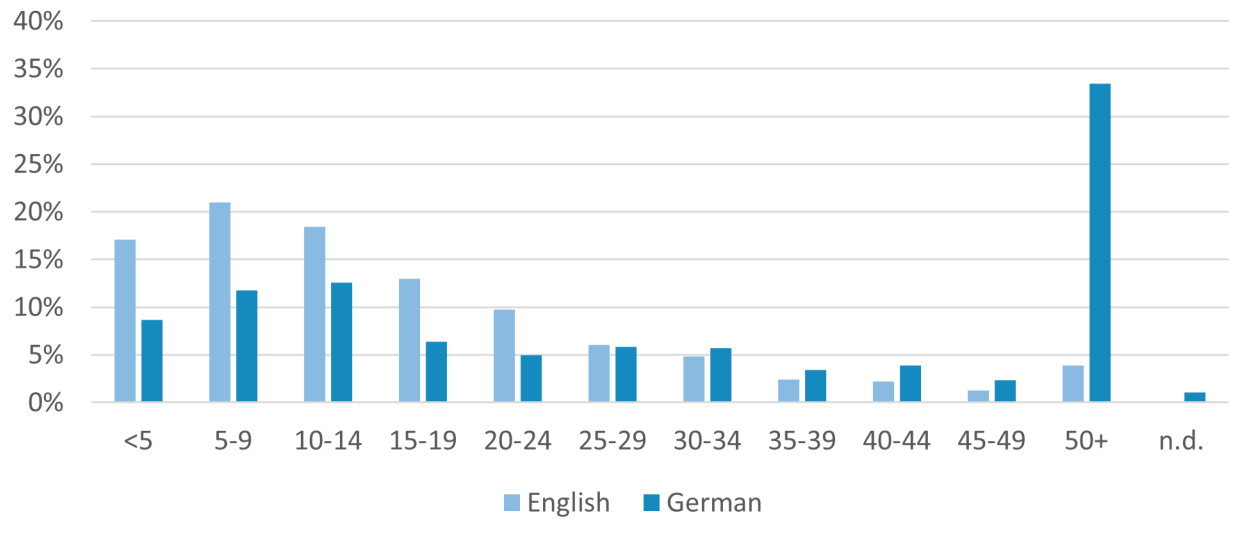


FIGURE 6
Distribution of Age of Sources for All Publications



the language of the publication, a greater percentage of citations to German-language sources are fifty or more years old. For English-language publications, 38 percent of German sources cited are fifty or more years old (see figure 7). For German-language publications, where a greater proportion of all citations are to German-language sources, the distribution by age is more even, with only 15 percent of German sources cited being fifty or more years old (see figure 8). Only a small number of citations were to sources with no date (n.d.), such as databases.

FIGURE 7
Distribution of Age of Sources for English-Language Publications

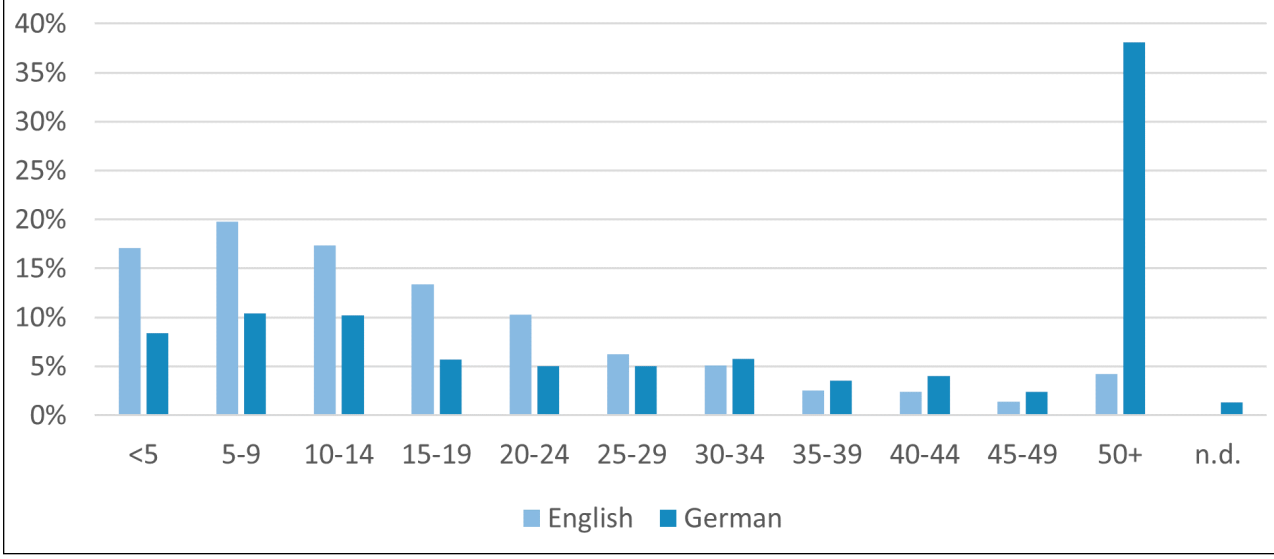
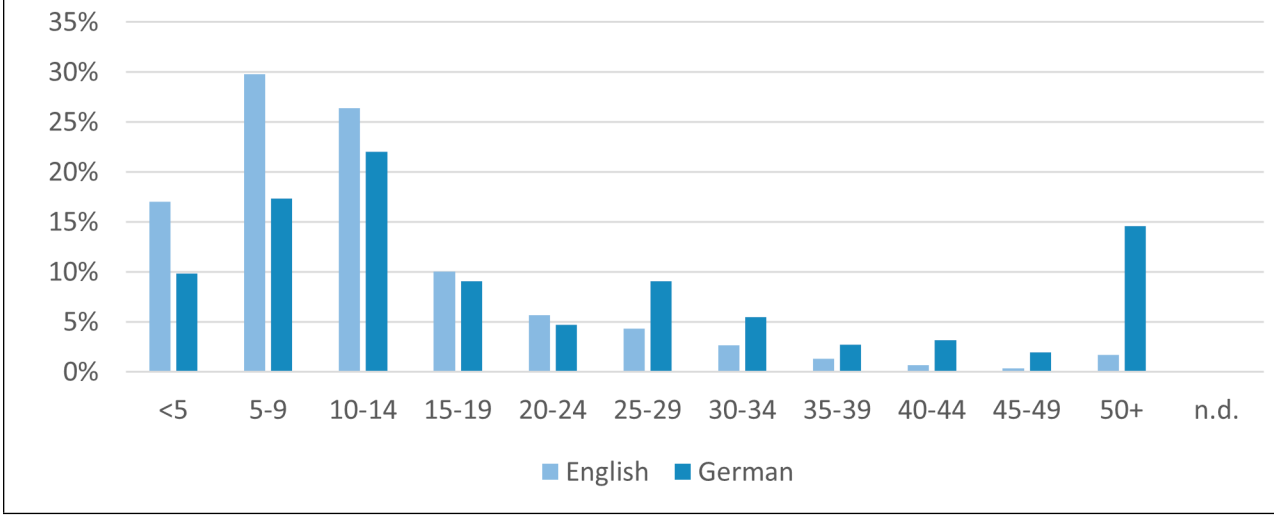


FIGURE 8
Distribution of Age of Sources for German-Language Publications



Discussion

The results of this study confirm three findings from earlier studies of the humanities: 1) humanists use sources in multiple languages but show a preference for sources in the language of their own writing or institution; 2) scholarly communication varies significantly across

humanistic disciplines; and 3) humanists rely heavily on books and continue to cite them long after initial publication.

The English-language publications included in this study cite a smaller percentage of German-language sources than the German-language publications do. This supports Batts' earlier finding that scholars are more likely to cite sources in the language of their own writing.[32] Looking specifically at publications in literature and culture, the subject of Batts' study, the present study finds that 55 percent of sources cited in English-language publications were in English, 42 percent in German, and only 2 percent in other languages. Batts found that in cases where the language of publication and the language of the topic differ, as with the English-language German studies publications in this study, 60 percent of citations were to sources in the language of the topic, 30 percent were to sources in the language of the publication, and 10 percent were to a third language.[33] For publications where the language of publication and the language of the topic are the same (that is, a German-language publication on a German-language topic), the present study finds that only 58 percent of citations are to sources in that language, whereas Batts' study found 90 percent.[34] These differences between the present study and Batts' study suggest that English-language publications have become less multilingual, and that scholars writing in all languages are citing more English-language sources, although the comparison to the Batts study is not direct because Batts included publications in three languages (English, German, and French) from scholars in multiple countries. Determining whether the trend to citing more English-language sources reflects a preference on the part of scholars, a lack of awareness of sources in languages other than English, or a shift in publishing to favor English is beyond the scope of this study. If the finding by Collins and Rutledge that the vast majority of German studies literature is written in German[35] still holds true today, it does suggest that scholars in the United States disproportionately rely on the English-language literature in their field.

The difference by discipline in percentage of citations to non-English-language sources in this study, from next to none in linguistics to more than half of all citations in German-language literature and culture publications, supports Knievel and Kellsey's conclusion that citation patterns vary widely by discipline within the humanities.[36] Li found similar differences between disciplines, noting, as in the present study, that linguistics publications had few to no citations to non-English-language materials.[37] This variation holds true in the present study even for scholars in different disciplines who work together in the same German studies department, suggesting that German studies and by extension other area studies are diverse fields with no uniform model of scholarly communication.

This study, like previous studies, found that humanities scholars continue to favor books as sources, and that they continue to cite sources long after their initial publication. The very old (published fifty or more years before the citing publication) sources cited in English-language publications were much more likely to be in German, whereas the distribution was more even in German-language publications, perhaps indicating that the very old sources are primary source materials. Similarly, a greater percentage of all book sources cited were in German compared to other types of sources, reflecting that humanists' primary sources tend to be books.

Conclusion

Knievel and Kellsey concluded that "Collection development in research libraries is, at best, an inexact science or, more properly, an art."[38] This study, and several previous studies, found a

great deal of variation between humanities disciplines. To best serve the local community, the art of collection development in each of these disciplines should reflect this variation as well as local needs and interests. The results of this study will help librarians developing collections for area studies better understand scholarly communication in their fields and inform collections decisions.

This study shows that humanities scholars continue to cite sources long after their initial publication, and that these very old sources are more likely than other types of sources to be books and to be in a language other than English. Under current budget pressures, many libraries now prioritize electronic resources and acquire materials "just in time" instead of "just in case." This approach will be less effective in the humanities, where scholars rely on a collection built over time. Foreign language materials often must be purchased in a brief window of availability in the United States, or during visits to book fairs and international bookstores. If librarians do not purchase these materials proactively, based on their local knowledge of scholars' needs, scholars may find them difficult to access at the point of need. Indeed, scholars may never even discover these sources because they can't be found in the library collection. Interlibrary loan and cooperative borrowing agreements will only help to provide access to resources if at least some libraries acquire foreign-language books at the time of publication. Relying on "just in time" access therefore has chilling implications for efforts to build diverse collections and to encourage the amplification of diverse international perspectives in collections and in scholarship.

The comparison between the results of this study and the results of Batts' 1972 study suggest that American scholars today cite fewer foreign-language publications. While multiple factors likely contribute to this decline, whether foreign-language publications can be discovered and accessed through the scholar's home library must play a role. There are many possible reasons for scholars' citation choices, as explained by Li:

> Whether a scholar does or does not use and cite a material in a non-English language may depend on how much research on the scholar's chosen topic has been conducted and published in that language, the scholar's awareness of what research has been conducted and published in that language, how highly the scholar regards the research conducted and published in that language, and how easily the research conducted and published in that language is accessible to the scholar.[39]

Hempel surveyed classical archaeologists in the United States and found that although most indicated support for multilingual scholarly communication, research published in English has a greater chance of being read by researchers and students in the United States.[40] The scholars who responded to the survey worried that as library budgets are cut, non-English publications will not be collected as much as they once were.

Understanding all of the factors that lead to citation choices is beyond the scope of the present study, but discovery and accessibility, and thus the decisions made by libraries, are certainly among those factors. Librarians who proactively select foreign-language publications diversify their libraries' collections and encourage scholars to incorporate these perspectives into their own work.

Acknowledgments

The author would like to thank Bill Brockman for thoughtful suggestions about this research project and Jade Atwill for insightful comments on the draft manuscript.

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12. Cullars, "Citation Characteristics."

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27. Giullian and Monroe-Gulick, "Assessment of KU Libraries' Slavic & Eurasian Collection."
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29. Giullian and Monroe-Gulick, "Assessment of KU Libraries' Slavic & Eurasian Collection," 54.
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32. Batts, "Citations in the Humanities."
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Toward a Framework for Information Creativity

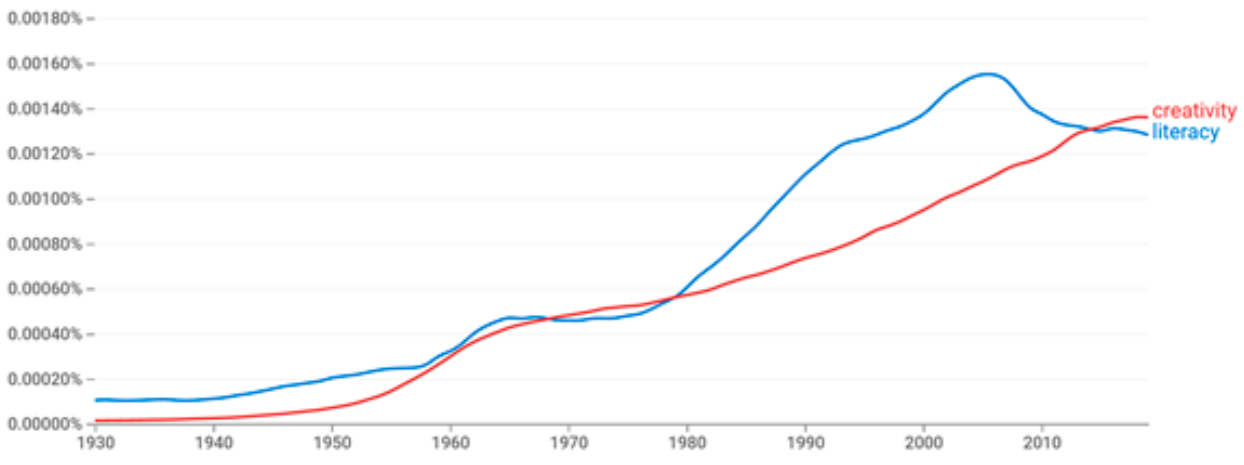
Mark Dahlquist

Recognizing the importance of information literacy in defining the primary focus of library instruction, this paper suggests the potential utility of a complementary principle of information creativity. Employers and educators now increasingly stress creativity's value and teachability; this paper turns to the work of John Dewey to suggest that the traditional distinction between creativity and literacy education is not only unavoidable but also potentially productive. This paper offers some initial suggestions as to what a framework for information creativity might entail, and proposes that an emphasis on information creativity could both highlight the familiar association between libraries and creativity and inspire a theory and practice of creativity that strengthens traditions of democratic social progress.

Introduction: Creativity and the Moment

Since the early twentieth century, the word *creativity* has appeared with increasing frequency in English-language publications, its use rising sharply in the 1950s and continuing its upward trend thereafter.[1] This trend has continued in the first decades of the twenty-first century, as the value of creativity has come to be emphasized across an increasing variety of domains. The growing interest in this term is reflected in figure 1, which tracks the frequency of the words *creativity* and *literacy* in the Google Books corpus between 1930 and 2019.[2]

FIGURE 1
Google Books Ngram Viewer, "*creativity and literacy*, 1930–2019"[3]



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The increasing social value placed upon creativity was described in 2002 by Richard Florida, who argued that a revolutionary "rise of the creative class" was evident in city planners' and corporate recruiters' growing interest in attracting young, nonconformist "creatives." In Florida's view, this population would usher in a "new Creative Age" in the twenty-first century.[4]

As Florida predicted, creativity has become one of the most desired "soft skills" in hiring decisions across industries, and its value has become visible in the architecture of workplaces and academic institutions. Businesses have replaced cubicles with colorful, open-concept lounge and office areas, and universities have invested in similar creativity zones: flexible spaces, often located in libraries or information commons, designed to promote ideation, collaboration, and creativity.[5] These campus and workplace changes have taken place as social psychology has increasingly challenged the idea that creativity occurs in moments of inner illumination mysteriously "gifted" to remarkable individuals, instead describing creativity as a capacity that can be developed and a process that occurs within social and material contexts.[6]

Creativity can be defined in a number of ways. It can be viewed, for example, as the capacity to devise novel solutions that are appropriate to particular contexts or as the imaginative capacity associated with the creative arts. It can be defined narrowly, as a capacity related to the development of individual talents or to the pursuit of social creativity and justice.[7] This paper suggests that Deweyan models of individual and social creativity offer a promising foundation for a creativity-focused framework designed to complement the ACRL *Framework for Information Literacy*.[8] Such a creativity framework could also supplement, on the one hand, modes of design thinking modeled on commercial forms of creativity,[9] and on the other, forms of critical librarianship adapted from bodies of thought that did not focus on libraries as key resources for enabling social change.

Whether understood in connection with individual problem-finding, the creative arts, or social creativity, creativity has experienced a remarkable set of challenges over the past few years. The coronavirus pandemic, responsible for more than six million deaths between 2019 and 2022,[10] shuttered playhouses, soundstages, and cinemas—many for good—while discouraging young people from entering the creative arts.[11] Other challenges have arisen from social struggle, as groups with different transformational agendas sought to inspire, harness, or regulate the production and reception of creative works, while at the same time the development of transformer-based language models such as Chat-GPT has raised concerns about malicious uses of AI-assisted creativity.

The breakthroughs of the #MeToo and Black Lives Matter movements in 2017 and 2019, respectively, have challenged and worked to reform practices and institutions that have long embedded racial and gender inequalities into creative industries and practice. Institutions such as the Academy of Motion Pictures, the governing boards of many theatres and publications (such as *Poetry* magazine), and municipal zoning boards across the United States (many of which had tolerated gentrification while seeking to attract young "creatives") were challenged to reform their practices.[12] Reforming creative practice is an important dimension of these international social justice movements.

However, during this period of creative reform, a countervailing reaction has also strengthened. Authoritarian reactionary movements have attempted to limit the production and reception of creative work, whether by stipulating that government buildings should be constructed in "classical" style, attacking public support for the arts, or vilifying the "Magic

Kingdom" of the Disney corporation.[13] Moreover, this movement has sought to ban books from libraries and classrooms, with the aim of suppressing traits and practices associated with creativity, such as open-mindedness, growth mindsets, and whole-child education, seeing these as threats to conservative beliefs about race, gender, sexual identity, and sexual orientation.[14] Such challenges to schools and libraries are related to broader efforts to undermine forms of liberal democracy that have tended to sustain multicultural social creativity.[15] Indeed, since the Capitol Hill insurrection of January 6, 2022, American conservatives have increasingly endorsed the religious ethnonationalism of authoritarian leaders such as Hungary's Viktor Orbán, seeking "liberation from liberalism itself."[16]

In view of these profound challenges to creative practices and institutions, this paper considers the potential value of the concept of *information creativity* to library instruction. This concept could serve as a companion or complement to the theory and practice of information literacy. This paper argues that despite the increasingly capacious, critical, and anti-oppressive nature of information literacy (especially as outlined by the ACRL *Framework for Information Literacy*), a companion concept of information creativity could offer a distinctive means of fostering both individual human flourishing and forms of multicultural liberal democracy that can support progress toward social equity and justice.

This paper is not intended as a critique of information literacy, the value of which is well established.[17] It does, however, consider some of the tensions related to creativity that have long been recognized in discussions of information literacy, and it suggests that a framework for information creativity could guide the development of library-based activities and services that are less closely attached to the core information literacy practices of locating and evaluating information sources. In addition to providing a framework for instruction, an information creativity framework could also help connect and coordinate the various programs and services many libraries already offer that aim to inspire, support, and distribute creative work.

Although libraries have successfully promoted *information literacy* as a term encompassing most forms of library instruction,[18] it is important to recognize the enduring distinction between educational approaches that emphasize literacy and those that emphasize creativity. Historically, this distinction has been signaled by a variety of "dueling dichotomies" that employ different terms to describe a tension between educational approaches that value testable skills such as literacy, "the three Rs," or "the basics," on the one hand, and those that value more abstract qualities such as originality, self-realization, or expression, on the other.[19] Recent work in developmental psychology has tended to support the existence of a basic cognitive distinction between thinking that aims to evaluate information correctly (as a literate reader can do) and thinking that aims to imagine and explore new possibilities—a fundamental "explore-exploit" dilemma.[20] The persistence of this distinction in education and psychology suggests the potential value of developing a companion library instructional framework for supporting "creativity-forward" library instruction.

This paper looks to the writings of John Dewey, who came to be seen as the "national philosopher" of the United States during the first half of twentieth century, as a basis for conceptualizing information creativity. Although Dewey's influence declined for a time following his death in 1952,[21] it enjoyed a resurgence in the 1980s,[22] when his work was revived by philosophers such as Richard Rorty and Hilary Putnam. At the same time, belief in the value of Dewey's educational writings was sustained by progressive educational theorists interested in "using Dewey to forge consensus among competing visions of the educational

future," as Thomas Fallace observed in describing the use of Dewey by feminist educators such as Maxine Greene and Ellen Condliffe Lagemann.[23]

Beginning with Cornel West's 1989 *The American Evasion of Philosophy*, Dewey's work has also been extended by a range of African American thinkers, including Paul C. Taylor, Eddie S. Glaude, Jr., Melvin Rogers, and Denise James. These thinkers have considered Dewey's writings in connection with those of Black intellectuals such as W. E. B. DuBois, Alain Locke, and Frantz Fanon,[24] filling in Dewey's blind spots and calling out his failings in order to produce a reconstructed Deweyan perspective that more emphatically challenges racist and colonial attitudes and practices.[25] It is in this spirit of multivocal reconstruction that Dewey's model of equitable, democratic, and intercultural creativity carries particular value for conceptualizing creativity-oriented library instruction.

This paper begins by briefly considering some limitations and tensions that are evident in the history and development of information literacy. It then considers some of Dewey's reservations about the adequacy of literacy as a general metaphor for educational practice and then offers a provisional description of some key features of an information creativity framework that could serve as a companion approach to the prevailing model of information literacy. In proposing a move from a monopolar to a bipolar conception of library instruction, this paper does not imply that locating and assessing information and the production of originality are separable activities. Rather, it suggests that understanding each of these activities on its own terms can foster individual and social creative potentials that have typically been overlooked under the unipolar information literacy framework.

Information Literacy and the Basics

Some of the limits of a monopolar approach to library instruction rooted in the notion of literacy can be understood by historicizing the development of the concept of information literacy. Information literacy received its initial institutional definition in the 1989 *Final Report* of the ALA Presidential Committee on Information Literacy,[26] during a period when literacy itself—the ability to read and write—was the subject of intense national debate. This controversy over an ongoing American "literacy crisis" was driven by the rise, beginning in the late 1970s, of the conservative "back-to-basics" educational movement, which advocated greater use of standardized testing and a return to educational fundamentals in order to reverse what back-to-basics activists described as ominous and precipitous declines in student-achievement scores.[27]

In books such as Paul Copperman's *The Literacy Hoax* (1979) and Yale Pines's *Back to Basics* (1982), back-to-basics activists stressed the dangers of an ongoing literacy crisis, and presented themselves as members of an insurgent movement for standards-based educational reform that was sweeping the country.[28] Although this movement received support from some members of minority communities who saw in standardized testing an underutilized instrument for addressing educational inequalities,[29] it was championed primarily by white conservative Republicans who argued that creativity was the educational problem. They held that during the permissive 1960s, "teachers began to emphasize 'creativity' in the English classrooms" under the influence of Deweyan teaching methods, with the result that schools had "shortchanged instruction in the written language" and produced a generation of students without adequate reading and writing skills.[30] The increasing frequency with which the term *literacy* appeared in publications during the 1980s (see figure 1) illustrates the growth of this controversy,[31] which was deeply rooted in social anxieties about race, class, and gender.

The influence of the back-to-basics movement was evident in the initial ALA definition of information literacy, which cited the movement's crowning achievement: the *A Nation at Risk* report, issued in 1983 by Ronald Reagan's Department of Education.[32] Like other back-to-basics documents, *A Nation at Risk* painted a stark picture of educational decline. It argued that test scores and other indicators revealed that "the educational foundations of our society are presently being eroded by a rising tide of mediocrity that threatens our very future as a Nation and a people."[33] The ALA report that defined information literacy faulted *A Nation at Risk* not for its panicked rhetoric but for its decision to "largely exclude libraries" from consideration as a potential resource for solving the illiteracy problem.[34] An early bibliography on information literacy made the link between information literacy and *A Nation at Risk* clear, observing in 1990 that while "[Paul] Zurkowski in 1974 first used the phrase 'information literacy,' its "current meaning and use came in response to national education reform reports, including *A Nation at Risk*."[35]

In keeping with this Reaganite back-to-basics influence, the ALA *Final Report on Information Literacy* described information literacy as an essential skill akin to the ability to read and write: "a survival skill in the information age" that was important to all citizens, who needed to "know how to find, evaluate, and use information effectively to solve a particular problem or make a decision."[36] By stressing the essential nature of the skill it defined, the ALA *Final Report* answered a question that had been posed almost a decade earlier, at a national White House conference during the Carter administration: "Do libraries, the traditional storehouses of information and knowledge, have a place in this fast-moving information age?"[37] The 1989 ALA *Final Report* answered in the affirmative. It argued that the place of libraries in the dawning information age would be to rescue the nation from the threat of illiteracy that the *A Nation at Risk* report so vividly described.

As it turned out, however, the literacy crisis identified by *A Nation at Risk* and back-to-basics activists was generally overstated and based on problematic assumptions, as progressive educators argued at the time. Richard Ohmann pointed out in 1976 that the purported decline in literacy as measured by standardized tests in fact reflected "an *increase* in equality and social justice" because the declines cited by conservatives reflected the growing percentage of US students taking college entrance exams and the growing number of women, immigrants, and people of color attending colleges and universities.[38] More recent analysis has tended to confirm this interpretation.[39]

Although the promotion of reading literacy and information literacy is surely laudable, the language of the ALA *Final Report* illustrates the drawbacks of relying too heavily on the metaphor of literacy to describe library instruction. For example, the report resorted to deficit representations of information "illiterates," observed that the "lives of information illiterates are more likely than others to be narrowly focused on secondhand experiences of life through television," and asserted that "minority and at-risk students, illiterate adults, people with English as a second language, and economically disadvantaged people" were among those least likely to have learning experiences that promote information literacy.[40] The *Final Report* presented the acquisition of information literacy as a form of liberation, but it did so in a way that is tonally problematic, promising the rewards of the Reaganite free market to individual learners who achieve information literacy:

> There is ample evidence that those who learn how to achieve access to the bath of knowledge that already envelops the world will be the future's aristocrats of

> achievement, and that they will be far more numerous than any aristocracy in history.[41]

In its description of "information illiterates" whose lack of literacy constituted a crisis, and in its frankly aristocratic language, the 1989 ALA *Final Report* presented basic and information literacies as closely related and somewhat mystified solutions to the same purported cultural and educational crisis.

The soaring and liberatory rhetoric of the *Final Report* reflected what researchers in the New Literacy Studies movement identified as a "literacy myth," in which "literacy stands alone" as a force that "invariably results in economic development, democratic practice, cognitive enhancement, and economic mobility."[42] This myth is linked to a long history of regarding literacy as a marker of superiority or even, anthropologically, as "the crucial factor distinguishing 'civilized' from 'primitive' peoples," an attitude that has often provided a basis for systemic racism, serving for example to justify the "literacy tests" used to disenfranchise African Americans during the Jim Crow era.[43]

As this paper's next section notes, information literacy instruction has since 1989 sought explicitly to reject and dismantle the core assumptions of the literacy myth. However, this paper argues that the assumptions supported by this mythologized popular conception of literacy can be further contested by more explicitly making room for creativity in library instruction, and that proponents of the back-to-basics movement were right to recognize creativity-oriented learning as a challenge to reactionary projects of conservative restoration and Reaganite efforts to justify existing social inequities.

The Creative Reform of Information Literacy

Information literacy as understood and practiced today certainly encourages creativity and is different in many ways from the version of information literacy unveiled in the 1989 ALA *Final Report*. Moreover, it should also be noted that the practice of information literacy has always varied widely, and that library instructors in the 1980s worked in partnership with creative compositionists such as Peter Elbow and Ken Macrorie.[44] Long before the 2015 ACRL *Framework* placed new emphasis on creativity,[45] creative practices were often incorporated into library or information literacy instruction.

For example, the 2000 *Information Literacy Competency Standards for Higher Education* cited the educational taxonomy of Benjamin Bloom, who defined creativity as closely tied to synthesis, which was for Bloom the educational objective concerned with "putting together parts so as to form a whole."[46] The revised version of Bloom's taxonomy introduced by Lorin Anderson and David Krathwohl in 2000 and widely adopted by information literacy instructors identified creativity, rather than synthesis, as a higher-order learning objective.[47] Thus, through Bloom's taxonomies and other inlets, such as LEAP/VALUE learning outcome rubrics created by the Association of College and Research Libraries and the influential 1996 Boyer Report on the 2000 ACRL *Standards*, the value of creativity has been persistently asserted and articulated in connection with information literacy theory and practice.[48]

However, despite the longstanding presence of creativity in information literacy, there has been an enduring tension at the heart of information literacy. As David Bawden noted in 2001, "the term literacy has always had (at least) a dual nature" that encompasses both narrow and broader understandings of the term.[49] Christine Pawley similarly described information

literacy as a "contradictory coupling," observing that "policies to promote 'literacy' have systematically worked to render some groups of people—indeed, the majority—less capable of active information use and knowledge construction than an educated elite." Pawley argued that relying on the metaphor of literacy to describe library instruction could result in "Procrustean consequences," by framing students as information consumers.[50] In 2006, James Elmborg cited Pawley's Procrustean misgivings and turned to the writings of Peter McLaren, Henry Giroux, and especially Paulo Freire, as he and others worked to develop a model of critical information literacy that would avoid the reductive psychic and social consequences of which Pawley warned.[51]

The insights of Paulo Freire have played a crucial role in shaping critical information literacy pedagogy, and have been widely influential.[52] Though he was aware of the reductive notion of literacy championed by the back-to-basics movement,[53] Freire developed a more expansive and creative understanding of literacy, which was shaped by his experience teaching Brazilian agricultural workers to read (and thereby enabling them to vote, because until 1985 Brazil imposed a literacy requirement on voters). Whereas for the back-to-basics movement the term *literacy* had signified a need for educators to focus on testable basic skills, in Freire's "problem-posing education" the term referred to a process of social solidarity and creativity with far-reaching transformational aims. Freire's writings often articulated these aims in terms of a social awakening (*conscientização*) tied to Marxism and Christian existentialism and associated with a notion of social creativity.[54] For example, Freire argued that authentic education is that which "bases itself on creativity and stimulates true reflections and action upon reality, thereby responding to the vocation of persons as beings who are authentic only when engaged in inquiry and creative transformation" and who work toward "the transformation of the world in behalf of the increasing liberation of humankind."[55] This perspective is broadly consistent with Dewey's conception of creative democracy.[56] Although there are important distinctions between the perspectives of Dewey and Freire, it is important to recognize the significant kinship between the ideas of these progressive educationalists.[57]

While Freire's conception of creativity helped to define critical information literacy, Dewey's conceptions of inquiry and creativity found their way into the 2015 *Framework for Information Literacy* with the help of Carol Kuhlthau, whose 2013 "Rethinking the 2000 ACRL Standards" helped to shape the *Framework*'s more creative and adaptable conception of information literacy.[58] In calling for this change, Kuhlthau stressed the importance of "inquiry," and especially "guided inquiry," to the information-seeking process:

> Guided inquiry opens the inquiry process at Initiation, immerses students in background knowledge at Selection, guides in exploring interesting ideas at Exploration… and evaluates at the close.… By embedding a holistic approach within the inquiry process, information literacy develops as students' understanding of content deepens.[59]

As a result of the advocacy of Kuhlthau and others, the 2015 *Framework* incorporated as one of its six frames the notion of "Research as Inquiry," which defined research as a process of posing "increasingly complex or new questions whose answers in turn develop additional questions or lines of inquiry."[60] In *Guided Inquiry* (2015), Kuhlthau cites Dewey as the foundational, though not the exclusive, source for her understanding of this term:

> The underlying assumption of this book is that learning is a process of construction based on the educational theory of John Dewey… his most comprehensive work, *Democracy and Education*, first published in 1915, provides the foundation for inquiry learning.[61]

The incorporation of Dewey's concept of inquiry learning into the ACRL *Framework* points the way to an information creativity approach to library instruction that would give creative inquiry freer scope to operate independently from notions of literacy that Dewey regarded as fundamentally limiting. Such notions have persisted as unresolved tensions in the practice of information literacy, despite significant reforms.[62]

John Dewey and the Limits of the Literacy Metaphor

Prolific and highly influential over a long period, Dewey continues to be viewed as arguably "the most prominent American intellectual for the first half of the twentieth century," and his ideas have retained, or regained, a wide currency among educators and academics in the twenty-first.[63] The incorporation of Dewey's notion of inquiry into the 2015 ACRL *Framework* represented an important shift toward a more flexible and creative understanding of information literacy.

Nevertheless, Dewey's presence in the *Framework* was in some ways incongruous, because Dewey repeatedly cautioned against relying too heavily on literacy as a metaphor for conceptualizing education more generally. Although he was a strong proponent of universal childhood instruction in reading and writing and a critic of economic and racial inequalities in access to literacy, Dewey had significant misgivings about overemphasizing literacy in discussion of education, expressing concerns that anticipate the "Procrustean consequences" described by Christine Pawley in 2003.[64] Writing of literacy in *Democracy and Education*, for example, Dewey observed that even though "in an advanced culture much which has to be learned is stored in symbols," an overemphasis on mere "technical information expressed in symbols" had resulted in an impoverished popular understanding of education that emphasized literacy at the expense of other modes of learning. He wrote:

> Thus we reach the ordinary notion of education: the notion which ignores social necessity and its identity with all human association that affects conscious life, and which identifies it with imparting information about remote matters and the conveying of learning through verbal signs: the acquisition of literacy.[65]

Dewey regarded literacy as a poor metaphor for education because it failed to convey the important roles of learner-driven inquiry, experiential richness, and reciprocal communication in supporting authentic learning and social progress in a pluralistic society.[66]

Dewey's ambivalence regarding the notion of literacy was rooted in his perspective as a progressive educator who emphasized experiential learning and the importance of rich and varied communication with others, as opposed to learning by rote. Dewey described his educational philosophy in *Experience and Education*:

> If one attempts to formulate the philosophy of education implicit in the practices of the newer education, we may, I think, discover certain common principles

> amid the variety of progressive schools now existing. To imposition from above is opposed expression and cultivation of individuality; to external discipline is opposed free activity… to preparation for a more or less remote future is opposed making the most of the opportunities of present life; to static aims and materials is opposed acquaintance with a changing world.[67]

In this passage, Dewey's reservations about the use of literacy education as a model for broader educational practice come to light in his advocacy of the "expression and cultivation of individuality" and also in his preference for education that explores "the opportunities of present life" over education offered as "preparation for a more or less remote future." Dewey's belief that "the only way to prepare for social life is to engage in social life" led him to criticize educational philosophies that regarded creativity and inquiry as coming after a period of mechanical literacy instruction (which might be described as learning "the basics"), during which "pupils are expected to use their eyes to note the form of words, irrespective of their meaning, in order to reproduce them in spelling or reading."[68] For Dewey, the practice of deferring creativity until after students had acquired literacy was a serious philosophical and educational mistake.

Dewey's critique of educational approaches that focus on acquiring literacy was linked to his belief that learners (whether beginners or experts) have a need to construct a reflective "experience" that integrates and renders meaningful the incessant sequence of fragmentary impressions encountered by individuals in the modern age. On the matter of literacy and experience, Dewey wrote:

> What avail is it to win prescribed amounts of information about geography and history, to win the ability to read and write, if in the process the individual loses his own soul: loses his appreciation of things worthwhile, of the values to which these things are relative; if he loses his desire to apply what he has learned and, above all, loses his ability to extract meaning from his future experiences as they occur?[69]

Dewey was always skeptical of the attitude that learners need to acquire basic skills before developing the ability to pose meaningful questions and discuss them with others.[70] "We always live at the time we live," Dewey wrote in *Experience and Education*, warning of educational theories in which "the potentialities of the present are sacrificed to a suppositious future."[71]

Dewey's rejection of this sacrifice puts his progressive understanding of education and inquiry at odds with literacy models of education such as the ACRL *Framework*, which stress the importance of building fundamental skills needed for later achievement. In particular, Dewey's educational philosophy cuts against the *Framework*'s incorporation of the "threshold concepts" developed by Erik Meyer and Ray Land. The assumptions underlying the notion of threshold concepts are closely related to the notion of literacy instruction, because they include the idea that key creative possibilities are initially hidden beyond educational "thresholds" and can be explored only after "learning the language of the discipline," that is, only after understanding "troublesome" threshold concepts.[72] Dewey rejected the idea that learners should defer engaging in inquiry or creativity until after they have mastered the basics of literacy or other forms of gateway knowledge.

Dewey's reluctance to view education as literacy acquisition was also tied to his understanding of communication as a complex and reciprocal interpersonal and intercultural exchange that extends far beyond acquiring the ability to decipher written signs. Dewey famously expounded this idea in his 1934 *Art as Experience*, in which he argued that creativity is communicative and that creative thinking is widespread, rooted in shared human capacities, and not limited to those who have undergone lengthy training of the kind associated with formal education. Just as Dewey viewed scientific reasoning as an extension of ordinary human problem-solving, he understood works of art as acts of communication that deepen experience and share it among people and cultures. He wrote:

> At their best they [works of art] bring about an organic blending of attitudes characteristic of the experiences of our own age with that of remote peoples. For the new features are not mere decorative additions, but enter into the *structure* of works of art and thus occasion a wider and fuller experience. Their enduring effect upon those who perceive and enjoy will be an expansion of *their* sympathies, imagination, and sense.[73]

Dewey characterized such experiential communication as a vexed issue, indeed "one of the most serious problems of philosophy"; nevertheless, he maintained that "art is a more universal mode of language than the speech that exists in a multitude of unintelligible forms."[74] For Dewey, progress toward a freer and more equitable social order depended on developing modes of communication that participate in the creation of beauty—and thus extend beyond the recognition of symbolic meanings. As Paul C. Taylor writes, for Dewey, "ethical life is bound up with an essentially artistic or poetic revisioning of the landscape of agentive possibility, and human personalities are always works in progress, fashioned at the intersection of community resources, social conditions, and ethical agency."[75] This is one reason Dewey thought the popular meanings of the term *literacy* did not adequately describe what students must learn as they acquire the ability to read and write while also encountering and creating new horizons of meaning and aesthetic possibility in connection with others.

Toward an Account of Information Creativity Practices

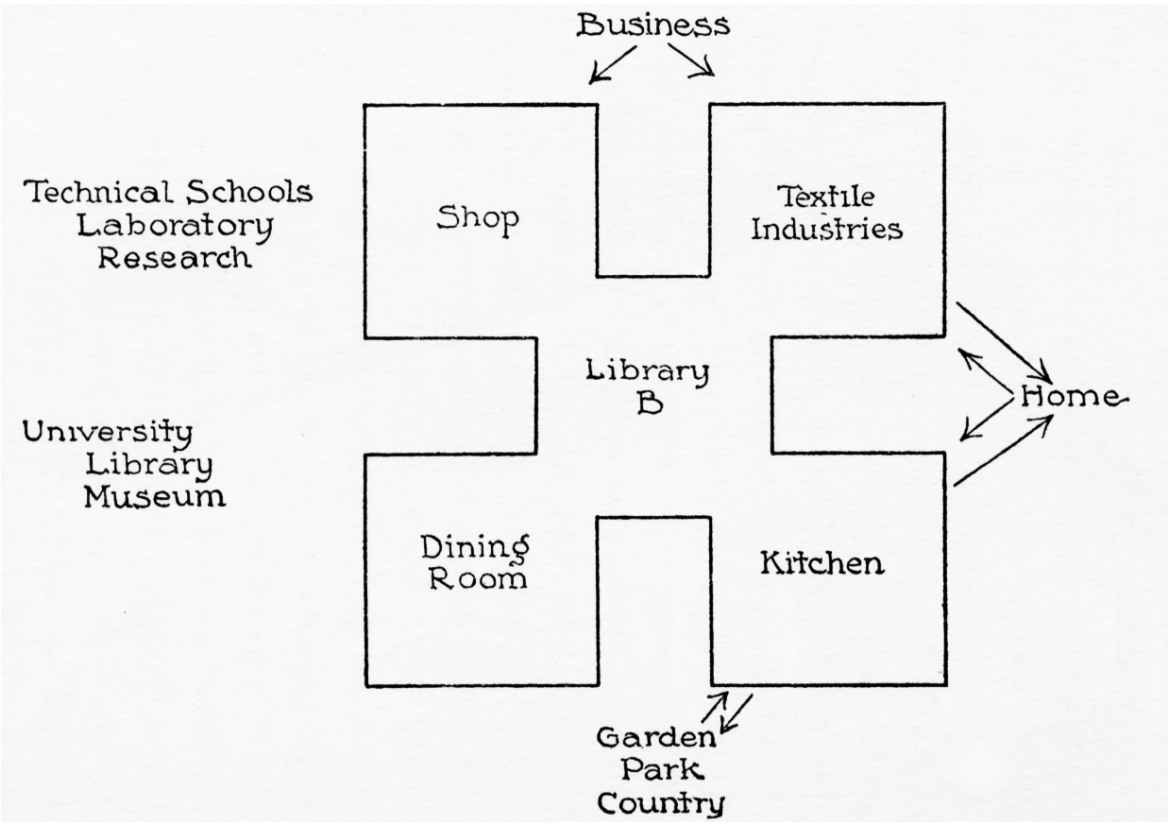
Dewey's belief that social institutions such as libraries and schools should be constituted "so as to make possible a better future for humanity" is a promising basis for conceptualizing library instruction as a service linked to social creativity.[76] At the same time, the rootedness of his educational ideas in developmental psychology connects his work to the creativity of individual learners. A key link between Dewey's educational writings on creativity and contemporary creativity research is his strong belief, which has been well corroborated by educational research, in the importance of intrinsic motivation in producing student creativity.[77]

Although Dewey's writings on creativity included a variety of interesting claims that could be considered for incorporation into an information creativity framework,[78] the present study draws mainly on Dewey's theory of intrinsic motivation, according to which learners should explore information in ways that open up new meanings and enrich their individual and social experience. This sense of "exploration" might draw on the way this term is used by Alison Gopnik and Christopher Lucas, as previously mentioned, as well as the reader-response literary criticism of Louise Rosenblatt, which relied on Dewey's conception of art to

describe interpretive "exploration" in which "both reader and text are essential to the transactional process of making meaning."[79] An information creativity framework would apply these principles to creativity-focused library instruction and services.

Dewey's characterizations of inquiry, creativity, and experiential learning were rooted in both developmental psychology and his experiences as an educator and designer of curricula and schools. A drawing published in *The School and Society* (1900) illustrates Dewey's conception of experiential education, in which information resources would be centered in a school in which "the child shall have in his own personal and vital experience a varied background of contact and acquaintance with realities, social and physical,"[80] and in which the library would provide a central space for reflection and inquiry, a place where the day's lessons and undertakings could be investigated and connected to emergent questions.

FIGURE 2
Conceptual Floor Plan, from *The School and Society*
(Chicago: University of Chicago Press, 1902), 95



Dewey explained that the diagram presented in Figure 2 represented his educational values rather than a floor plan for a particular space:

> The object is to show what the school must become to get out of its isolation and secure the organic connection with social life of which we have been speaking. It is not our architect's plan for the school building we hope to have, but it is a diagrammatic representation of the idea which we want embodied in the school building. On the lower side you see the dining-room and the kitchen, at the top the

> wood and metal shops and the textile room for sewing and weaving. The center represents the manner in which all come together in the library; that is to say, in a collection of the intellectual resources of all kinds that throw light upon the practical work, that give it meaning and liberal value. If the four corners represent practice, the interior represents the theory of the practical activities.[81]

By situating learning activities amid workshops, kitchens, and textiles (laboratories and studios for art and music appear in Dewey's plan for the second floor), Dewey envisioned libraries as points of connection between experiential learning and information that would allow experiences to be more meaningfully understood. Discussing the space devoted to textiles, indicated in the above plan, he writes:

> The basal fact in that room is that it is a workshop, doing actual things in sewing, spinning, and weaving. The children come into immediate contact with the materials, with various fabrics of silk, cotton, linen, and wool. Information at once appears in connection with these materials; their origin, history, their adaptation to particular uses, and the machines of various kinds by which the raw materials are utilized.[82]

Dewey conceptualized the library as a space surrounded by makerspaces, in a school extending outward into the social world—a vision that played an important role in the incorporation of libraries into American elementary schools in the early twentieth century.[83]

Dewey returned to the library-as-metaphor in *The Public and Its Problems* (1927), his treatment of democracy and public opinion. In this foundational text of media studies, Dewey observed that many of his contemporaries (notably Walter Lippman, whose opinions were the chief target of Dewey's treatise) believed the expanding availability of information provided little hope for the cause of democratic progress. Dewey acknowledged the validity of Lippman's concern that because "the mass of the reading public is not interested in learning and assimilating the results of accurate investigation," such results "remain secluded in library alcoves, and are studied and understood only by a few intellectuals."[84] To respond to this skepticism about the interest of the *demos* in accurate information, Dewey returned to *The School and Society*'s vision of a vibrant school library located at the center of a process of creative inquiry that aims to facilitate democratic social progress.

Replying to Lippman and other critics, Dewey observed that while the "mere existence and accessibility" of accurate information "would have some regulative effect," this information would also offer an "irresistible invitation" to those motivated to fashion it into compelling narratives, that is, to storytellers—those who translate facts and data into the art of human experience. Dewey writes:

> Men's conscious life of opinion and judgement often proceeds on a superficial and trivial plane. But their lives reach a deeper level. The function of art has always been to break through the crust of conventionalized and routine consciousness…. Poetry, the drama, the novel are proofs that the problem of presentation is not insoluble. Artists have always been the real purveyors of news, for it is not the outward happening in itself which is new, but the kindling of it by emotion, perception, and appreciation.[85]

In Dewey's account, for information to serve the ends of democracy, "a subtle, delicate, vivid, and responsive art of communication must take possession of the physical machinery of transmission and circulation and breathe life into it," precisely because "democracy is a name for a life of free and enriching communication."[86] Writing at the close of World War II, Dewey saw habitual inattention as both a threat to democracy and a challenge to creativity; he turned to the idea of the library to imagine a response to this challenge.[87]

Whether as conceptual metaphors or elements of governmental recommendations, Dewey viewed libraries as crucial to learning and democratic social progress.[88] His perspective suggests the value of developing a framework for information creativity. Such a framework would embrace both the creative nature of social democracy (as emphasized by Freire, for example) and the forms of creative exploration and production associated with early childhood development and divergent or experimental thinking—and it would value these forms of creativity not as secondary to the practices of locating, evaluating, and using information but as primary activities in themselves.

Adopting the term *information creativity* for such practices, a definition such as the following might be proposed:

> *Information creativity involves the experience of encountering, employing, transforming, or making informational objects for artistic, exploratory, or communicative purposes when creative originality or production is of primary concern.*[89]

Defined in relation to the ACRL *Framework*, information creativity is a companion concept that provides a necessary complement to forms of instruction grounded in literacy and threshold approaches to education. An information creativity approach would provide a fuller and freer scope for the operations of Deweyan "inquiry" by emphasizing the relation of inquiry to "experience," Dewey's other key term. These practices can be further characterized by identifying some of the activities and priorities information creativity could involve. For example, information creativity practices might:

- Facilitate the pursuit of nonresearch projects with creative orientations, such as artistic or reflective projects
- Deal with "problem-finding" when a topic or question has not yet been identified
- Facilitate experiential or surprising encounters with things, such as rare print materials, or make use of serendipitous methods
- Emphasize immediacy and minimize threshold limitations (such as in zine making, 3D printing, and video- and audio-editing workshops)
- Practice the innovative *presentation* of information (such as data visualization and storytelling), in which information is located and transformed for the sake of presentation or analysis
- Emphasize remediation and form (such as transforming a written argument into a video essay)
- Emphasize the *poesis* of the maker

Information creativity as sketched above would support library instruction that has either a more expressive focus (for example, on personal growth and experiential reflection) or a more technical focus (for example, on skills workshops teaching students how to use a particular creative tool) than is typical of information literacy instruction. Table 1 offers a preliminary typology that distinguishes the principles of information literacy from those of information creativity.

TABLE 1
Information Literacy vs. Iinformation Creativity

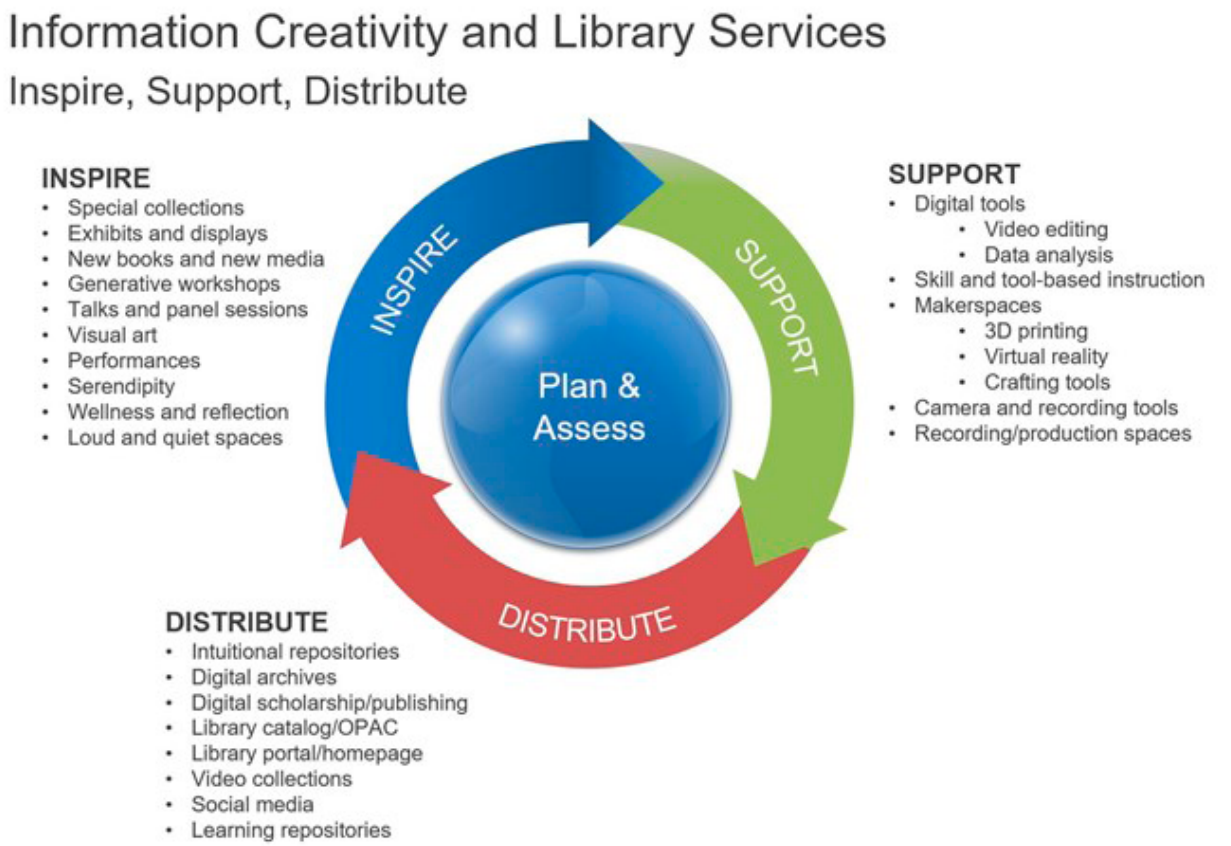
Information Literacy	Information Creativity
Dispositions/Values	**Dispositions/Values**
Authority as constructed and contextual	"What if?" experiment as resistance
Literacy; understanding symbols	Experience; sensation
Thresholds and understandings	Immediacy and skills
Information as data/content	Information as things/form; visualization
Scholarship as conversation	Spontaneity and expression
Arguments	Stories
Persuading an audience	Personal growth
Information has value	Reappropriation
Searching as strategic exploration	Serendipity through observation
Information creation as process	Information exploration
Knowledge Practices	**Knowledge Practices**
Locating information	(Re)presenting information
Identifying authority	Deauthorizing; speculative doubt
Breaking complex questions into simple ones	Hypothesizing and envisioning new connections
Demonstrating intellectual humility	Considering one's own experience and perspective
Evaluating authority	Making; *poesis*

It should be noted that the table's conceptual distinctions between literacy and creativity frameworks for library instruction are differences in emphasis rather than contradictions, such that each approach supports and enhances the other.

This typology compares the practices and values that might be emphasized in information literacy and information creativity learning sessions. However, this mirrored opposition obscures an important distinction between information literacy and creativity: like literacy, creativity is a skill one may learn or a disposition one may cultivate, but it is also an *activity* of creative production, one that invites libraries to adopt a wider and more systematic view of their efforts to foster, and perhaps measure, creative productivity.[90] Such an approach would not only inform the design and assessment of activities and workshops in which creativity is encouraged, but would also assist librarians across departments in coordinating services that are less recognizably linked to information literacy instruction. It may be useful to think of these activities as elements of an inspire–support–distribute model or cycle of information creativity, as illustrated in Figure 3.

In this model, activities such as creative workshops, exhibits, performances, and many archival and special collections instruction sessions (for example, those incorporating what has been called a *wunderkammer* element) could be classed as services that serve to inspire creative activity.[91] Likewise, library efforts to provide tools, space, instruction, and time for creating digital and material objects—whether such efforts take the form of makerspaces, digital tools, loaned equipment, or support for data analytics or video production—could be categorized as services that facilitate creativity. When libraries publish or showcase creative work (for example, in institutional repositories or via open-publishing initiatives) and cultivate conversations about the work produced by members of their communities, they are distribut-

FIGURE 3
The Inspire–Support–Distribute Cycle



ing creative outputs back into the community, serving to foster new creative inspiration in a virtuous cycle.

Although the oppositions presented in Table 1 and the cycle depicted in Figure 2 are only schematic representations (like Dewey's conceptual diagram of a library in a school), they nevertheless suggest some possibilities for coordinating library services and programs that are too often viewed as piecemeal and disparate. A framework for information creativity could remind community stakeholders of the value of libraries as engines of creativity[92] and could help libraries develop approaches to supporting creativity as a goal in its own right.

Conclusion

Although the ACRL *Framework* provides significantly greater scope for creativity than the statements that preceded it, its central metaphor for information literacy emphasizes the acquisition of threshold skills as preparation for future creativity. This deferral of creative activity suggests the need for information creativity educational practices that focus on immediacy, reflective experience, and personal growth, as well as workshops focused on tools that can be used immediately. The widespread acknowledgement of the importance of information literacy among college and university instructors and administrators is an achievement to be celebrated and strengthened, but it is worth asking whether an overly unipolar insistence that "information literacy is *the* central and underlying priority of all library activities" has proven to be a limiting approach.[93] Indeed, if the term *literacy* has become sufficiently broad to describe all possible

forms of library instruction, one might wonder whether the term has become so broad that it has lost its usefulness in the absence of a contrasting instructional principle.

In the United States, the back-to-basics movement achieved its crowning success in 2001 with the passage into law of the No Child Left Behind Act, which emphasized phonics-based literacy instruction and introduced more standardized testing into public schools. In subsequent years, however, US public schools gradually adopted a more balanced approach to literacy instruction, in which the teaching of phonics occurred alongside activities designed to promote creative work and intrinsic motivation—a balancing that recalls Dewey's belief that traditional and progressive models of education are not always mutually exclusive.[94] Libraries are well positioned to develop practices for inspiring, supporting, and distributing creative production in the context of a more bipolar, or balanced, approach to library instruction and services—and to assess and present these practices in ways that demonstrate the value of libraries in supporting the individual and social creativity of students, faculty, and members of the larger community.[95]

In outlining the potential usefulness of a framework for information creativity, this paper has pointed out some limitations, historical and conceptual, of literacy and threshold-based approaches. Of course, it should be emphasized that despite these limitations, the need for libraries to provide and expand information literacy instruction has never been more urgent. However, just as libraries developed information literacy as a response to the real and imagined needs of the 1980s, the present moment calls for an approach that responds to the growing interest in creativity evident across a range of instructional, civic, and commercial contexts, and the need to respond wisely and justly to the growing challenges that now confront social and individual creativity.

This paper takes up the work of John Dewey as a useful and widely known orienting perspective rather than as a limit, bearing in mind the important question posed by Paul C. Taylor, of "whether and how much to appeal to the mighty dead in contexts that don't reward the invocation."[96] When contextually appropriate, and when viewed in connection with its many interlocutors, Dewey's educational philosophy offers a useful frame of reference for conceptualizing library approaches to information creativity. As employers and universities continue to emphasize creativity's value as a practice and skill, libraries should consider the potential value of developing approaches for supporting the creativity of their patrons and for articulating a vision of libraries as sites of expansive forms of experiential reflection and creativity—capacities that can strengthen democratic communicative norms and underwrite both progressive social justice and individual human flourishing.[97]

Notes

1. Creativity became a topic of active discussion in the 1950s following a presidential address by Joy Paul Guilford to the American Psychological Association, later published as Joy Paul Guilford, "Creativity," *American Psychologist* 5 (1950): 444–54. See also Harold Anderson, ed., *Creativity and Its Cultivation* (New York: Harper & Brothers, 1959).

2. Google Books Ngram Viewer, "*creativity* and *literacy*, 1930–2019," accessed December 29, 2020, https://books.google.com/ngrams/graph?content=literacy%2Ccreativity&year_start=1930&year_end=2019&corpus=26&smoothing=3. On ngram methodology and limitations, see Jean-Baptiste Michel et al., "Quantitative Analysis of Culture Using Millions of Digitized Books," *Science* 331, no. 6014 (January 2010): 176–82, https://doi.org/10.1126/science.1199644, and Eitan Adam Pechenick, Christopher M. Danforth, and Peter Sheridan Dodds, "Characterizing the Google Books Corpus: Strong Limits to Inferences of Socio-Cultural and Linguistic Evolution," *PLoS ONE* 10, no. 10 (October 2015), https://doi.org/10.1371/journal.pone.0137041.

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5. Paul Petrone, "The Skills Companies Need Most in 2019 – And How to Learn Them" (LinkedIn, 2018), accessed April 14, 2020, https://www.linkedin.com/business/learning/blog/top-skills-and-courses/the-skills-companies-need-most-in-2019-and-how-to-learn-them. Graeme Evans, "Creative Cities, Creative Spaces and Urban Policy," *Urban Studies* 46, nos. 5–6 (May 2009): 1003–40, https://doi.org/10.1177/0042098009103853. Beckie Supiano, *The Creativity Challenge: Teaching Students to Think outside the Box* (Washington, DC: The Chronicle of Higher Education, 2020). Katja Thoring et al., "Creative Environments for Design Education and Practice: A Typology of Creative Spaces," *Design Studies* 56 (May 2018): 54–83, https://doi.org/10.1016/j.destud.2018.02.001. Examining data from LinkedIn, Microsoft's online employment service, Petrone, finds that creativity was the most valued soft skill among those hiring through LinkedIn.

6. James C. Kaufman and Robert J. Sternberg, *The Cambridge Handbook of Creativity* (Cambridge, UK: Cambridge University Press, 2019), 19. R. Keith Sawyer, *Explaining Creativity: The Science of Human Innovation*, 2nd ed. (New York: Oxford University Press, 2012). Note, however, that despite the shift away from viewing creativity as an attribute of solitary genius, creativity research supports the value of both individual reflection and group collaboration; see Bernard A. Nijstad, Michael Diehl, and Wolfgang Stroebe, "Cognitive Stimulation and Interference in Idea-Generating Groups," in *Group Creativity: Innovation through Collaboration*, ed. Paul B. Paulus and Bernard A. Nijstad (New York: Oxford University Press, 2003), 137–59. The study carrel in the bookstacks and the collaborative makerspace or seminar room can be mutually supportive, to put it in library terms.

7. Glăveanu and Kaufman, "Creativity: A Historical Introduction," in *The Cambridge Handbook of Creativity*, 2nd ed., ed. James C. Kaufman and Robert J. Sternberg (Cambridge, UK: Cambridge University Press, 2019), 9–26. On the academic value of creativity, see Aleksandra Gajda, Maciej Karwowski, and Ronald A. Beghetto, "Creativity and Academic Achievement: A Meta-Analysis," *Journal of Educational Psychology* 109, no. 2 (2017): 1–31.

8. ACRL, *Framework for Information Literacy for Higher Education* (2016), https://www.ala.org/acrl/standards/ilframework.

9. Peter N. Miller, "Is 'Design Thinking' the New Liberal Arts?" *Chronicle of Higher Education*, April 3, 2015.

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15. Duncan Bell, "What Is Liberalism?" *Political Theory* 42, no. 6 (December 2014): 682–715, https://doi.org/10.1177/0090591714535103.

16. Patrick J. Deneen, *Why Liberalism Failed* (New Haven, CT: Yale University Press, 2019), 19. Dewey's ideas are a primary target of Deneen's influential book.

17. Megan Oakleaf, *Value of Academic Libraries: A Comprehensive Research Review and Report* (Chicago: Association of College and Research Libraries, 2010), 54–55. John Walsh, *Information Literacy Instruction: Selecting an Effective Model* (Oxford, UK: Chandos Publishing, 2011), 57–59.

18. Sophie Bury, "Faculty Attitudes, Perceptions and Experiences of Information Literacy: A Study across Multiple Disciplines at York University, Canada," *Journal of Information Literacy* 5, no. 1 (2011): 45–64. See also Oakleaf, *Value of Academic Libraries*, 55. Bury cites her own survey results and several previous studies as establishing that "faculty believe strongly in the importance of information literacy instruction," 51.

19. Jim Cummings, "Literacy Policy and Curriculum," in *The Routledge Handbook of Literacy Studies*, ed. Jessica Rowsell and Kate Pahl (New York: Routledge, 2015), 231. Ronald W Evans, *Fear and Schooling: Understanding the Troubled History of Progressive Education* (New York: Routledge, 2020). Dana Goldstein, "An Old and Contested Solution to Boost Reading Scores: Phonics," *New York Times*, February 15, 2020, https://www.nytimes.com/2020/02/15/us/reading-phonics.html.

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21. Robert B. Westbrook, *John Dewey and American Democracy* (Ithaca: Cornell University Press, 1991), 386.

22. Joseph Margolis, *Reinventing Pragmatism: American Philosophy at the End of the Twentieth Century* (Ithaca: Cornell University Press, 2002).

23. Thomas Fallace, "John Dewey and the New Left, 1960–1988," *Journal of Curriculum Studies* 52, no. 5 (2020): 12. See also Judy Whipps and Danielle Lake, "Pragmatist Feminism," Stanford Encyclopedia of Philosophy, November 19, 2020, https://plato.stanford.edu/archives/win2020/entries/femapproach-pragmatism/.

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25. See Thomas D. Fallace, *Dewey and the Dilemma of Race: An Intellectual History, 1895–1922* (New York: Teachers College Press, 2010); Paul C. Taylor, "The Influence of Dewey on Race Theory," *Harvard Review of Philosophy*, 26 (July 2019): 23–36, https://doi.org/10.5840/harvardreview201991922; and Shannon Sullivan, "(Re)Construction Zone: Beware of Falling Statues," in *In Dewey's Wake: Unfinished Work of Pragmatic Reconstruction*, ed. William J. Gavin (Albany: State University of New York Press, 2003), 109–28; On Dewey, race, and indigeneity, see Matthew Villeneuve, "Instrumental Indians: John Dewey and the Problem of the Frontier for Democracy in Indigenous Education, 1884-1959," PhD diss., (University of Michigan, 2021). https://doi.org/10.7302/2968.

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27. Ira Shor, *Culture Wars: School and Society in the Conservative Restoration* (Chicago: University of Chicago Press, 1992). National School Boards Association, "Back-To-Basics. NSBA Research Report 1978-1" (Washington, DC: National School Boards Association, 1978), https://eric.ed.gov/?q=Back-To-Basics.+NSBA+Research+Report+1978&id=ED149483.

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29. Keith Gilyard, "African American Contributions to Composition Studies," *College Composition and Communication* 50, no. 4 (June 1999): 626–44, https://doi.org/10.2307/358484.

30 Merrill Sheils, "Why Johnny Can't Write," *Newsweek*, December 8, 1975, 58–63. The title of Sheils's *Newsweek* cover story refers to Rudolf Flesch's 1955 *Why Johnny Can't Read* (see note 28 above).

31. Pines, *Back to Basics: The Traditionalist Movement That Is Sweeping Grass-Roots America*. Pines makes this point in the very subtitle of his book.

32. David P. Gardner et al., *A Nation at Risk: The Imperative for Educational Reform* (Washington, DC: Government Printing Office, 1983).

33. Gardner et al., *A Nation at Risk*, 5.

34. ALA Presidential Committee on Information Literacy.

35. Trish Ridgeway, "Information Literacy: An Introductory Reading List," *College & Research Libraries News* 51, no. 7 (August 1990): 645.

36. ALA Presidential Committee on Information Literacy.

37. Association of College and Research Libraries, *Final Report of the White House Conference on Library and Information Services* (Washington, DC: National Commission on Libraries and Information Science, 1980), 9.

38. Richard Ohmann, "The Decline in Literacy Is a Fiction, if Not a Hoax," *Chronicle of Higher Education*, October 25, 1976, 32.

39. James W. Guthrie and Matthew G. Springer, *"A Nation at Risk* Revisited: Did 'Wrong' Reasoning Result in 'Right' Results? At What Cost?" *Peabody Journal of Education* 79, no. 1 (2004): 7–35. Jal Mehta, "Escaping the Shadow: 'A Nation at Risk' and Its Far-Reaching Influence," *American Educator* 39, no. 2 (Summer 2015): 20–26,

https://eric.ed.gov/?id=EJ1064157.

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41. ALA Presidential Committee on Information Literacy.

42. Harvey J. Graff, "The Literacy Myth at Thirty," in *Literacy Myths, Legacies & Lessons* (New Brunswick, NJ: Transaction Publishers, 2011), 49.

43. Brian Street and Niko Besnier, "Aspects of Literacy," in *Companion Encyclopedia of Anthropology*, ed. Tim Ingold (Abingdon, UK: Routledge, 2002), 527

44. Ken Macrorie, *The I-Search Paper* (Portsmouth, NH: Heinemann, 1988). Peter Elbow, *Embracing Contraries: Explorations in Learning and Teaching* (New York: Oxford University Press, 1987).

45. The ACRL *Framework* indicates support for creative practice at several points. For example, the "Searching as Strategic Exploration" frame emphasizes the "often non-linear and iterative" nature of searching for information, describing it as a process "encompassing inquiry, discovery, and serendipity," and the frame "Scholarship as Conversation" encourages students to "see themselves as contributors to scholarship rather than only consumers of it."

46. Benjamin Bloom, *Taxonomy of Educational Objectives: The Classification of Educational Goals. Handbook 1: Cognitive Domain* (New York: McKay, 1956), 162; see also 65. Note, however, that placing creativity at the top of a conceptual pyramid, as many representations of Bloom's taxonomy do, is problematic from a Deweyan perspective.

47. Lorin Anderson et al., *Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives*, complete ed. (New York: Pearson, 2000), 240, 266. On the use of taxonomies in information literacy instruction, see Walsh, *Information Literacy Instruction*, 70–86.

48. Boyer Commission, *Reinventing Undergraduate Education: A Blueprint for America's Research Universities* (Princeton, NJ: Carnegie Foundation for the Advancement of Teaching, 1998), https://eric.ed.gov/?id=ED424840. Association of American Colleges and Universities, "Creative Thinking VALUE Rubric," 2009. Association of College and Research Libraries, Information Literacy Competency Standards (Chicago: ACRL, 2000), http://hdl.handle.net/11213/7668. On the Boyer Report, see Randy Burke Hensley, "Curiosity and Creativity as Attributes of Information Literacy," *Reference & User Services Quarterly* 44, no. 1 (October 2004): 31–36. For a discussion of creativity as an aspect of library instructional practice, see Erinn Batykefer and Laura Damon-Moore, *Incubating Creativity at Your Library* (Chicago: ALA Editions, 2019).

49. David Bawden, "Information and Digital Literacies: A Review of Concepts," *Journal of Documentation* 57, no. 2 (April 2001): 221, https://doi.org/10.1108/EUM0000000007083.

50. Christine Pawley, "Information Literacy: A Contradictory Coupling," *Library Quarterly* 73, no. 4 (October 2003): 425, https://doi.org/10.1086/603440.

51. James Elmborg, "Critical Information Literacy: Implications for Instructional Practice," *Journal of Academic Librarianship* 32, no. 2 (March 2006): 192–9, https://doi.org/10.1016/j.acalib.2005.12.004. See also Elmborg's remarks on Dewey, 196, and Heidi L. M. Jacobs, "Information Literacy and Reflective Pedagogical Praxis," *Journal of Academic Librarianship* 34, no. 3 (May 2008): 256–62. For a redefinition of literacy, Jacobs turns to Rebecca Powell in addition to Freire.

52. Annie Downey, *Critical Information Literacy: Foundations, Inspiration, and Ideas* (Sacramento, CA: Library Juice Press, 2016). For a broader review of approaches to Freire's work, see Peter Mayo, *Interpretations of Freire's Work – A Critical Review, Liberating Praxis* (Leiden: Brill, 2008), https://doi.org/10.1163/9789004406124_003.

53. Paulo Friere, Foreword, in Ira Shor, *Culture Wars: School and Society in the Conservative Restoration* (Chicago: University of Chicago Press, 1992).

54. Diana Coben, *Radical Heroes: Gramsci, Freire and the Politics of Adult Education* (New York: Routledge, 2015), 72.

55. Paulo Freire and Donaldo Macedo, *Pedagogy of the Oppressed*, trans. Myra Bergman Ramos, 30th anniversary ed. (New York: Continuum, 2000), 84, 176.

56. John Dewey, "Creative Democracy – The Task before Us," in *The Later Works of John Dewey, 1925–1953, Volume 14: 1939–1941, Essays, Reviews, and Miscellany*, ed. Jo Ann Boydston (Carbondale: Southern Illinois University Press, 2008). In this essay, Dewey asserts that "democracy is belief in the ability of human experience to generate the aims and methods by which further experience will grow in ordered richness," with the consequence that "the task of democracy is forever that of creation of a freer and more humane experience in which all share and to which all contribute," 229.

57. The founders of critical pedagogy often emphasized this kinship. See Stanley Aronowitz and Henry A. Giroux, *Education under Siege: The Conservative, Liberal and Radical Debate over Schooling* (London: Routledge, 1986); Maxine Greene, "In Search of a Critical Pedagogy," *Harvard Educational Review* 56 (November 1986): 427–41; and Ira Shor, "What Is Critical Literacy?" *Journal of Pedagogy, Pluralism, and Practice* 1, no. 4 (January 1999): 2–32. See also Thomas Fallace, "John Dewey and the New Left, 1960–1988," *Journal of Curriculum Studies* 52, no. 5 (2020):

593–607. Freire himself cited Dewey only once in his published works. In a footnote to his essay "Education as the Practice of Freedom," Freire remarked wryly that "on the subject of originality, I have always agreed with Dewey" while refuting accusations that he "plagiarized European or North-American educators." Paulo Freire, "Education as the Practice of Freedom," in *Education for Critical Consciousness*, trans. Myra Bergman Ramos (New York: Seabury Press, 1973), 57. Fallace, "John Dewey and the New Left," 8, appears to overlook this reference by Freire. Freire's reluctance to elucidate the relationship between his writings and Dewey's has left the nature of this relationship open to speculation.

58. On Dewey's conception of inquiry, see William R. Caspary, "Education for Democratic Citizenship from Critical Thinking to Inquiry Learning," in *The Handbook of Dewey's Educational Theory and Practice*, ed. Charles L. Lowery and Patrick M. Jenlink (Leiden: Brill, 2019), 113–33. See also Johnston, *Inquiry and Education: John Dewey and the Quest for Democracy* (New York: State University of New York Press, 2006).

59. Carol Kuhlthau, "Rethinking the 2000 ACRL Standards: Some Things to Consider," *Communications in Information Literacy* 7, no. 2 (2013): 92.

60. ACLR, *Framework for Information Literacy*. Dewey's most celebrated definition of inquiry appeared in his 1938 *Logic*, where it was described in terms of a problem or "indeterminate situation" that is transformed into a "unified whole." John Dewey, *Logic: The Theory of Inquiry*, in *The Later Works of John Dewey, 1925–1953, Volume 1, 1925–1953*, ed. Jo Ann Boydston (Carbondale: Southern Illinois University Press, 2008), 108. Note, however, that this dialectical account of inquiry is not the only one Dewey provided; see James Scott Johnston, *Inquiry and Education:*

61. Carol C. Kuhlthau, Leslie K. Maniotes, and Ann K. Caspari, *Guided Inquiry: Learning in the 21st Century*, 2nd ed. (Santa Barbara: ABC-CLIO, 2015), 16. See also William Herman and Michele Pinard, "Critically Examining Inquiry-Based Learning: John Dewey in Theory, History, and Practice," in *Inquiry-Based Learning for Multidisciplinary Programs*, ed. Patrick Blessinger and John M. Carfora (Bingley, UK: Emerald Publishing Limited, 2015), 43–62.

62. See Alison Hicks and Annemaree Lloyd, "Deconstructing Information Literacy Discourse: Peeling Back the Layers in Higher Education," *Journal of Librarianship and Information Science*, October 26, 2020, https://doi.org/10.1177/0961000620966027.

63. David Hildebrand, "John Dewey," Stanford Encyclopedia of Philosophy, November 1, 2018, https://plato.stanford.edu/archives/fall2021/entries/dewey/.

64. John Dewey, "Our Illiteracy Problem," in *The Later Works of John Dewey, 1925–1953, Volume 5: 1929–1930*, ed. Jo Ann Boydston (Carbondale: Southern Illinois University Press, 2008), 312–19. Pawley, "Information Literacy," 425.

65. John Dewey, *Democracy and Education*, in *The Middle Works of John Dewey, Volume 9, 1899–1924*, ed. Jo Ann Boydston (Carbondale: Southern Illinois University Press, 2008), 12.

66. See Dewey's observations on literacy and the rise of fascism in Germany in John Dewey, *Freedom and Culture*, in *The Later Works of John Dewey, Volume 13, 1925–1953*, ed. Jo Ann Boydston (Carbondale: Southern Illinois University Press, 2008), 91–94.

67. John Dewey, *Experience and Education*, in *The Later Works of John Dewey, Volume 13, 1925–1953*, ed. Jo Ann Boydston (Carbondale: Southern Illinois University Press, 2008), 7. See also "The Primary Education Fetich," in John Dewey, *The Early Works, 1882–1898: Early Essays, 1895–1898*, ed. Jo Ann Boydston (Carbondale: Southern Illinois University Press, 2008), 254–68.

68. John Dewey, "Moral Principles in Education," in *The Middle Works of John Dewey, Volume 4: 1899–1924*, ed. Jo Ann Boydston (Carbondale: Southern Illinois University Press, 2008), 272. Dewey, *Democracy and Education*, 149.

69. Dewey, *Experience and Education*, 29.

70. On the three Rs and literacy, see Dewey, *Democracy and Education*, 200.

71. Dewey, *Experience and Education*, 51.

72. David Perkins, "Constructivism and Troublesome Knowledge," in *Overcoming Barriers to Student Understanding: Threshold Concepts and Troublesome Knowledge*, ed. Jan Meyer and Ray Land (New York: Routledge, 2006). On the limits of threshold-concept theory, see also Elizabeth Wardle et al., "Recognizing the Limits of Threshold Concept Theory," in *(Re)Considering What We Know: Learning Thresholds in Writing, Composition, Rhetoric, and Literacy*, ed. Linda Adler-Kassner and Elizabeth Wardle (Logan: Utah State University Press, 2020), 15–35.

73. John Dewey, *Art as Experience*, in *The Later Works of John Dewey, Volume 10, 1925–1953*, ed. Jo Ann Boydston (Carbondale: Southern Illinois Press, 2008), 336.

74. Dewey, *Art as Experience*, 338.

75. Paul C. Taylor, *Black Is Beautiful: A Philosophy of Black Aesthetics* (Malden, MA: Wiley, 2016), 92.

76. John Dewey, *Democracy and Education*, 101.

77. Beth Hennessey, "Creativity in the Classroom," in *The Creativity Reader*, ed. Vlad Glaveanu (New York:

Oxford University Press, 2019), 269–88.

78. Ralph Hallman, "The Concept of Creativity in Dewey's Educational Philosophy," *Educational Theory*, no. 17 (1967): 3–13.

79 See Gopnik, "Childhood as a Solution," and Lucas et al., "When Children Are Better." Louise M. Rosenblatt, *Literature as Exploration*, 5th ed. (New York: Modern Language Association of America, 1995), 27.

80. John Dewey, *The School and Society*, in *The Middle Works of John Dewey, Volume 1, 1899–1924*, ed. Jo Ann Boydston (Carbondale: Southern Illinois Press, 2008), 105.

81. John Dewey, *The Child and the Curriculum*, in *The Middle Works of John Dewey, Volume 2, 1899–1924*, ed. Jo Ann Boydston (Carbondale: Southern Illinois University Press, 2008), 48.

82. Dewey, *The Child and the Curriculum*, 53.

83. Edith A. Lathrop, "The Library and the Modern School," in *Normal Instructor and Primary Plans* 40, no. 1 (November 1930): 64, 74. Azile Wofford, "School Library Evolution," *Phi Delta Kappan* 22, no. 6 (1940): 285–91.

84. John Dewey, *The Public and Its Problems*, in *The Later Works of John Dewey, Volume 2, 1925–1953: 1925–1927*, ed. Jo Ann Boydston (Carbondale: Southern Illinois University Press, 2008), 349.

85. Dewey, *The Public and Its Problems*, 350. Dewey's views here on art and news recall his youthful involvement in a failed effort to create *Thought News*, a newspaper in which events of the day would be made whole by being treated in a philosophical and artistic way. See Lewis S. Feuer, "John Dewey and the Back to the People Movement in American Thought," *Journal of the History of Ideas* 20, no. 4 (October 1959): 545–68, https://doi.org/10.2307/2707891.

86. Dewey, *The Public and Its Problems*, 350.

87. On the potential for libraries to play a role in community news organizations, see Chris LeBeau, "Libraries and Local News: Expanding Journalism, Another User Service Grounded in Reference," *Reference & User Services Quarterly* 57, no. 4 (2018): 234–37. Mark Nonkes, "When a Small Market Newspaper Closes: A Literature Review," *Emerging Library & Information Perspectives* 3, no. 1 (October 2020): 157–83, https://doi.org/10.5206/elip.v3i1.8596.

88. John Dewey, "Introduction," in Henry Evelyn Bliss, *The Organization of Knowledge and the System of the Sciences* (New York: H. Holt and Company, 1929), vii–ix. John Dewey, *Report and Recommendation upon Turkish Education*, in *The Middle Works, 1899–1924*, ed. Jo Ann Boydston (Carbondale: Southern Illinois University Press, 2008), 299–320. John Dewey, "The Russian School System," in *The Later Works of John Dewey, 1925–1953, Volume 15: 1923–1924*, ed. Jo Ann Boydston (Carbondale: Southern Illinois University Press, 2008). See also James Elmborg, "The Other Dewey: John Dewey's *Democracy and Education* and Information Literacy," in *Student Engagement and Information Literacy*, ed. Craig Gibson (Chicago: Association of College and Research Libraries, American Library Association, 2006), 1–15.

89. An earlier version of this definition appears in Mark Dahlquist, "'Begin with a Moment:' A Pilot Study of a Method for Supporting Information Creativity in First Year Writing Instruction." Paper presented at Library Instruction Tennessee Conference, Clarksville, TN, June 3, 2019. https://hdl.handle.net/2374.MIA/6415

90. Jela Steinerova, "Looking for Creative Information Strategies and Ecological Literacy," in *Information Literacy: Moving Toward Sustainability*, Communications in Computer and Information Science 552 (Switzerland: Springer, 2015), 3–12.

91. Martin Aurand, "Teaching and Learning with Collections: The Library as a Site for Exploration and Inspiration," *Art Documentation: Journal of the Art Libraries Society of North America* 30, no. 1 (April 2011): 12–20, https://doi.org/10.1086/adx.30.1.27949562.

92. On the popular association between creativity and libraries, see John B. Horrigan, "Libraries 2016" (Washington, DC: Pew Research Center, September 2016), 8, http://www.pewinternet.org/2016/09/09/2016/Libraries-2016/.

93. Patricia Durisin, *Information Literacy Programs: Successes and Challenges* (New York: Routledge, 2002), 128.

94. Taylor V. Gara, Liane Brouillette, and George Farkas, "Did the Frequency of Early Elementary Classroom Arts Instruction Decrease during the No Child Left Behind Era? If So, for Whom?" *Early Childhood Research Quarterly* 45 (October 2018): 263–76, https://doi.org/10.1016/j.ecresq.2018.01.004. Dominic Wyse and Alice Bradbury, "Reading Wars or Reading Reconciliation? A Critical Examination of Robust Research Evidence, Curriculum Policy and Teachers' Practices for Teaching Phonics and Reading," *Review of Education* 10, no. 1 (2022): e3314, https://doi.org/10.1002/rev3.3314. Dewey, *Experience and Education*, 62.

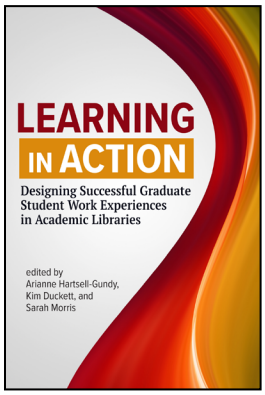
95. Cheng-Ping Chang et al., "The Influence of Students Information Literacy Competency on Creativity under the Regulation of Classroom Climate," *Creative Education* 7 (January 2016): 1551–60, https://doi.org/10.4236/ce.2016.711160. Jonathan A. Plucker, Matthew C. Makel, and Meihua Qian, "Assessment of Creativity," in *The Cambridge Handbook of Creativity*, ed. James C. Kaufman and Robert J. Sternberg (Cambridge, UK: Cambridge University Press, 2019), 44–68, https://doi.org/10.1017/9781316979839.005. James C. Kaufman, Jonathan A. Plucker, and John Baer, *Essentials of Creativity Assessment* (Hoboken, NJ: John Wiley & Sons, 2008).

96. Taylor, "The Influence of Dewey on Race Theory," 35.

97. See Hans Joas, "The Inspiration of Pragmatism," in *The Revival of Pragmatism: New Essays on Social Thought, Law, and Culture*, ed. Morris Dickstein (Durham, NC: Duke University Press, 1998), 190–198; James, "Pragmatism and Radical Social Justice"; Susan Dieleman, David Rondel, and Christopher Voparil, eds., *Pragmatism and Justice*, 1st ed. (New York: Oxford University Press, 2017); Veith Selk and Dirk Jörke, "Back to the Future! Habermas and Dewey on Democracy in Capitalist Times," *Constellations* 27, no. 1 (2020): 36–49, https://doi.org/10.1111/1467-8675.12423.

Book Reviews

Learning in Action: Designing Successful Graduate Student Work Experiences in Academic Libraries. Arianne Hartsell-Gundy, Kim Duckett, and Sarah Morris, eds. Chicago, IL: ACRL Editions, 2022. 272p. Paper, $86 (ISBN: 978-0-8389-3680-1).



Learning in Action: Designing Successful Graduate Student Work Experiences in Academic Libraries, edited by Arianne Hartsell-Gundy, Kim Duckett, and Sarah Morris, describes a wide range of case studies and learning experiences dedicated to graduate student employment at academic libraries across the United States and Canada. A broad range of institutions are represented, from R1 to smaller schools, as well as universities with and without an LIS program.

Each of four sections includes chapters written by librarians who have created, implemented, surveyed, and/or reimagined their library's graduate student work programs. Many chapters emphasize the need to increase diversity in academic libraries while providing graduate students with experiential learning, mentoring opportunities, practical professional skills, and pathways to employment. The shared goal across chapters is to give future academic library professionals meaningful experiences that will provide them with the tools to succeed in their future careers.

As noted throughout the book, it is important to provide graduate student employees with a sense of belonging and agency, not merely tasks to complete. Involving graduate workers in library committees, communications, and staff development are effective ways to prepare future employees for the organizational culture of libraries and for academia in general. LIS student employment also helps provide context for concepts learned in the classroom that can be abstract in the absence of hands-on experiences.

The first three parts of the book focus on designing, building, and assessing graduate student practicums and similar opportunities. "Creating Access Pathways" details the barriers that both students and employers may face when trying to participate in or implement experiential opportunities for graduate students. Several chapters refer to the cost of these opportunities, financial and otherwise, as well as the dedicated staff time and effort it takes to run and grow them to be more effective for future participants. Authors also point to the need to increase diversity in academic libraries through intentional recruitment. Flexible and hybrid options, especially during and after the COVID-19 pandemic, are also crucial. Because the book was produced during the height of the pandemic, many chapters address the changing nature of academia, libraries, and student employment in this new era.

While most case studies and examples address working with LIS graduate students, the book's third section discusses working with graduate students without that background. These chapters are especially relevant for libraries that want to build opportunities for graduate students across campus. Leveraging campus partnerships can help libraries make the most of their non-LIS graduate student employees. As a librarian who works at an institution without an LIS degree program, I found this section especially pertinent as it clarifies the ways that

graduate students can contribute to my library's initiatives, even without an LIS background or coursework.

Part 4, "Centering the Person," addresses the need for academic libraries to step away from a one-job-fits-all approach and toward an empathy-driven employment structure for graduate students. This chapter will be especially useful to managers, supervisors, and mentors of graduate student assistants who want to understand and collaborate better with their employees. It is important to note that employing graduate students is not just beneficial to the library, but also to the student who wants to gain meaningful work experience before facing the extremely competitive academic library job market. This is a helpful reminder to librarians, who were themselves at one point LIS students, to remember what it was like to be hungry for information and experiences that would give them the edge while on the job hunt.

"Voices from the Field" anecdotes included throughout the text, feature graduate student employees sharing what they learned and gained from their experience working in the academic library. These personal stories provide important context that supports the need to implement and reimagine graduate student employment and the impact it has on future librarians and professionals. As contributor Allison Kittinger says, "the specific combination of courses and work responsibilities I had was ultimately crucial to my developing confidence in working in a library setting and a sense of preparedness for postgraduation academic library jobs" (114). Kittinger captures a truth first stated in the introduction: graduate students aren't our future colleagues, they *are* our colleagues. — *Maria Atilano, University of North Florida*

Brian Michael Murphy. *We the Dead: Preserving Data at the End of the World.* Chapel Hill, NC: University of North Carolina Press, 2022. 316 p. Hardcover $32.95 (ISBN: 9781469668284); ebook $23.99 (ISBN: 9781469668307). LCCN: 2021-058924.

Librarians tend to look askance at commentators on their work and profession from outside the guild. Henry Petroski, an engineer, wrote *Book on the Bookshelf* (1999), looking at the practical construction principles of bookshelves through history, and was never taken seriously by librarians—perhaps also in light of his (joking?) recommendations to arrange books on bookshelves by the author's first name, or by the first letter of the second-to-last word of the title. Umberto Eco's *Name of the Rose* (1981) was nothing if not a roman à clef about the perfidy of librarians hoarding secrets—which of course *we* know we never do. A final example, the pharaonic undertaking by two other outsiders, Sergey Brin and Larry Page, to create a universal digital library, was, as Deanna Marcum and Roger C. Schonfeld argue in *Along Came Google: A History of Library Digitization*, brought down largely through the opposition of major library organizations, ALA, ARL, and ACRL.

So now we have a book with "preserving data" in the subtitle that is decidedly *not* by a librarian, not even a digital librarian, but by a self-described "media archaeologist" (87). The author is also a poet and an essayist, not to mention dean of the college at Bennington. Like the other outsiders mentioned, Brian Michael Murphy makes disturbing, heretical observations, among them that "[t]he practice of data preservation is itself inherently toxic" (33); or that librarians "preserve through annihilation" (63). He even relates the will to preserve—which in our field is axiomatic—to what he (following André Bazin) calls the "Mummy Complex" (7), updated to today's world as the "data complex": a vast, extrasomatic matrix that aspires

to a kind of immortality independent of the human beings—us—who have given rise to it. In the data complex, humans do still play a role, though only as "human biochips… embedded in the cyborg of the data complex" (180). The entire history of preservation is in fact dubious. Murphy suggests that racism and eugenics were behind the preservation-minded time capsules of the earlier twentieth century, and that "surveillance capitalism" and atomic war fatalism provided the impetus to develop microfilm. Most disturbing of all is that the author makes a pretty good case for all these claims.

As for the job title media archaeologist, "archaeology" in this context should be understood both in the literal sense—physically excavating or exhuming an otherwise lost past—and in the Foucauldian sense: digging (figuratively) to unearth the pre-logical, often pre-rational assumptions that drive our social, "surface" movements and beliefs.

In the literal sense of the word, "archaeological" well describes the—absolutely fascinating—journeys the author undertakes (and minutely describes) at numerous mega-archival sites across the United States: Iron Mountain in Boyers, Pennsylvania; the National Archives at College Park, Maryland ("Archives II"); the subterranean Greenbrier Bunker at White Sulfur Springs, West Virginia; Mount Pony in Colorado; and others. Some but by no means all these sites (especially Iron Mountain) are known to librarians and archivists as the ultimate "permanent" repositories for sensitive physical materials, among them photographic negatives, original recordings of classic songs, microfilm masters, and of course uncountable paper originals. These "data bunkers" also increasingly house servers storing petabytes (exabytes?) of born-digital government and corporate (e.g., banking) data. The incursions he describes, through blastproof doors and past heavily armed guards, do indeed recall the adventures of actual archaeologists, like Howard Carter opening the tomb of Tutankhamun or, more popularly, Indiana Jones defeating snakes and deadly booby traps to reach the extraordinary riches deep inside ancient tombs. (Mummy Complex indeed!) Once inside these repositories, astonishing riches of another kind await. For example, the eleven million original photographs of the Bettmann Archive are deep inside Iron Mountain. Of these eleven million, only 2.7 percent (300,000) have ever been digitized. (128) The Bettmann Archive was bought in 1995 by Bill Gates for an undisclosed amount, making him the owner of thousands of iconic images that are reproduced, for a fee, worldwide. Gates is a member of the class Murphy calls "vectoralists:" the "rulers of rulers" who control the originals of information, and who, by aggregating and manipulating huge troves of artifacts and data, have become the most powerful and wealthiest individuals on the planet. But as masters of the "data complex," they are actually only priests who serve what they appear to own, since the data complex has evolved from "a thing that we have to a thing that has us." To maintain their lofty status and wealth, the vectoralists must preserve their data, "obeying the call of the data complex to constantly seek more space for aggregating, preserving, and analyzing data" (13).

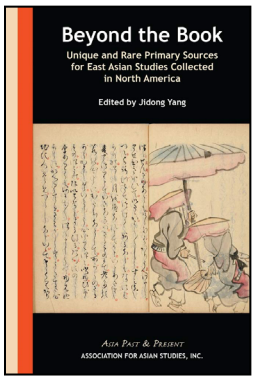
Somewhere in the middle of the last paragraph, we left the domain of "archaeology" in the traditional meaning of the word and entered into a largely abstract "archaeology" where the rules were formulated decades ago by French historian and cultural archaeologist Michel Foucault, a world in which (to use Murphy's terminology) our "biobodies" are accompanied non-physically by their respective, largely invisible "data bodies," which in turn often have greater value than people do to corporations and governments. The sum total of these data bodies comprise the "data complex," which ultimately is "in service to itself" and aspires to "a kind of data-based immortality" (11). This, then, is the origin of the "will to preserve."

But let's return to Archaeology 1.0, which is probably of most interest to librarians. Murphy is not hopeful about the prospects to permanently preserve archival objects, neither physical nor digital. Keeping physical artifacts permanently requires either hugely invasive chemical treatments or very expensive artificial environments of temperature or gas which are unlikely to be sustained over time. Data (artifacts included) "is subject to both foreseeable and unforeseeable disasters; the ultimate futility of all our attempts to preserve data permanently and fully securitize it against flood, fire, terrorism, hacking, sabotage, and the threat of its own chemical makeup. Even if the negatives [stored beneath the World Trade Center] hadn't been destroyed on 9/11, they would have naturally decayed within a century or so" (124).

So, the reality of "preservation" is often far removed from the value we attach to it and the vocabulary we choose to describe it. Case in point: One of the greatest misnomers of our digital world today is "the cloud," where we—including we individuals—send all our most valued data for safekeeping. This very cloud "does not exist immaterially in the air above our heads," but in servers buried deep in the interiors of remote mountains, or just very deep underground. All of this storage, especially when called a "cloud," allows us to harbor the illusion that our data bodies and our world will live on forever if we only… trust. With "preservation" in our minds, individually and collectively, we are torn "between oblivion and a fossilized eternity" (143).

This thought-provoking, often revelatory book is highly recommended for college and university libraries as well as for supplemental reading lists for graduate students in information science—and cultural studies, specifically cultural anthropology. It provides a context for the work of librarians that lends depth and—sometimes frightening—context to their work. — *Jeffrey Garrett, Northwestern University*

Beyond the Book: Unique and Rare Primary Sources for East Asian Studies Collected in North America. Jidong Yang, ed. New York: Columbia University Press, 2022. 368 pp. Hardcover, $60, (ISBN 9780924304989).



If information specialists are looking for a book about the unique collections of significant East Asian Libraries in North America, I heartily recommend *Beyond the Book.*

A compilation of presentations from a 2015 conference at Stanford University organized by Dr. Jidong Yang, each updated chapter begins with a brief history of the contributor's East Asian library and introduces some of their signature collections that go "beyond the book": letters, maps, pictures, films, sound recordings, etc. All of the contributing librarians and scholars are native or near-native language speakers in their respective fields, and they justifiably celebrate their worthy achievements. They have worked diligently to provide and improve access to their communities in response to donors' requests for each collection. Presented as a whole, readers can easily compare each individual effort and understand the complexities associated with specialized collections that must be made accessible to the public. These efforts have continued while the authors carefully balance several conflicting duties simultaneously, including day-to-day operations as well as deadlines for long-time goals.

What will impress readers of this book are the varied contents in long, rich histories in the regions, the diversity of viewpoints represented in each collection, and the complex digitization efforts to make them more broadly accessible.

The periods these collections cover represent the richness of East Asian cultures and histories. One of the earliest studies dates back to the papers on oracle bones from the eleventh century BCE in the Shang dynasty in China at Columbia's C.V. Starr East Asian Library. Some collections focus on premodern literature in Japan, including one of uncataloged Japanese manuscripts at the University of California, Berkeley. The majority of the chapters deal with collections from the colonial period in the late nineteenth century to the end of WWII and the Cold War era, including materials related to the Cold War in East Asia in the Hoover Archives.

None of the collection items are free from the bias of their culture and period of origin. Yet, the varied perspectives found throughout these collections make them an intriguing treasure for any researcher. Some are collections donated by American missionary families and the extensive collections of pictures taken by American sociologists. Considerable portions of the modern history of China and the East Asian regions after the nineteenth century are told from the perspectives of military personnel. The Gaihōzu maps created for military purposes were confiscated by US army and then distributed to academic institutions around the US. The Library of Congress holds enormous related collections for any researchers.

Many Japanese lived in North America when the Pacific War broke out. Some collections reveal their life stories in unique ways through distinctive perspectives, including a prominent US-based scholar and a repatriate to Japan who never returned to the US. Outside of academia, Japanese Canadian activists fought for their rights as citizens for many years after the war, a story documented at the University of Toronto Libraries.

Different perspectives on Korea are available in the collections described in this book, along with the viewpoint of American military officers in the Korean War, a high-profile family correspondence from the late Joseon dynasty, and an impressive collaboration between a pioneering female anthropologist in the US and three Korean officers who tried to reform their country. In addition, some contributors intentionally shed light on hard-to-discover portions of their collections. For example, thanks to a discussion of Korean materials in the William Elliot Griffis Collection at Rutgers University, I learned about this small but distinctive portion of the collection regarding the late Joseon dynasty in Korea, which was of immediate interest to a researcher I work with.

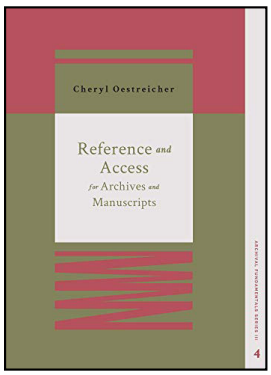
Once the cataloging and preservation process is complete and the collections are accessible for patrons onsite, contributors demonstrate how their institutions consider possible digitization of their collections for wider access. To solve such issues, some of them seek external grants and others require further collaboration efforts with external parties. For example, when Korean films from the early twentieth century were processed for preservation, one library hired a film student to examine the status of film reels and provide an inventory report. Then, in cooperation with the Korea Film Archive, the library selected the prioritized works for digitization and completed the process.

Many chapters also show how institutions have pursued and collaborated with the Library of Congress and other national libraries in their digitization efforts. The National Library of Korea conducted a reproduction project, including the collection of Korean manuscripts in Canada mentioned earlier. Japan's National Diet Library shared and digitized some portions of the same source with a US institution. Some of the contents in these collections are not suitable for online access due to copyright, political, and other sensitive issues of specific content. Nevertheless, each decision makes for an invaluable learning case for any libraries facing the same constraints.

These essays provide reliable guidance for librarians and information specialists to initiate the processing of their rare collections, including the cases at my institution. Furthermore, this book publicize East Asian Libraries in North America, which have been conscientiously serving significant stakeholders on institutional, regional, national, and international levels.

Finally, I would like to extend my sincere gratitude and respect to all the contributors and Dr. Yang, who stated that "the potential for digging out new East Asian studies resources is still endless." I hope this book encourages current library school students and aspiring scholars in the next generation to apply for East Asian Librarianship in North America. — *Mitsu Nakamura, Washington University in St. Louis*

Cheryl Oestreicher. *Reference and Access for Archives and Manuscripts,* (SAA) Archival Fundamentals Series III. Chicago, IL: Society of American Archivists, 2022. Edited by Peter J. Wosh. 195 pages. Paper, PDF, Kindle $69.00 (ISBN: 978-1-945246-40-1)



Reference and Access for Archives and Manuscripts by Cheryl Oestreicher is a comprehensive guide for archives and special collections workers published by the Society of American Archivists as part of the Archival Fundamentals Series III. The information is presented in a straightforward manner with the aim of describing and contextualizing the skills, policies, practices, and specific tasks of reference and access within the much-changed contemporary archival services landscape. Oestreicher is a new voice in the Fundamentals series on the topic of reference and access. Mary Jo Pugh admirably authored the previous iterations dating back to the first series in the 1990s up until the most recent 2005 edition.

Oestreicher's update is in many ways long overdue as the platforms, use, and users of archives have dramatically shifted. Still, the fundamental goal of all archival labor remains the same: access. As Oestreicher notes, "Archivists attend to tasks with access as the ultimate goal, from acquisition through processing" (2). Oestreicher thus situates reference and access work as central to the entire archives project, not merely beholden to it. The book's intended function is that of a manual and, as such, offers little explicit interrogation of archives and archival labor as sites of struggle. However, in the great detail and care with which Oestreicher unravels the specifics of our archival labor one cannot help but find solidarity: *this is what my work looks like, too.*

Oestreicher divides the book into thirteen chapters that can be read in any sequence. The first two, "Contextualizing Reference within an Archives Program" and "Reference Skills and Knowledge," provide a broad overview, while the remainder delve more deeply into the specifics of the work. Chapters on "Users," "Reference Interaction," and "Intellectual and Physical Access" bring fresh perspectives to well-worn territory and clarify that Oestreicher is aware of work on the ground and in scholarship that has problematized and reimagined that work. Indeed, the acknowledgements and appendixes attest to the deep research and work she engaged in order to understand different practices across different types of repositories and institutions.

Chapter 7, "Virtual Access," offers entirely new content that is no longer merely speculative about the future of archival access in the "digital age." Sections on digitization, digital collections, access and preservation systems, and digital research methods now benefit from specific examples that will encourage interested readers to learn more. There is still plenty of room for expanded discussion of these developments in the field. For example, given the

rate of adoption of ILL practices in archives and special collections, Oestreicher's treatment of Interlibrary Loan will likely be much more robust in the next edition.

Oestreicher expands on and in some cases completely departs from much of the guidance of the previous volumes. For example, in chapter 4's section Dealing with Difficult Patrons, Oestreicher takes a decidedly more worker-centric and empathetic view. She steers us away from "the customer is always right" and instead centers the experience of the archivist in dealing with difficult situations. She suggests that workers call a supervisor for help when things get tense and "thoroughly document" ongoing or extreme instances of abuse from patrons (49). Oestreicher then addresses the stress difficult situations can cause and recommends specific techniques to alleviate it.

Whether intentional or not, throughout the book Oestreicher gives us the language and framework to make archival labor more visible. For example, in chapter 5 she encourages adding specific explanatory context for why certain rules exist in the documentation we provide to researchers. When dealing with outdated audiovisual materials that users (often incorrectly) assume we can provide access to, she suggests that "openly communicating the challenges, such as the cost of equipment or reformatting" (59), can help us educate users about the specifics of our work and the challenges posed by limited resources.

Oestreicher's professional guidance responds to many of the ethical concerns that archivists are currently grappling with in the literature and at conferences. Chapter 8 considers all activities related to reference and access as inherently ethical projects, from policies that offer the most inclusive terms of access to a sincere discussion of physical and digital accessibility. In a subsection on patron privacy, Oestreicher's guidance is notably more robust than in previous editions. In the 2005 edition, Pugh presented roughly one paragraph on "Protecting Information about Users," which focuses on protecting credit card and registration information from "identity thieves." In contrast, Oestreicher covers every site of potential interaction with a patron, including in-person and remote communication, the implications of the USA PATRIOT Act for libraries and archives, data collection on paper and in electronic format, data anonymization, and consideration for how our integrated library systems and other software platforms collect and store patron data.

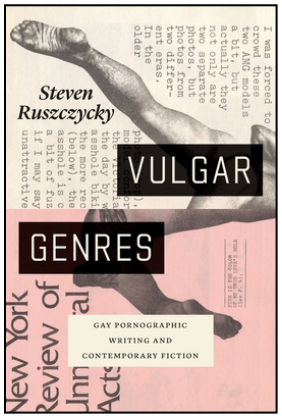
Outreach and instruction, other activities often found alongside reference and access in many job descriptions, are briefly addressed. Outreach is given a more thorough treatment: an entire chapter is dedicated to the topic. Primary source or archival instruction is mentioned a few times throughout. However, both archival instruction and outreach are deserving of their own volumes in the Archival Fundamental Series and are indeed well covered elsewhere. The strengths of this book are in its detailed treatment of reference and access.

On its surface, *Reference and Access for Archives and Manuscripts* seems like a manual best suited to a student or new archives professional, and it certainly is that. Reading it as a seasoned archives worker is equally valuable and presents the potential to spark new ideas. But more than that, in presenting *the work* accurately in multifaceted detail, making it legible across institutional contexts, Oestreicher creates a space for both practical knowledge and professional affinity among archives workers to flourish. —*Leah Richardson, George Washington University*

Note

1. Mary Jo Pugh, *Providing Reference Services for Archives & Manuscripts* (Chicago: Society of American Archivists, 2005), 196.

Steven Ruszczycky. *Vulgar Genres*. Chicago, IL: The University of Chicago Press, 2021. 207p. Paper, $30 (ISBN: 978-0-226-78875-3).



Vulgar Genres is a fascinating book analyzing what author Steven Ruszczycky calls writing "across the literary-pornographic divide." His book consists of close readings of both commercial literary fiction by gay male authors depicting homosexual identity and encounters, and by authors and editors of what he calls "vulgar genres" that are more explicitly pornographic. Any library or archive worker interested in collection development of queer literature, LGBTQ special collections and archives, or queer studies more broadly, will read it with great interest.

The author convincingly argues that the literary gay fiction that blossomed after US obscenity laws were successively struck down between 1957 and 1966 had to contend with the concurrent proliferation of gay pornography, either by distancing itself from pornography's crassness, or by freely incorporating explicit pornographic tropes and fantasies to serve their narrative ends. Moreover, fictional gay narratives could serve as texts that "consider the role that pornography itself has played in narratives of gay self-formation," (23) by depicting the consumption of pornography as a part of their characters' burgeoning sexuality. Situating these literary works in the context of a gay pornographic boom helps to enrich rather than cheapen our reading of them.

Grappling with pornography is not reduced to an individual artistic choice on the part of the authors featured. Ruszczycky demonstrates a keen understanding of the commercial imperatives of the publishing industry and how they shaped both highbrow fiction and the "vulgar genres." Beyond the book publishing industry, the author analyzes the role that special-interest magazines and newsletters played in creating a gay reading public (or rather "counterpublic" to use Ruszczycky's preferred term) that responded to the fiction at hand. This counterpublic allowed for a different and more receptive reading of gay literature than the mainstream literary public, which tended to reduce or pigeonhole gay authors into sociological witnesses of their subculture rather than view them as true artists.

Ruszczycky focuses on gay cismale authors, and charts an evolution of literary writing beginning in the late sixties and into the beginning of the twenty-first century. Chapter one focuses on William Carney and the 1970s, when writing that depicted the BDSM community and dramatized master/sub relationships was prominent. In chapter 2, we read about the trope of the pornographic police officer in the writing of John Rechy and Samuel Steward. Chapter 3 discusses the AIDS era and sexual risk-taking through the work of Samuel Delany and Scott O'Hara. Chapter 4 describes the frank and somewhat shocking depictions of intergenerational sex in literature and textual pornography seen in the writings of Matthew Stadler and Boyd McDonald. The conclusion addresses the rise of internet pornography mediated through a gay coming-of-age narrative, demonstrated by the work of Dennis Cooper.

These chapters explore how each of these texts grappled with moral panics that complicated depictions of queer sex, leading to controversy even if obscenity laws were no longer as strict. These "panics" include the anti-pornography crusades of evangelical Christians and second-wave feminists, fear of sexual contact and queerness in general during the onset of the AIDS epidemic, the intensified mainstream media focus on child molesters in the eighties and nineties, which often conflated queerness with pedophilia, and the widespread fear parents

had of their children accessing pornography too early and too easily in the digital age. Though I have used the past tense to describe these moral panics, most are ongoing or even resurgent.

It is important to note that this book focuses on textual pornography and not the image (though there is some analysis of image and multimedia in Ruszczycky's readings of zines and digital culture). Ruszczycky calls on the field of porn studies to expand research beyond the image and into more text. In the digital age, texts that prove crucial to queer self-formation include not just commercially published literature or narrative pornography but everything "from story archives and self-published pornographic novels to promotional materials created by performers, the erotically elaborate profile text of apps and cruising websites, and the narrative captions appended to pornographic images on micro-blogging platforms." (138)

It is perhaps a pedantic habit of a librarian, but when I open a scholarly book I immediately flip to the acknowledgements section. What librarians, archivists, and other GLAM workers assisted with the research of the book? What collections proved crucial to the scholar's research questions? The author singled out some big-hitting sexuality collections at major academic institutions as well as the peerless Leather Archives and Museum in Chicago. Academic libraries are clearly crucial to this kind of research, and the research itself raises a number of questions for the information professional. To what extent should we collect these vulgar genres? What gaps will future researchers face based on what we deem unsuitable for our collections today? While public libraries face serious censorship threats in our current moral panic, academic libraries often meekly self-censor by opting only for "serious" literature and categorizing the queer erotic as "trivial." I was intrigued by an out-of-print novel Ruszczycky briefly discussed in chapter one (*Leather Ad: M*, by Larry Townsend) that uses classified ads as a narrative device, but found few Worldcat holdings from North American libraries for either the 1972 original or the 1996 reprint. I saw an inexpensive used copy on an online used book website—a withdrawn library book.

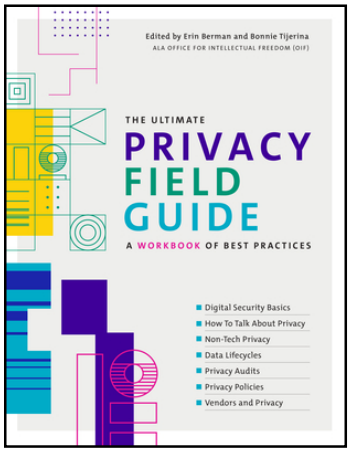
Vulgar Genres concludes by analyzing Dennis Cooper's literary response to queer sexuality in the digital realm, noting future opportunities for research at the intersection of literature and the queer digital realm. Yet queer digital spaces are constantly under attack and disappearing. How can libraries preserve or collect evidence of this counterpublic that is primarily available digitally, or train researchers to personally archive digital ephemera so that it is accessible in the years to come?

It is wonderful to read an intelligent study that provokes such questions, and a reminder that literature continues to be one of the greatest spaces to understand and analyze the complicated and ever-changing process of queer self-formation. — *Walter Schlect, Washington University in St. Louis*

The Ultimate Privacy Field Guide: A Workbook of Best Practices. Erin Berman, Bonnie Tijerina, eds. Chicago, IL: ALA Editions, 2022. 96 pp. Paperback, $29.99 (978-0-8389-3730-3)

In an all-encompassing, digitally connected world, librarians are at the forefront of protecting patrons' digital privacy. This is evident in programs like the Library Freedom Project, a group that teaches librarians about privacy issues; the annual New York City Privacy Week, a joint program between the metropolitan area's public libraries that focuses on digital privacy and security; and recent privacy-oriented books such as law librarian Sarah Lamdan's *Data Cartels*. Privacy is a tenet of librarianship, as library users should have the ability to read and research without intrusive surveillance from the state and, in modern times, big tech.

However, librarians may find it difficult to know where to start when it comes to privacy initiatives and policies.



The Ultimate Privacy Field Guide, edited by Erin Berman and Bonnie Tijerina, is a workbook that can be used to discuss, plan, and implement privacy initiatives at libraries. The real world examples and scenarios included throughout the book guide librarians in an easy and accessible manner that not only informs readers about digital privacy and security, but also provides step-by-step instructions to apply best privacy practices. Berman and Tijerina are privacy advocates in their own right; they have led the Institute of Museum and Library Services–funded Privacy Advocacy Guides for Libraries project, which was used to create online guides to instruct librarians on privacy. Berman also led the Privacy Subcommittee through the ALA Office of Intellectual Freedom from 2018 to 2022, and Tijerina has worked on related projects involving privacy and big data research ethics.

This well-organized book takes readers through the process of ensuring privacy for their libraries and communities over seven short chapters. Each chapter introduces a component of privacy, followed by practical examples and exercises that librarians and library staff can complete as individuals or together in order to fully understand the issues at stake. The first chapter highlights digital security basics such as password creation, multifactor authentication, and malware. The second chapter explains how to discuss the importance of privacy with stakeholders such as administrators, patrons, librarians, library staff, and others, providing talking points that explain why privacy should be an institutional priority. Chapter 3 explores non-technology–based privacy practices. Berman and Tijerina open with the design of a privacy-friendly physical space, followed by a discussion of privacy over the data lifecycle, specifically the exposure points of patrons' personal identifiable information (PII). Privacy audits are addressed in chapter 5, which provides strategies for evaluating a library's ability to manage user data based on best practices. Chapter 6 assists readers in crafting plain-language privacy policies that show patrons how their data is being used. The final chapter supplies information on working with vendors and addressing privacy issues in contracts.

The exercises in each chapter give readers space to take notes and answer questions. This is a book you can write in, recording and documenting a history of the reader's privacy journey in the manner of a journal. The exercises can also be completed in a collaborative manner involving all library colleagues and staff, and could usefully shape an internal workshop or skillshare within library departments. Additionally, the exercises and problems presented to the reader come from real-world examples. The mere act of discussing privacy concerns with patrons, library staff, and administrators can be complicated and overwhelming, something librarians who have tried it will know. It can be difficult to understand where to begin, why to talk about it, and how. Berman and Tijerina provide helpful talking points tailored for specific stakeholders to make it easier to start the conversation.

The highlight of this workbook is its readability. The authors don't focus on deep theory or philosophical discussions about privacy. Instead, their intent is to provide the practical foundation necessary to implement policies and practices to protect patrons. They introduce modern dangers such as ransomware, phishing, and surveillance culture, as well as the ethical ramifications of privacy and the importance of informing users about vendor policies–or

the lack thereof. These brief introductions may compel readers to delve deeper into privacy research.

This book is highly recommended for any college or research library in the early stages of exploring privacy practices or that are looking to improve their current ones. It may also appeal to an even larger audience, exploring how library associations and consortia can use this work for wider, collective change in prioritizing privacy. The holistic approach that the editors outline, from the user level of passwords, to the data lifecycle of what information libraries collect, to how librarians can navigate vendor policies and contracts, properly illustrates the interconnectedness of library privacy issues and how librarians can address it.
— *Junior Tidal, New York City College of Technology*