Library Resources & Technical Services

ISSN 2159-9610
January 2020
Volume 64, No. 1

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ISSN 2159-9610 **January 2020** **Volume 64, No. 1**

Cover image: The complete home: an encyclopedia of domestic life and affairs ; the household in its foundation, order, economy ... ; a volume of practical experiences popularly illustrated / by Mrs. Julia McNair Wright, 1883, courtesy of Digital Library@Villanova University.

Editorial

Happy New Year! I enter each new year looking forward to the submissions I receive and also what information I will gain from attending the American Library Association (ALA) Midwinter Meeting. Although I am an experienced and long-term library professional, there is always something new to learn and information to acquire. Networking with colleagues, both those new to the profession and those who are experienced, is wonderfully productive and draws on our collective perspectives. Attending professional conferences and reading journal papers are two ways to contribute to our profession. There are other ways to be involved, too, such as writing a book review, serving on a committee, giving a presentation (including webinars), teaching courses and/or providing training, or writing a research paper. Geography is no longer an issue, and many groups conduct their work virtually, eliminating some barriers that might have formerly hampered participation.

If you are not aware, starting in 2022, there will be only the ALA Annual Conference. The last Midwinter Meeting will be in 2021. We are moving into a new era of ALA. The organization will move out of their long-time headquarters, and discussions of a merger between LLAMA, LITA, and ALCTS are well underway. A series of town halls about the proposed new division Core were held October through December 2019. Additional details can be found on the Core website: https://core.ala.org/. It will be interesting and exciting to see what lies ahead.

Thinking about the future is sometimes unsettling, yet can also be positive. It is an opportunity to improve and expand on what programs, services, and opportunities are extended to members. The last big change to ALCTS was in 1989 when the division's name changed from the Resources and Technical Services Division (RTSD) to the current name. ALCTS was the result of several ALA units merging. (A history of ALCTS, courtesy of my colleague Miriam Palm, is available at http://www.ala.org/alcts/about/misshist/history if you want more information.)

Change is inevitable, even when something seems to be operating effectively. Drivers include need, economic factors, and sustainability. Other changes that had an impact on our profession include the switch from catalog cards to networks to produce bibliographic records, the growing reliance on electronic resources over print, the increase in user-driven or evidence-based acquisitions, and the transition from AACR2 to RDA. This is not to imply that change must be simply accepted. Participating in discussions and contributing can impact the outcome and have desirable results. However, that is not possible if one does not engage or provide input. Keep that in mind as discussions about Core proceed.

My editorials always conclude with a preview of the issue's content, which is provided below. I hope you enjoy this issue.

- In "User Tagging Behaviors in an OPAC: An Analysis of Seven Years of I-Share User Tags," Brinna Michael and Myung-Ja Han discuss the results of tracking seven years of user tags from university and public institutions by comparing tagging usage between institution types, and qualitatively analyzing a selection of tags from the University of Illinois. The authors discovered that few users tag items in online catalogs, but the tags that

are being created are largely descriptive and have the potential to improve discoverability for underdescribed materials.

- Molly Strothmann and Karen Rupp-Serrano compare three different models for selecting e-books for a research library's collection in their paper "A Comparative Analysis of Evidence-based Selection, Professional Selection, and Selection by Approval Plan."
- "Holistic Collection Development and the Smithsonian Libraries," by Salma Abumeeiz and Daria Wingreen-Mason, outlines why a particular, underserved museum unit at the Smithsonian Institution is underutilizing the Smithsonian Libraries' facilities and resources, and how the library can better support this unit's unique research needs. Using a holistic methodology that drew on quantitative and qualitative approaches, the authors highlight the unit's distinct research profile that includes the various logistical, emotional, and collection-related barriers that impede their usage of the Libraries.
- A book review courtesy of my colleague Elyssa Gould.

User Tagging Behaviors in an OPAC

An Analysis of Seven Years of I-Share User Tags

Brinna Michael and Myung-Ja Han

User tagging services are underused in cultural heritage institutions despite their availability for over a decade. This study considers seven years of user tags from university and public institutions by comparing tagging service usage between institution types and qualitatively analyzing a selection of tags from the University of Illinois. Researchers found that overall, few users tag items in online catalogs, but those tags that are being created are largely descriptive in nature, indicating the potential to improve discoverability for underdescribed materials, e.g., lack of subject headings. With improved education on their use and purpose, tagging and annotation services can become important resources for cultural heritage institutions.

Discoverability access service is at the heart of the library's daily functions and depends largely on discovery systems, including the online access catalog (OPAC) and metadata, notably MARC records. As technologies advance, new and innovative opportunities arise to enhance access and discovery layers, and libraries have diligently experimented with them to adapt to some of these changes. One example is the user tagging service, a function that stemmed from the phenomenon of social tagging on the open web, often referred to as Web 2.0. User tagging has generated excitement and controversy in technical services because of the question: what role do uncontrolled user tags play in improving discovery and access in comparison to and in conjunction with the existing authority control of cataloging standards and practices?

This study explored user behavior when given the opportunity to tag within an OPAC environment and examined the purpose and reality of user tagging as a complementary service to traditional cataloging. Specifically, this study intended to capture and assess aspects of the context under which users are tagging materials, including categorizing tags based on their relationship to existing descriptive metadata and contextual relevance. To do this, researchers worked with the Consortium of Academic and Research Libraries in Illinois (CARLI) to gather bibliographic records and associated tags from the I-Share integrated library system and its VuFind discovery layer. First, the data were assessed as a whole to determine the distribution and frequency of user tagging across institution types. Next, a sample of the data was taken to classify and analyze tags in their context within the OPAC.

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Manuscript submitted January 16, 2019; returned to authors for revision May 9, 2019; revised manuscript submitted July 3, 2019; manuscript returned to authors for minor revision August 12, 2019; revised manuscript submitted September 19, 2019; accepted for publication October 3, 2019.

Literature Review

In his paper, "Tagging for Libraries: A Review of the Effectiveness of Tagging Systems for Library Catalogs," Gerolimos outlined the emergence of trends within the study of tagging in information sciences literature. He addressed the increase of interest in tagging that began in the mid-2000s following the success of social networking sites like Facebook and Twitter.[1] He tracked the shifts in research trends in the late 2000s and early 2010s towards implementation of tagging services within libraries and on websites dedicated to more traditional library materials, like Goodreads and LibraryThing.[2] During this period, there was an emphasis on the comparison between user generated tags and controlled vocabularies, primarily the Library of Congress Subject Headings (LCSH), and divided perspectives on the validity and usefulness of the folksonomies for search and discovery.[3]

As Gerolimos's review revealed, librarians and other information professionals were concerned with the nature of tags as an uncontrolled vocabulary, though many recognized the potential benefits, including a more inclusive vocabulary of description, facilitating serendipitous discovery, and the potential to alleviate costs when the implementation of a controlled vocabulary is not viable.[4] He concluded that research on the use of tags in the library catalog should reach beyond "determining the quality of user tags compared to subject headings," and expand to answer broader questions:[5]

> How did the tag system manage to transfer that feeling of "importance" in creating online content and describing resources to its users...? To what extent is the effort of tag assignment to document records based on real-time need to augment the search capabilities of OPACs? At what level are users infused with the willingness to provide keywords to enhance . . . the search/research options of other users with the use of tags? And how likely is it that the subsequent user will benefit from the keywords chosen by the one before him?[6]

Since Gerolimos's review, researchers have expanded the breadth of their inquiry into tagging and the behaviors surrounding the practice. Syn and Spring addressed methods for determining the potential of user generated tags to classify a collection based on metrics intended to determine user agreement and remove terms that are too broad or narrow.[7] Joorabchi, English, and Mahdi investigated the feasibility of integrating tags and linked data methods to improve issues of inconsistency within such uncontrolled, but valuable, vocabularies. Still other researchers have studied influences on user tagging behaviors in a variety of environments, focusing on the motivations behind the act of tagging itself.[8]

This study's scope was to expand upon such research, interrogating and applying observations on user tagging behaviors broadly. In analyzing these behaviors, researchers looked back and expanded on previous investigations into the relative value of and usability of user tags as a unique descriptive resource alongside traditional cataloging, addressing several of the questions Gerolimos proposed. This study focused on the tagging behaviors of users in academic library OPACs, and considers the context within which tags are made, the type of tag, and the implications of user tagging trends. As a result, the researchers designed this study to address the following questions:

- To what degree are users adding tags in an OPAC if the system allows such functionality?
- What types of tags are being added and in what context?

Additionally, the researchers sought to explore how this study might inform current discussion surrounding the following questions:

- Can libraries utilize user added tags to improve discovery and access services?
- Are tagging services still valid and useful in the age of linked open data?

Method

For the purposes of this study, CARLI provided researchers with data in the form of a tab delimited file, listing as one unit the bibliographic record number and prefix indicating the holding institution, the number of users who had added tags, the total number of tags added, and a list of all tags added to the record. The data was drawn from eighty-nine institutions participating in I-Share, the collective integrated library system and shared OPAC offered by CARLI, and reflected all tags created from the service's implementation of the VuFind discovery layer from June 2010 to March 2017, when the data were collected. Due to the nature of the data, researchers identified four data types: institution, bibliographic record, number of users who added a tag(s) to a record, and the tag(s) added. By defining these data types, researchers were able to both examine the individual types and the relationships between each type.

Having arranged the data in this manner, the researchers designed a two-part approach to the data analysis. First, researchers grouped the data based on institution type using the Carnegie Classification of Institutions' Basic Classification guidelines to conduct a quantitative analysis of all data types.[9] The Carnegie Classification of Institutions was selected for its consistency and accuracy as an ongoing

standard of categorization of institutions of higher education. Second, a sample set of the data was identified and the associated tags categorized based on a set of categories identified by the researchers.

For the first analysis, the data consisted of 286,805 tags, 157,215 records, and 167,095 users from eighty-nine institutions. The institutions were divided into groups based on the five Basic Classifications defined by the Carnegie Classification: Doctoral Universities, Master's Colleges and Universities, Baccalaureate Colleges, Associate's Colleges, and Special Focus/Other.[10] Within these categories, the total tags, users, and records were compiled for each individual institution, the five institution categories, and the data set as a whole (see Appendix A). These totals were used to calculate the number of tags appearing per record on average, the number of users adding tags per record on average, and the number of tags being added per user on average. These three averages were calculated for individual institutions, institutional categories, and the data set as a whole.

For the second analysis, data from the University of Illinois (U of I) was selected as a sample from the full CARLI data (see table 1). To work with this sample, researchers isolated the bibliographic record numbers for the records associated with U of I and ran a report to pull the associated MARC 245 ($a and $b), 100 ($a), 650 (all subfields), 651 (all subfields), and 655 (all subfields) data fields that represent the title, author, and subjects of each record. The resulting data set was compiled and uploaded into OpenRefine, an open source application for data cleaning and exploration. The researchers used the faceting feature to identify records that lacked values in the 650, 651, or 655 fields (i.e., any subject headings). These records were chosen for the sample and resulted in 2,605 tags, 1,237 users, and 1,207 records.

To contextualize the tags associated with U of I's sample, OpenRefine's faceting and clustering functions were used to produce a list of unique tags. In OpenRefine, the faceting function identifies each unique string value in a column and returns the number of times each string appears in the column. The clustering function can then be used to reconcile string values that are marked as similar according to an algorithm that determines "sameness" using a key collision method called fingerprinting.[11] For this process, the researchers removed extra whitespace and punctuation at the beginning and end of strings. No tags were changed in regard to case or spelling to retain as much original context as possible.

Researchers then performed a cursory overview of the resulting list of unique tags and identified common themes from which categories could be determined. Based on these observations, researchers identified seven clear categories (see table 2). All tags remaining after the initial sort were assessed against their full bibliographic record and sorted to the best of the researchers' abilities. The remaining tags following this secondary sort were grouped into a final category, Other.

Results

Institutional Classification

Of the eighty-nine institutions identified within the data set, researchers identified ten doctoral universities, twenty-five master's colleges and universities, fourteen baccalaureate

Table 1. University of Illinois at Urbana-Champaign Full and Sample Data

	Total U of I data	U of I Data without Subject Headings
Data types		
Records	21,776	1,207
Users	22,863	1,245
Tags	37,706	2,595
Unique tags	8,883	1,083
Tags per record		
Minimum	1	1
Maximum	37	14
Average	1.732	2.136

Table 2. Tag Categories

Category	Definition	Example
Content Description	Describes or addresses what the work is "about"	action, romance
Title Words	Matches a word(s) in the title of the work as it appears in the 245 field	Bhagwad Gita
Creator Name	Matches the name(s) of the work's creator(s) as they appear in the 100 field	kafka, Calvino
User Commentary	User notes, intentions, actions, and evaluations	diss, REQUEST
Course Information	Indicates a course name and/or number	ARTF101, AmLit
Object Description	Describes or addresses the physical or digital object	e-book, map
Call Number/Location	Indicates the call number or physical location of the object	L-OSF, stacks

colleges, twenty-four associate's colleges, and sixteen special focus/other. After classifying all institutions, the number of individual tags, records, and users were quantified at the institution level and then averaged within each category. These results showed that on average, institutions classified as doctoral universities had the highest record, user, and tag counts when compared to other institutions and accounted for 52 percent of all records, 63 percent of all users, and 54 percent of all tags (see figure 1).

Despite representing only 11 percent of the participating institutions, doctoral universities were responsible for the bulk of the cumulative data in all three types. This phenomenon reflected the relative sizes of these institutions when considering the number of students, staff, and faculty (users) and volumes held (records). Larger collections and a greater number of potential users increase the overall tag output. The discrepancy in size of the collection and potential user pool between institution types did not appear to affect the likelihood of users adding tags to records as evidenced by an assessment of the relationships between each data type (see figure 2).

As illustrated in figure 2, researchers calculated the average number of users adding tags per record, tags added per record, and user to tag ratio. These relationships did not show a significant variation across institution types, thereby indicating a consistency with which users across institution types applied tags to records. This trend exhibited an independence from the relative size of the potential user group or institutional collection.

Subset Determination

To analyze the tags, researchers extracted data associated with U of I. U of I was categorized as a doctoral university and had 21,776 records, 22,863 users, and 37,706 tags total. Compared to other doctoral universities, the ratios of users per record (1.05:1), tags per record (1.732:1), and tags per user (1.649:1) for U of I's data was well within the expected results.

Of the 21,776 records, researchers identified 1,207 records lacking subject headings, representing approximately 6 percent of the U of I data and 0.8 percent of the full I-Share data (see table 1). There are some brief records, and others are for literature that normally do not have subject headings. These records were extracted as a subset of the full data to be used for qualitative analysis on the basis that users would have tagged these materials under significantly less influence by the catalog records. The same quantitative analyses as the full data set was applied and compared to the rest of the U of I data.

In a comparison of the records lacking subject headings against the full U of I records, on average those without subject headings had a higher ratio of tags per record (2.136:1). When comparing the number of tags per record, both sets showed similar trends. As shown in figure 3, an analysis of the number of tags per record for the total records from U of I showed that approximately 62.12 percent of records had only one tag, while the maximum number of tags for a single record was thirty-seven. Comparatively, when only the records lacking subject headings were analyzed, approximately 62.06 percent of the records had only one tag, while the maximum number of tags for a single record was fourteen.

Tag Categorization

After sorting tags into the previously identified eight categories, researchers analyzed the resulting groupings and found that tags fell overwhelmingly into the Content Description category (54.22 percent). The second largest category, Title Words (22.04 percent), included a number of tags that could logically have been categorized as Content Description on the basis that titles are generally considered to be descriptive of a work's contents. Researchers determined that the majority of the tags broadly described the contents of the resources (see table 3). The prevalence of descriptive tags indicated that many users have clear objectives when they added tags.

To further analyze the results of categorization, researchers extracted lists of all unique tags and their frequency of occurrence from the I-Share data, the U of I data, the full set of records without subject headings, and those tags categorized under Content Description (see Appendix B). In comparing the top thirty most frequently occurring tags, researchers recognized a variation in the specificity of the tags from the full data set and the U of I data and those from the subset and Content Description category. The tags for the I-Share records and the U of I records appeared to be more general, with some user commentary such as "to read" and initials, plus notes about the item's intended use ("research" or "paper"). The subset and Content Description tags exhibited a greater degree of specificity, focused more on describing the genre of the resources with terms such as "Drama," "comedy," and "romance." This sharpening of specificity indicated to researchers that users' descriptive tagging behaviors became more pointed and purposeful when the subject headings in the catalog records were limited or non-existent.

Discussion

User tagging has a long history of debate among the cultural heritage community in relation to the service's potential for enhancing access and discoverability of materials. Assessment of the I-Share user tags indicated a limited use of

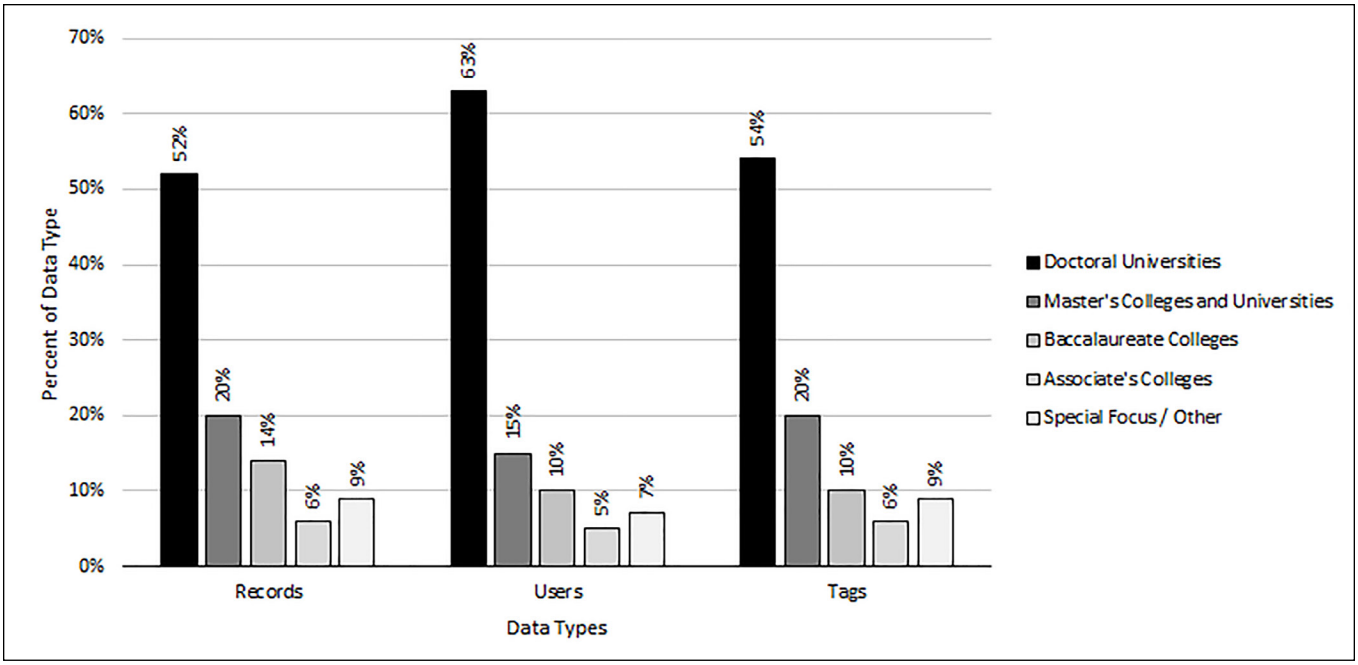

Figure 1. Percent of Cumulative Data by Institution Type

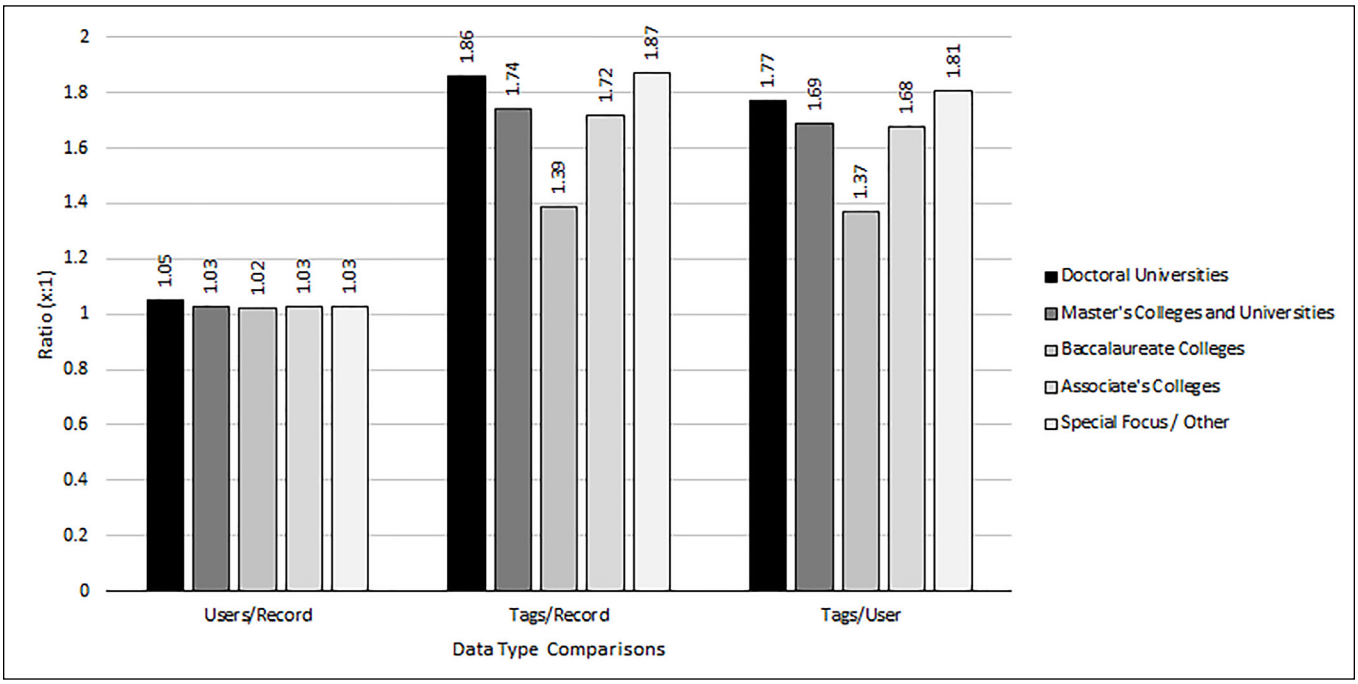

Figure 2. Relationship between Data Types

tagging services by users across academic institution types, with the likelihood of users to tag remaining relatively standard across institution types. Although 157,215 individual item records were represented in this study, this is a modest percentage of the combined holdings of the eighty-nine participating institutions that represent a collective 14.7 million unique bibliographic records and 38.1 million item records. The reasons for such a small portion of materials being tagged could be attributed to a number of factors: lack of user awareness of tagging services, lack of

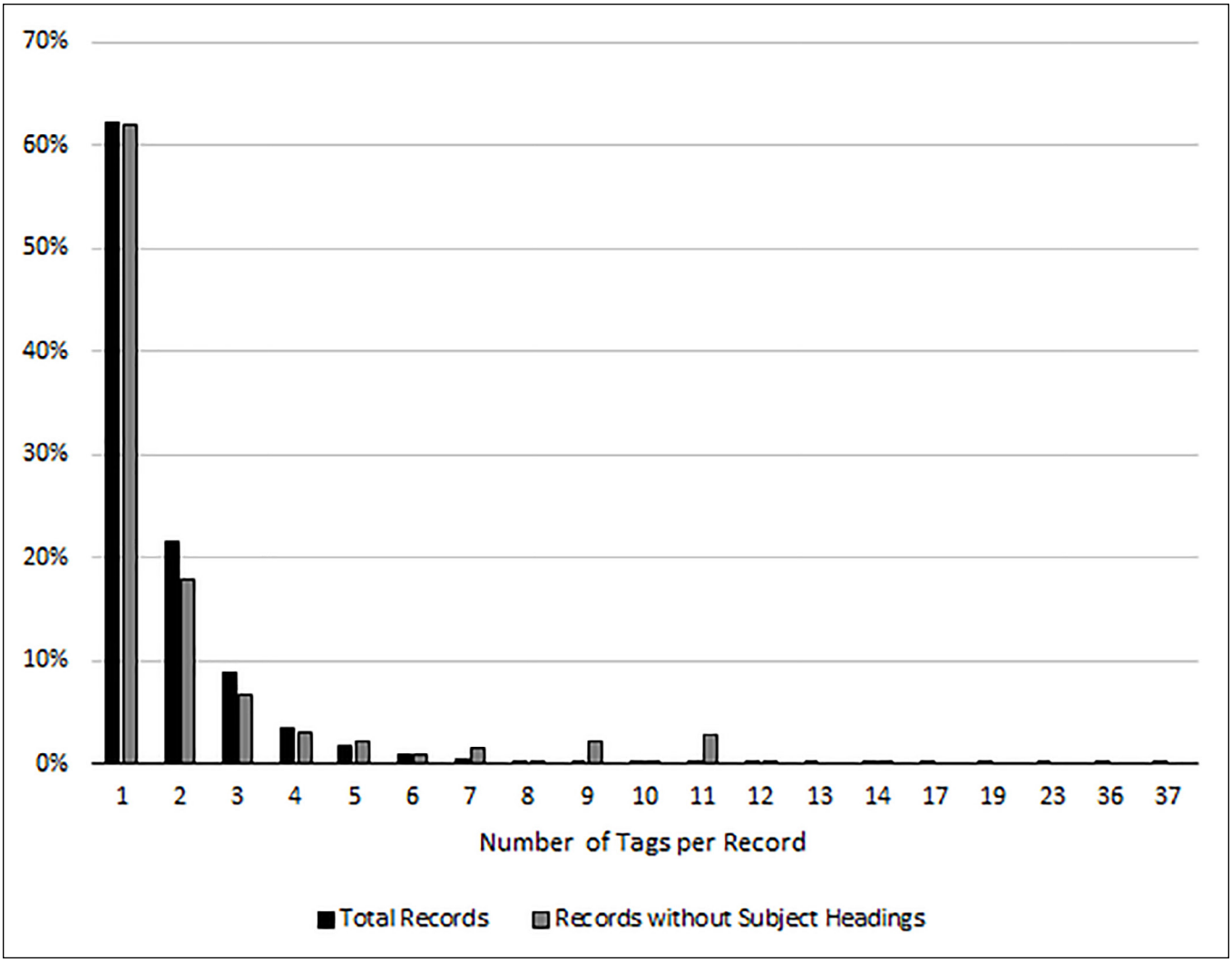

Figure 3. Frequency of Tags per Record

user education on the use of tagging services, lack of user interest in tagging services, lack of use cases on how to use user tags in cataloging or (and) discovery services, etc. Regardless, several trends emerged from the data collected via I-Share that merit discussion.

User purpose for tags appears varied but can largely be understood to fall into three behaviors: adding context to described or under-described materials, creating a personal collection for research or reference, and indicating personal perception and/or future intentions. The presence of tags such as "jkbnhs," which appears a total of 327 times in the full I-Share data set, indicates a behavior of collecting materials through personalized tags. Additionally, tags such as "diss" and "ARTF101" indicate a variation on this collecting behavior, grouping items based on relevance to research or coursework.

The prevalence of descriptive tags indicates a desire to enhance the description of records both for public and personal use. Annotations have been broadly defined to include any type of marking or notation made with the purpose of indicating observations, comments, and intentions. Using this definition suggests that the behaviors of users tagging records in the OPAC is a form of annotation with limited functionality. One constraint on the functionality of VuFind's tagging service is how tags are processed and added to the catalog. To add a single word tag, users need only type the word into the designated search box. To add a phrase, users must enclose the phrase in quotes (see table 4).

The result is that some users appear to have followed the input requirements for phrases, while others did not, resulting in several individual tags, that when read together, complete a full annotative thought. These actions account for the variation in the number of tags per record and supports the observation that a lack of user education on how

Table 3. Results of Tag Categorization

Category	Tag Count	% of Total Tags
Content Description	1,407	54.22
Title Words	572	22.04
User Commentary	198	7.63
Creator Name	173	6.67
Course Information	85	3.28
Other	76	2.93
Object Description	58	2.24
Call Number/Location	26	1.00

* Note: Percentages calculated using the number of tags from the U of I Data without Subject Headings (see table 1).

to use tagging services plays a role not only in the perception of the nature and meaning of a tag or tags, but also in the interpretation of the relevancy of tags to both users and library staff as evidenced by the researchers' disregard for individual tags that are considered stop words in the analysis of the most frequently occurring tags, important context is lost without a reassessment of the context in which those tags exist.

Conclusion

When first introduced in the early 2000s, user tagging services were regarded as one of the direct implementations of Web 2.0 utility and welcomed by the library and cultural heritage community.[12] This study examined users' tagging behaviors in an OPAC by analyzing user tags added to the CARLI integrated library system from 2010 to 2017. Data analysis revealed that the tagging service is not used as much as anticipated, and that only a small number of CARLI records include user tags.

When examined closely, the study found that users create tags largely for descriptive purposes, although many tags indicate personal annotation when applied. This trend has led some researchers to speculate whether user tagging services is no longer desirable in the era of linked open data. However, based on this study's findings, researchers believe there are ways to improve user tagging services. They encourage libraries to explore other options that facilitate the incorporation of user tagging into the main library services.

Table 4. User Input Effect on Tag Output

User Input	Resulting Tag(s)
book	book
"to check out"	to check out
things I'm interested in	things, I'm, interested, in

First, the analysis revealed that users added tags for a variety of purposes, all of which could be broadly considered annotations. Recently, the W3C Annotation Group published a data model and vocabularies for the web annotation service.[13]

Second, based on the limited use of user tagging services and the generally low quality of tags, libraries should seek to improve user education on the use and purpose of tagging and/or annotating in the OPAC. Users cannot use the service to full advantage nor provide quality tags when they are not aware of the service or how to use it. Coordinated instruction opportunities with public services or library instruction departments and a readily useable web document could provide the education necessary to fully utilize tagging or annotation services.

Third, because tags are uncontrolled, there is a certain limitation on integrating tags into a library's bibliographic records. However, tags could still be used as part of the discovery services. VuFind version 4.3 includes user tags as a search options, in addition to more traditional search methods.[14] The inclusion of tags as an indexed and searchable information source may aid users in discovering items when using natural language queries that are more familiar to them than library specific controlled vocabularies, such as Library of Congress Subject Headings. Because user tags tap into users' natural language habits, they not only provide an alternate descriptive vocabulary, but also capture the unique perspectives and language of the users providing them.

While user-tagging services have been available since the early 2000s, they are underused for various reasons. As libraries and other cultural heritage institutions move towards adopting linked data and web technologies, it is time to reevaluate the service and find ways to better integrate tags, as a unique and user-reflective resource, into our discovery services to improve access to under-cataloged library materials and promote scholarly communication.

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Appendix A. I-Share Data Types by Institution and Institution Classification

	Institutions	Records	Users	Tags	User/ Records	Tag/ Records	Tag/User
Total	89	157,215	167,095	286,805	1.063	1.825	1.716
Doctoral Universities	10	48,301	50,715	89,892	1.045	1.954	1.866
Benedictine University		598	629	1,260	1.052	2.107	2.003
DePaul University		567	569	1,020	1.004	1.799	1.793
Illinois Institute Of Technology		3,760	4,274	8,587	1.137	2.284	2.009
Illinois State University		3,270	3,301	5,584	1.009	1.708	1.692
Northern Illinois University		4,559	4,637	8,443	1.017	1.852	1.821
National Louis University		956	1,014	2,191	1.061	2.292	2.161
Southern Illinois University Carbondale		3,329	3,383	5,963	1.016	1.791	1.763
Trinity International University		2,622	2,735	5,026	1.043	1.917	1.838
University Of Illinois Chicago		6,864	7,310	14,112	1.065	2.056	1.931
University Of Illinois Urbana-Champaign		21,776	22,863	37,706	1.05	1.732	1.649
Master's Colleges And Universities	25	18,893	19,439	32,927	1.015	1.784	1.758
Aurora University		508	516	932	1.016	1.835	1.806
Bradley University		836	847	1,569	1.013	1.877	1.852
Columbia College Chicago		809	812	1,391	1.004	1.719	1.713
Concordia University Chicago		115	115	204	1	1.774	1.774
Chicago State University		89	90	250	1.011	2.809	2.778
Dominican University		1,029	1,067	1,688	1.037	1.64	1.582
Eastern Illinois University		2,261	2,295	3,184	1.015	1.408	1.387
Elmhurst College		273	272	470	0.996	1.722	1.728
Greenville University		155	159	293	1.026	1.89	1.843
Governors State University		748	754	1,186	1.008	1.586	1.573
Judson University		444	450	782	1.014	1.761	1.738
Lewis University		137	138	276	1.007	2.015	2

	Institutions	Records	Users	Tags	User/ Records	Tag/ Records	Tag/User
Mckendree University		147	149	267	1.014	1.816	1.792
North Central College		506	511	911	1.01	1.8	1.783
Northeastern Illinois University		989	1,003	1,846	1.014	1.867	1.84
North Park University		2,518	2,697	3,660	1.071	1.454	1.357
Olivet Nazarene University		1,892	1,986	3,689	1.05	1.95	1.858
Quincy University		229	229	301	1	1.007	1.007
Robert Morris University		145	145	238	1	1.641	1.641
Roosevelt University		1,332	1,360	2,699	1.021	2.026	1.985
Southern Illinois University Edwardsville		2,826	2,936	5,517	1.039	1.952	1.879
Saint Xavier University		163	164	236	1.006	1.448	1.439
University Of Illinois Springfield		469	471	798	1.004	1.701	1.694
University Of St. Francis		203	203	407	1	2.005	2.005
Western Illinois University		70	70	133	1	1.9	1.9
Baccalaureate Colleges	14	12,742	12,959	17,674	1.018	1.648	1.62
Augustana College		392	395	612	1.008	1.561	1.549
Eureka College		154	158	269	1.026	1.747	1.703
Illinois College		6,482	6,503	7,110	1.003	1.097	1.093
Illinois Wesleyan University		412	413	794	1.002	1.927	1.923
Kendall College		80	81	130	1.013	1.625	1.605
Knox College		1,657	1,712	2,556	1.033	1.543	1.493
Lake Forest College		474	472	815	0.996	1.719	1.727
Lincoln College		305	305	306	1	1.003	1.003
Millikin University		828	856	1,425	1.034	1.721	1.665
MacMurray College		7	7	12	1	1.714	1.714
Monmouth College		203	205	380	1.01	1.872	1.854
Principia College		575	568	1,150	0.988	2	2.025
Trinity Christian College		288	291	490	1.01	1.701	1.684
Wheaton College		885	993	1,625	1.122	1.836	1.636
Associate's Colleges	24	5,620	5,756	9,663	1.009	1.742	1.73
Black Hawk College		9	9	21	1	2.333	2.333
College Of DuPage		340	341	505	1.003	1.485	1.481
Carl Sandburg College		14	13	25	0.929	1.786	1.923
Danville Area Community College		37	36	80	0.973	2.162	2.222
Heartland Community College		242	248	460	1.025	1.901	1.855
Illinois Central College		876	882	1,681	1.007	1.919	1.906
Illinois Eastern Community Colleges*		105	105	194	1	1.848	1.848
Illinois Valley Community College		445	461	722	1.036	1.622	1.566
Joliet Junior College		383	388	633	1.013	1.653	1.631
John Wood Community College		1	1	1	1	1	1
Kankakee Community College		19	19	27	1	1.421	1.421
Kishwaukee College		159	163	241	1.025	1.516	1.479
Lewis And Clark Community College		162	164	377	1.012	2.327	2.299
Lincoln Land Community College		192	194	364	1.01	1.896	1.876

	Institutions	Records	Users	Tags	User/ Records	Tag/ Records	Tag/User
Morton College		21	21	32	1	1.524	1.524
Oakton Community College		678	691	1,096	1.019	1.617	1.586
Parkland College		493	496	816	1.006	1.655	1.645
Richland Community College		89	90	128	1.011	1.438	1.422
Southeastern Illinois College		1	1	1	1	1	1
South Suburban College		3	3	11	1	3.667	3.667
Sauk Valley Community College		625	701	839	1.122	1.342	1.197
Southwestern Illinois College		111	111	195	1	1.757	1.757
Triton College		77	77	100	1	1.299	1.299
(William Rainey) Harper College		538	541	1,114	1.006	2.071	2.059
Special Focus/Other	16	8,007	8,282	14,956	1.033	1.816	1.757
Adler University		438	465	853	1.062	1.947	1.834
Chicago School Of Professional Psychology		78	4	182	0.051	2.333	45.5
Catholic Theological Union		499	506	850	1.014	1.703	1.68
Northern (Baptist Theological) Seminary		207	207	517	1	2.498	2.498
University Of Saint Mary Of The Lake (Mundelein Seminary)		187	189	296	1.011	1.583	1.566
Harrington College Of Design		314	324	488	1.032	1.554	1.506
Lincoln Christian University		444	448	749	1.009	1.687	1.672
School Of The Art Institute Of Chicago		1,587	1629	3,024	1.026	1.905	1.856
Rush University		89	103	188	1.157	2.112	1.825
Southern Illinois University School Of Medicine		111	112	129	1.009	1.162	1.152
EBL PDA Ebooks		1,724	1,932	3,527	1.121	2.104	1.877
HathiTrust		1,626	1,655	2,941	1.018	1.809	1.777
Illinois Math And Science Academy		278	276	355	0.993	1.277	1.286
Illinois State Library		175	182	334	1.04	1.909	1.835
JKM Library Trust		157	157	371	1	2.363	2.363
Newberry Library		93	93	152	1	1.634	1.634

* Illinois Eastern Community Colleges consist of Wabash Valley College, Olney Central College, Lincoln Trail College, and Frontier Community College.

Appendix B. Top Thirty Most Frequently Occurring Tags from the Full I-Share Data, U of I Data, and U of I Records without Subject Headings

U of I Records without Subject Headings		Full U of I		Full I-Share	
Tag	Count	Tag	Count	Tag	Count
manga	77	photo	419	Bio	2,951
Action	73	history	338	Research	1,647
adventure	61	jkbnhs	327	psych	1,404
shounen	60	To Read	321	paper	1,279
supernatural	57	read	281	read	1,168
comedy	52	women	258	history	1,069
romance	50	paleo	253	book	1,065

U of I Records without Subject Headings		Full U of I		Full I-Share	
Tag	Count	Tag	Count	Tag	Count
Drama	39	Research	211	enviro	767
Historical	33	book	187	Philosophy	766
fantasy	32	music	182	film	594
demon	29	China	164	FYE	606
shoujo	29	wwd14	161	art	595
ghost	27	fiction	148	women	584
tournament	26	feminism	146	project	527
spirit	25	theory	131	To Read	512
fiction	22	manga	128	music	504
history	18	DigCand	124	Religion	480
To Read	18	ILRiver	124	theory	461
slice of life	16	Science	119	photo	460
book	15	Action	111	Education	443
canon	15	handbook	109	children's books portrayi	402
paranormal romance	15	social	109	english	394
ILRiver	14	design	108	social	380
Lesbian Pulp Fiction	14	Books	104	Oberg	366
literature	14	diss	103	design	359
read	14	Grinter	103	Thesis	339
Harem	13	comedy	102	jkbnhs	327
magic	13	shounen	102	fiction	323
HLM	12	Python	100	health	323
Literary fiction	12	Data	98	class	319

A Comparative Analysis of Evidence-based Selection, Professional Selection, and Selection by Approval Plan

Molly Strothmann and Karen Rupp-Serrano

This study compares three different models for selecting e-books for a research library's collection. From 2013 to 2018, the University of Oklahoma Libraries contracted with Elsevier for an evidence-based selection (EBS) agreement. The titles in that EBS package were compared to the approval plan parameters to determine which books would have been purchased on approval during those years if Elsevier had been included among the publishers profiled. Subject librarians also made hypothetical selections as though they were placing firm orders from this collection. The approval plan selections and librarians' selections were compared to usage data to determine how closely each selection model matched patrons' choices.

Selection is "[t]he process of deciding which specific materials should be added to a library collection."[1] The selection process has varied and evolved over time, as libraries have employed different strategies for making selections and embraced different philosophies about who should be responsible for selection decisions. Finding the optimal model has sometimes been an object of debate within the profession, not least because it can be challenging to determine if the collection acquired meets its purpose.

Many approaches to assessing how successfully a library's monograph collection has been built depend on counting the number of uses (print circulations or online views) that books receive. These approaches consider whether patrons have used books after they were added to the collection. Evidence-based selection (EBS, also known as evidence-based acquisition or EBA) is a selection model that reverses the steps: use precedes selection.[2] First, patrons have the opportunity to use e-books from a specified collection. After enough time has elapsed to allow evidence to accumulate, librarians can use it to inform their selections, buying books whose value to patrons has been demonstrated by usage data.

The University of Oklahoma (OU) Libraries began engaging in EBS approximately seven years ago, including multiple models from different publishers. The Libraries' EBS agreement with Elsevier began in 2013 with its Evidence-Based Model, which included books published in 2012 and 2013. This agreement focused on content in the sciences and engineering and included the following subject areas: biochemistry, genetics, and molecular biology; chemical

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Manuscript submitted August 14, 2019; returned to authors for revision October 10, 2019; revised manuscript submitted October 15, 2019; accepted for publication October 16, 2019.

engineering; chemistry; computer science; earth and planetary sciences; energy; engineering; environmental science; finance; immunology and microbiology; materials science; mathematics; physics and astronomy; and psychology. When this agreement was initiated, Elsevier was removed from the Libraries' approval plan profiles. In 2014, the original agreement was replaced with the Elsevier Freedom Collection, which provided access to titles published from 2010 forward, with new content added annually until the agreement ended in 2018. This agreement added content in several health science disciplines plus the following subject areas: agricultural, biological and food science; fats and oils; forensics, security and criminal justice; plastics engineering; and social sciences. As the larger agreement included more content of relevance to their students and faculty, the university's Health Sciences Center (HSC) was added to the agreement and gained access to all of its content at this time.

This study compares the data generated by the Elsevier EBS agreement to hypothetical purchases on the Libraries' approval plan and by individual selectors. It explores the question: if the Libraries had not participated in this agreement and had instead selected Elsevier titles via the regular terms of the approval plans, would the same titles as those selected by users have been purchased? Likewise, if subject librarians had placed firm orders for individual titles, how closely would their selections have matched patrons' usage?

Literature Review

Throughout the nineteenth and much of the twentieth century, libraries built their collections title by title. Initially, academic faculty were the usual selectors; later, librarians took over selection decisions.[3] Regardless of who made the selections, the process was inefficient and expensive.[4] Approval plans were introduced in the early 1960s, the first of which Abel developed for Washington State University at Pullman.[5]

Although the number of approval vendors has dwindled in recent years, variations on and complements to the traditional approval plan have multiplied. These expansions have been driven primarily by the advent of electronic books (e-books) and the development of new purchase-on-demand models called patron- or demand-driven acquisition (PDA/DDA). While modern libraries have always acquired materials at the request of users, PDA/DDA took on greater prominence as a formal selection model about ten years ago. PDA originated as part of interlibrary loan (ILL) acquisition strategies: rather than borrow books requested through ILL, some libraries found it cost-effective and collection-appropriate to buy them outright.[6] The approach expanded further as e-book vendors implemented PDA/DDA programs near the beginning of the twenty-first century, offering both patron-driven purchases and short-term loans (STL) of e-books.[7] More than 100 articles on PDA/DDA have been published since 2011 in peer-reviewed library-related journals, indicating the profession's interest in this development.

A more recent variation on PDA/DDA is EBS. This model tends to be offered at the publisher level and provides libraries with unlimited access to a substantial portion of the publisher's e-book output, usually including frontlist titles, for a set contractual term. At the beginning of the agreement, libraries commit to spending a certain amount to purchase e-books from the EBS title list. However, librarians make their purchase selections only after having had time to accrue, collect, and analyze usage data.[8] Since EBS is a fairly new practice, there are currently few articles that discuss it. After conducting three EBS trials, librarians at the University of Liverpool decided to retain some collections in full based on strong usage and to select on a title-by-title basis for others.[9] Levine-Clark characterized the Palgrave EBS as a success at the University of Denver.[10]

With multiple selection models in place, librarians have spent considerable time and effort comparing them: the literature describes comparisons of approval plans to librarian selection; approval plans to PDA/DDA; and PDA/DDA to librarian selection. Studies of PDA/DDA have included both print and e-books. Comparisons of librarian selections and approval plans have focused on numerous aspects; circulation has been examined quite frequently and, for the purposes of this study, is the most relevant metric. Two of the earliest papers indicated that titles selected by librarians demonstrated higher usage.[11] More recently, Tucker found slightly higher circulation numbers among books purchased on approval at the University of Nevada–Las Vegas, although that result varied by subject area.[12] Studies at the University of Nebraska–Lincoln and the University of Houston also indicated the effectiveness of librarian selection as demonstrated by circulation.[13]

A small number of studies have compared approval plans to PDA/DDA. The University of Iowa's collection contained print duplicates of 166 e-books selected by PDA, 23 percent of the total PDA purchases made during an eleven-month study. Researchers found that, based on usage, users preferred e-books when available, and that when an e-book became available, print circulation dropped, particularly for books with two or more print circulations before the PDA program started. Even when a newer print edition was available in the library's collection, older editions were used more when available online.[14] A comparison at the University of Nebraska–Lincoln of the circulation performance of print books selected by librarians, sent on approval plans, and acquired via patron ILL requests found that approval

plan titles did not circulate as frequently as either the ILL purchase-on-demand or librarian-selected titles.[15] Kent State University used acquisition and usage data comparing DDA and print book acquisitions to determine which selection model better served library users' needs, and which provided a better return on the library's investment.[16] Correspondence with the lead author clarified that the sample included print books acquired via both the approval plan and librarian selection, meaning that the study was not focused exclusively on comparing approval plans to PDA/DDA. The authors found that more e-books than print books were used during the study; that cost per use for the time period studied was equivalent between the formats but that e-books would likely generate a more favorable cost per use over time; and that uses of print and e-books aligned fairly well with overall acquisitions.

Finally, numerous studies in the past decade have compared DDA/PDA and librarian selection. The study most closely approximating the one described in this paper was conducted at Sam Houston State University.[17] The authors compared PDA titles selected by users to those that librarians would have selected. During the sixteen-week PDA pilot, 637 titles were purchased on demand, while librarians selected 8,567 titles. Patron and librarian selections resembled each other in content level and recommended use, but overall the two groups did not tend to select the same titles, perhaps because of differing motivations (patrons satisfied immediate information needs; librarians built collections for the future). The aforementioned Kent State study compared DDA to both approval- and librarian-selected print acquisitions and found that e-books had a usage advantage over print books acquired through either model.[18] The University of Nebraska–Lincoln study, also previously mentioned, found that ILL purchase-on-demand titles circulated more heavily than either librarian selections or approvals.[19] Another study at the University of Nebraska–Lincoln compared ILL purchase-on-demand titles to librarian selections with regard to collecting levels and Library of Congress (LC) classification. Researchers found that purchase-on-demand and librarian selections diverged on LC class, but not substantially enough to cause concern. They also found that there were differences between how patrons and librarians spent acquisitions dollars, but again, those differences were minor.[20]

In 2015, two studies were conducted at the University of Florida and Iowa State University comparing DDA/PDA and librarian selection. At the University of Florida, librarian-selected e-books were less expensive on average ($88.45) than PDA titles ($123.04), but librarian-selected e-books had a higher average cost per use ($22.21) than PDA titles ($8.88).[21] At Iowa State, patron selections included both titles triggered for purchase via DDA and usage in a leased collection. Breaking down patron and librarian selections by LC class, the researchers found that 26 percent of LC class ranges were selected through DDA but not by librarians. Librarians selected more titles in science and technology classes than patrons did; patron and librarian selections more closely resembled each other in social sciences and humanities classes.[22] No published research could be found that directly compared books purchased through EBS to either librarians' or approval plans' selections, as this study undertakes.

Method

Sample

The study examined a subset of e-books from Elsevier's Freedom Collection that met the following criteria:

- They became available online before December 31, 2016.
- They were published between 2012 and 2017 (some books with 2017 publication dates became available before the end of 2016 and were included).
- They were still available for purchase from Elsevier as of the date when the usage report was generated, and list prices could be obtained.
- They were in subject areas of interest to the university's main campus. The Freedom Collection agreement was shared between the main campus and the HSC, with proportionate costs borne by each. Biomedical subject areas likely to be used mainly by HSC students and faculty were excluded, and all calculations related to spending were based only on the main campus's share of the cost.

The sample contained 3,781 titles, all of which were from the 2015 and 2016 Freedom Collections. Most of the books were on engineering or science subjects; the remainder were in social sciences or business. A COUNTER Book Report 2 (BR2), which tallies successful section requests by title and month, was obtained for January 2013 to April 2017.[23] Throughout this study, reported usage consists of the total number of times items were used within that reporting period.

Procedure

Elsevier's subject areas were used to assign each of the e-books into one of four broad groups corresponding to the subject assignments of four main-campus librarians (see table 1).

The four subject librarians whose academic areas were represented by these Elsevier collections were given

Table 1. Subject Areas

	Engineering	Sciences	Social Sciences	Business
Books (N=3,781)	2,177	1,015	496	93
Percentage	58%	27%	13%	2%
Elsevier subject areas included	Chemical Engineering Computer Science Earth and Planetary Sciences Energy Engineering Materials Science Plastics Engineering	Agricultural, Biological, and Food Sciences Biochemistry, Genetics and Molecular Biology Chemistry Environmental Science Fats and Oils Immunology and Microbiology Mathematics Physics and Astronomy	Forensics, Security, and Criminal Justice Psychology Social Sciences	Finance

spending targets and asked to make selections within their subjects, identifying books that would have been firm orders if Elsevier e-books had been individually selected. This study refers to their selections as *simulated firm orders*. The spending targets were based on the number of e-books in each subject area—for example, since 58 percent of the titles in the sample were in engineering, the engineering librarian was given a budget equal to 58 percent of the main campus's EBS spending with Elsevier. The allotments, as percentages of the total budget, are provided in table 1. Subject librarians were given spreadsheets that provided information comparable to what would be available during ordinary firm ordering—title, subject area, list price, ISBN, publication year, series title (if applicable), imprint, and URL on the publisher's website. However, librarians made their selections without reference to the e-books' usage data.

Separately, the Libraries' principal book vendor, GOBI, identified books that would have been purchased automatically if Elsevier had been included among the Libraries' approval publishers between 2012 and 2016. This study refers to these selections as *simulated approval purchases*. Books were profiled according to the stipulations of the Science and Technology and Social Sciences and Humanities approval plans, using classification number areas and all applicable non-subject parameters. The plans' standard price caps of $200 per book on the SciTech plan and $150 per book on the SSH plan were used, but there was no limit imposed on total spending. GOBI's report included all Elsevier titles that became available to the vendor during this time period, not just titles from the Freedom Collection; however, only the latter were considered in this analysis. Analysis compared simulated firm orders and simulated approval purchases to the reported use that these books received.

Results

Freedom Collection Use Summary

The COUNTER BR2 Report tallies the number of uses that e-books receive, and this analysis focuses on usage data. Throughout this study, however, e-books that received use by patrons are termed "accessed books" rather than "used books" to avoid confusion with the expression "used books" as in "pre-owned."

Of the 3,781 books in the sample, 1,486 (39 percent) were not accessed during the time period examined in the study. The mean list price of those non-accessed books was $230.55. The remaining 2,295 books (61 percent) were accessed at least once. Their mean list price was $220.85, meaning that accessed books were less expensive than non-accessed books, but only slightly. Cost per use for accessed titles ranged from $0.07 to $750.00 and averaged $66.62.

The 2,295 accessed books were used a mean 31.8 times, with number of uses ranging from one to 1,714. The values of the first quartile, median, and third quartile were two uses, eleven uses, and thirty uses, respectively. Although the distribution precluded grouping the books perfectly into quartiles, accessed books were categorized as low, low-medium, medium-high, or high use relative to those values:

- Low use: 1 or 2 uses (623 books);
- Low-medium use: 3 to 11 uses (538 books);
- Medium-high use: 12 to 30 uses (573 books); and
- High use: 31 to 1,714 uses (561 books).

Within the "high use" category, the top 5 percent of titles by usage were singled out for further analysis. This group contained 115 books that were used 132 times or more.

Usage levels were consistent among the four subject categories, except that a slightly higher percentage of books

Table 2. Usage Summary

	Number of titles			Mean Price			Mean Number of Uses (accessed books only)
	Total	Accessed	Non-Accessed	Total	Accessed	Non-Accessed	
All Subjects	3,781	2,295 (61%)	1,486 (39%)	$224.66	$220.85	$230.55	31.8
Engineering	2,177	1,315 (60%)	862 (40%)	$246.86	$241.38	$255.22	32.7
Sciences	1,015	595 (59%)	420 (41%)	$234.69	$236.51	$232.11	37.9
Social Sciences	496	328 (66%)	168 (34%)	$123.01	$125.14	$118.87	18.0
Business	93	57 (61%)	36 (39%)	$137.76	$134.50	$142.92	27.4

in the social sciences were accessed than in the other three subject categories. However, titles in the social sciences also had the lowest mean number of uses (see table 2).

Simulated Firm Orders

The budgets given to the subject librarians enabled them to select 1,074 books as simulated firm orders. Their selections included 359 of the 1,486 non-accessed (24 percent) and 715 of the 2,295 accessed titles (31 percent). Librarians' selections had a mean list price of $189.51, 16 percent lower than the mean list price for the sample overall ($224.66). Librarians' selections from the books that patrons accessed received a mean 44.3 uses per book, with a mean cost per use of $41.01.

In general, as usage increased, so did the likelihood that librarians would select titles as simulated firm orders. Overall, librarians selected 22 percent of the low-use books (140 of 623) and 40 percent of the high-use books (223 of 561). The business librarian was the only selector whose choices were not consistent with that tendency; however, as there were only ninety-three business books in the sample, and the business budget was only sufficient to simulate ordering thirty-five of them, it is not surprising that this subject area did not demonstrate a clear selection pattern. The social sciences librarian selected a higher percentage of books overall because the list prices of books in that subject category were considerably lower than those in engineering or the sciences (see figure 1).

Further analysis considered the most highly used books. If very heavy usage is a sign that a resource is indispensable to a library's collection, then the books that received the most use should all or nearly all have been selected as simulated firm orders. Librarians selected fifty-nine of the 115 books that comprised the top 5 percent by usage (51 percent). That rate substantially exceeds the percentage of books that librarians selected as simulated firm orders overall and continues the trend that they were more likely to select higher-use books than lower-use or unused ones.

Librarians were given a budget based on the cost of the subscription agreement. Ordering at list price, that budget would not have sufficed to purchase all the books in the Freedom Collection, or indeed all the books that patrons used. If orders were placed based only on usage, beginning with the most-used title and descending the list until the funds were exhausted, librarians would have been able to purchase 927 titles (40 percent of the accessed books) that were used sixteen times or more. That set of 927 hypothetical purchases would have included 539 books in engineering, 270 in science, 93 in social sciences, and 25 in business. That subject-area distribution is nearly identical to the composition of the sample as a whole.

Simulated Approval Purchases

Had Elsevier been included among the Libraries' approval publishers during this study's time frame, 1,617 print titles from this sample would have been purchased on approval. These selections included 634 of the 1,486 non-accessed titles (43 percent) and 983 of the 2,295 accessed titles (43 percent). Simulated approval purchases had a mean list price of $176.85.

The Libraries' GOBI representative generated an approval report using price ceilings of $150 for books in the social sciences and $200 for books in the sciences. However, that report used GOBI's prices, which were generally lower than Elsevier's list prices for these titles. Therefore, although some titles were excluded based on price, the simulated approval purchases included a number of titles that exceeded those price ceilings according to the Elsevier prices reported throughout this study.

The simulated approval purchases included the largest percentage of available titles in the social sciences and the smallest percentage in business. Simulated approval purchases included:

- 960 of the 2,177 engineering books (44 percent)
- 400 of 1,015 science (39 percent)
- 228 of 496 social sciences (46 percent)
- 29 of 93 business (31 percent)

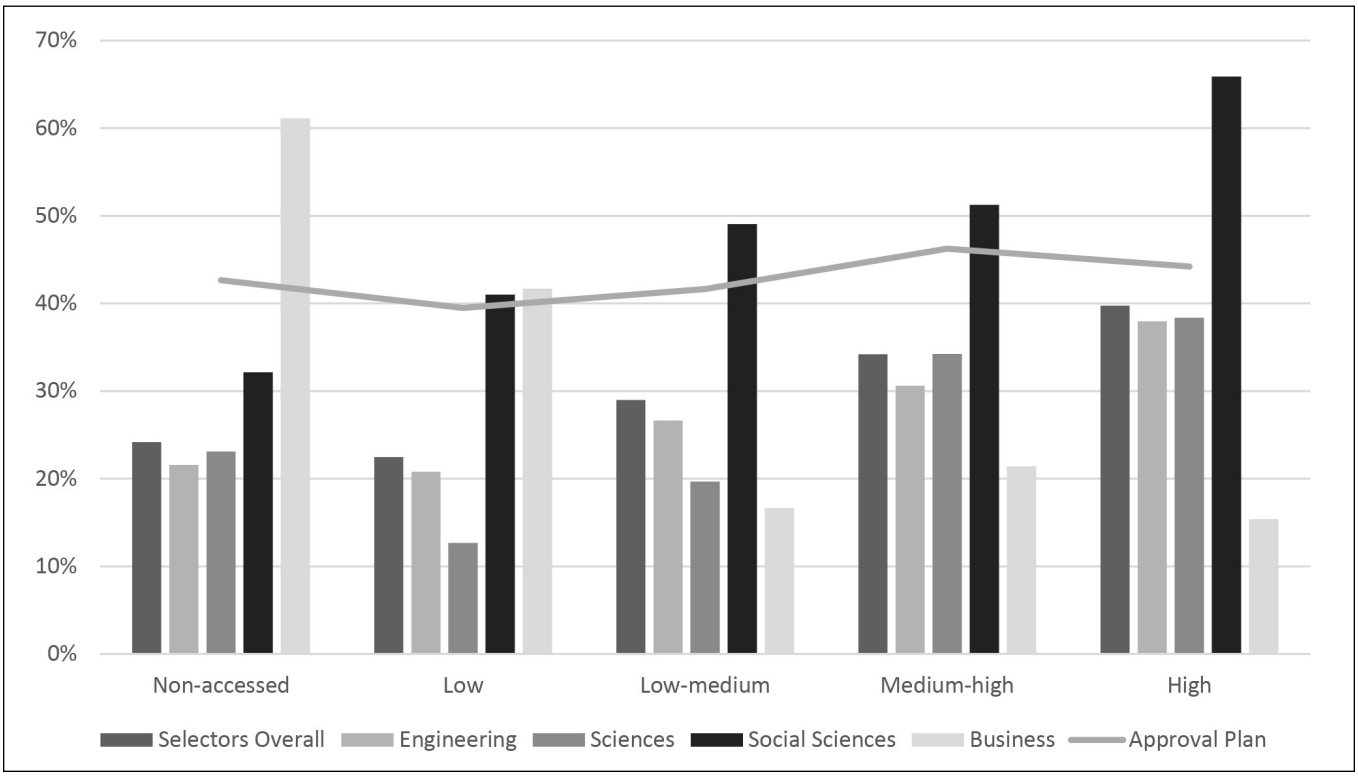

Figure 1. Percentage of available titles selected as simulated firm orders and simulated approval orders by subject and usage level.

Across subject areas, the approval plan consistently captured the same percentage of accessed and non-accessed books as simulated approval purchases. Only in the smallest category, business, was there any difference, with a smaller percentage of accessed than non-accessed titles identified as simulated approval purchases (see figure 2).

Unlike the individual selectors, the approval plan was not more likely to select high-use than low-use titles (see figure 1). Approval orders would have included 43 percent of the non-accessed books and between 39 percent and 46 percent of the accessed books within each usage level:

- 634 of the 1,486 non-accessed books (43 percent)
- 246 of the 623 low-use books (39 percent)
- 224 of the 538 low-medium use books (42 percent)
- 265 of the 573 medium-high use books (46 percent)
- 248 of the 561 high-use books (44 percent)

The approval plan would have delivered 49 of the 115 books in the top 5 percent by use (43 percent), the same percentage that it would have delivered of the sample overall.

Although the simulated approval purchases were limited by price ceilings for individual titles, a total budget was not imposed on them (unlike simulated firm orders). Using Elsevier's list prices, the amount that would have been spent via the approval plan exceeded expenditures on the main campus's share of the Freedom Collection by 41 percent.

Textbooks

The authors' library has a separate program to purchase reserve copies of some required textbooks, prioritizing those that are more expensive (over $90) and/or serve high-enrollment classes. Therefore, some subject librarians consider the Libraries' textbook collecting adequate and avoid purchasing other textbooks with their firm ordering funds. Similarly, the approval plans exclude most textbooks from automatic purchasing, except for certain graduate-level textbooks in the sciences. The authors hypothesized that some of the discrepancies between simulated firm orders, simulated approval orders, and users' behavior might be explained by the different approaches that those selectors took toward textbooks.

According to GOBI, 820 of the 3,781 titles within this collection (22 percent) were textbooks (Elsevier did not label any books in the sample as such). Not surprisingly, textbooks were more heavily used than the collection as a whole: 555 textbooks (68 percent) were used at least once, and those 555 textbooks were accessed a mean 52.8 times. Accessed textbooks had a mean list price of $179.71.

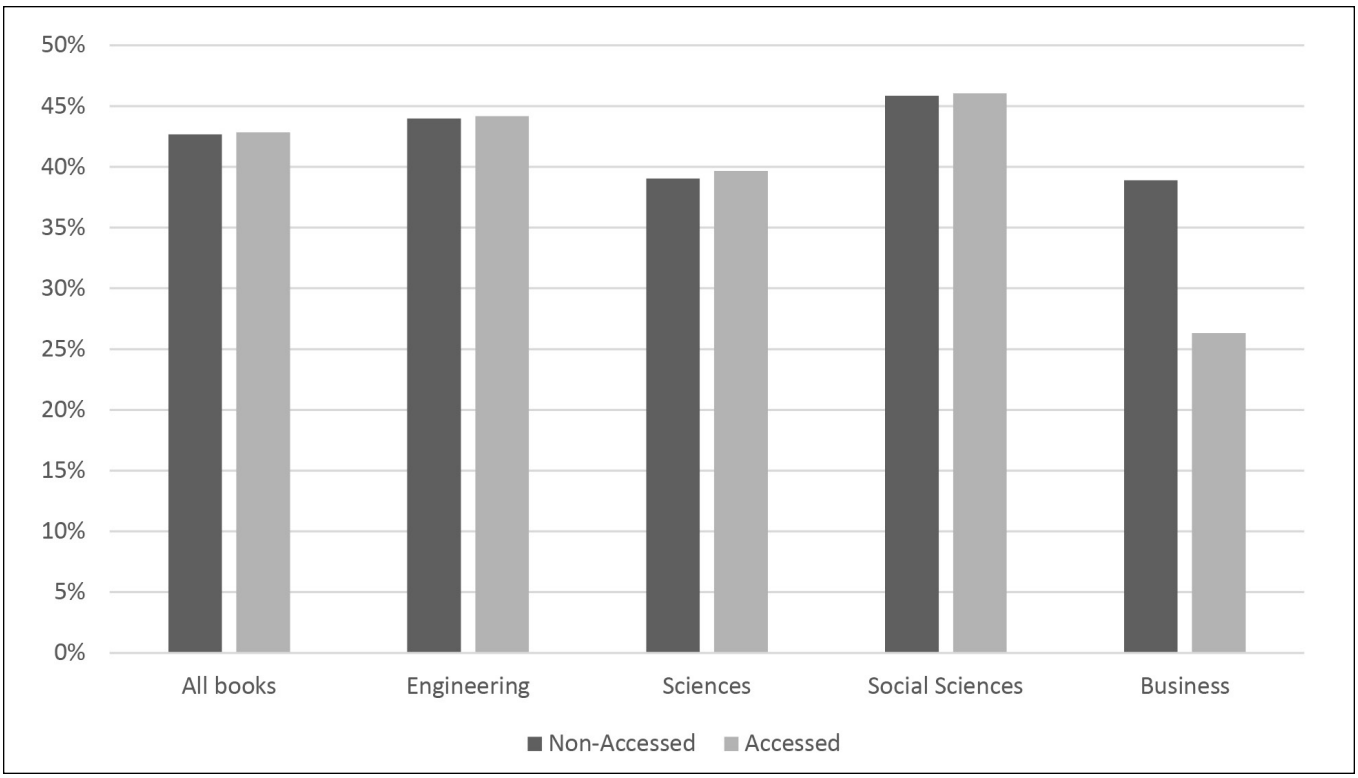

Figure 2. Percentage of available titles in each subject identified as simulated approval purchases.

Nearly one-third (29 percent) of librarians' simulated firm orders were textbooks. Librarians selected 1,074 of the 3,781 books on the list (28 percent). They selected 315 textbooks, 38 percent of the 820 textbooks available. The assumption that librarians would avoid titles that they recognized as textbooks was, therefore, not supported—librarians actually selected a higher proportion of textbooks than books in general. Librarians selected 223 of the 555 accessed textbooks (40 percent) and 92 of the 265 non-accessed textbooks (35 percent). As with the sample overall, librarians had a higher rate of selection among accessed than non-accessed titles, but the difference was minor.

The approval plan would have delivered 315 textbooks, or 38 percent of the 820 textbooks available. Coincidentally, the exact same number of textbooks were selected as simulated firm orders and as simulated approval purchases, although librarians chose different specific titles than the approval plan did. All the textbooks captured by the approval plan were graduate-level, and all but three were in science or engineering subjects. The simulated approval textbook purchases included 195 of the 555 accessed textbooks (35 percent) and 120 of the 265 non-accessed textbooks (45 percent). While the simulated approval purchases were as likely overall to capture accessed and non-accessed titles (43 percent of each), the approval plan captured a below-average proportion of accessed textbooks. This discrepancy is probably a consequence of the academic level and subject areas of the accessed textbooks: the Libraries' approval plan excludes all introductory or undergraduate textbooks and nearly all textbooks at any level in the social sciences and humanities by default. Patrons, however, used them.

Selection Patterns by Subject

Selections were further analyzed within Elsevier's subject areas. Two subject areas, fats and oils and plastics engineering, were excluded from the analysis because they contained too few titles (eight and six, respectively) to demonstrate any meaningful trends. The other categories contained between 51 and 835 titles each.

Overall, patrons accessed 2,295 of the 3,781 titles available in the EBS collection, or 61 percent. Their access rates were fairly consistent across subject areas: usage ranged from 47 percent of the available physics and astronomy books to 75 percent of the psychology books. The approval plan showed more variation by subject area. Overall, 1,617 titles were identified as simulated approval purchases, or 43 percent. Selection rates ranged from 24 percent of available titles in both materials science and agricultural, biological, and food sciences to 62 percent in social sciences. In only one subject, physics and astronomy, did the approval plan select a larger number of titles than did patrons. The largest discrepancies

between patron and approval plan selection rates were in psychology (patrons accessed 75 percent of available titles; the approval plan identified just 38 percent) and in agricultural, biological, and food sciences (patrons accessed 57 percent; approval plan, 24 percent). Patrons and the approval plan were most similar in environmental science (both selected 57 percent of the available titles) and in computer science (patrons, 60 percent; approval plan, 57 percent).

Librarians showed even more variation by subject area than the approval plan. Overall, they selected 1,074 titles from the EBS collection as simulated firm orders, or 28 percent. Selection rates ranged from 8 percent of available titles in immunology and microbiology to 71 percent in psychology. Like the approval plan, librarians selected more titles than patrons in only one subject area; again, it was physics and astronomy. The largest discrepancies between patron and librarian selections were in immunology and microbiology (patrons accessed 63 percent of available titles; the subject librarian selected just 8 percent of them as simulated firm orders), and in forensics, security, and criminal justice (patrons, 64 percent; subject librarian, 9 percent). Librarians matched patron behavior most closely in the subjects of psychology (patrons accessed 75 percent of the titles in that area; the subject librarian selected 71 percent of them) and social sciences (patrons, 63 percent; subject librarian, 57 percent) (see table 3).

Discussion

Neither the simulated firm orders nor the simulated approval orders perfectly mirrored patrons' usage. However, librarians were more successful than the approval plan at selecting the titles that patrons accessed most frequently. Within their own selections, librarians were also more likely to select high-use than low-use titles. Overall, simulated firm orders showed a steady upward trend from 22 percent of the low-use books to 40 percent of the high-use books. The approval plan, conversely, was approximately as likely to select books from all four usage levels. The ratio of accessed to non-accessed titles that librarians selected as simulated firm orders was approximately 2 to 1. Within the simulated approval purchases, the ratio was closer to 3 to 2. Finally, the accessed titles that librarians selected as simulated firm orders had higher mean usage and lower mean cost per use than the accessed titles overall. If the success of selection is measured by the usage of selected titles, then taken together, these results support the previous research noted in the literature review that implies that librarians are more effective at selection than approval plans.

Simulated approval purchases and simulated firm orders showed considerable duplication, with 580 titles appearing in both groups. In reality, no overlap would have occurred because librarians exclude approval purchases when making their selections. However, this result does imply that librarians apply some, but not all, of the same selection criteria when placing firm orders that they used to develop approval plan parameters.

Both librarians and the approval plan matched patrons' behavior more closely in some subject areas than others. In most cases, it is easy to understand why both the approval plan and the librarians selected as they did. For example, since OU has no agriculture department, the approval plan parameters limit or exclude most agriculture titles. The science librarian, similarly, tends to exclude books on agricultural science when placing firm orders. Elsevier's subject area "agricultural, biological, and food sciences" contained a large number of titles that both the approval plan and the subject librarian treated as out of scope for the collection. Elsevier's subject area "immunology and microbiology" is similar: both the approval plan and the subject librarian selected from the microbiology titles but excluded the immunology books as more appropriate to the HSC's library than to the main campus's. Declining to collect materials in a subject area in which the university has no program is an eminently logical decision for an academic library. However, examining the usage data within this EBS collection reminds us that our understanding of our patrons' needs is imperfect. Perhaps, despite the lack of an agriculture department, faculty appointed in another academic discipline are doing research in that area without librarians being aware of it. If so, the results from the EBS usage data might be a signal that adjustments to the Libraries' collecting decisions and approval plan profiles are needed. Perhaps usage in this area is a consequence of the increasingly interdisciplinary nature of research, which makes a blanket omission of a topic as "out of scope" obsolete. Or perhaps some results simply signal a niche interest from an individual patron that could not have been anticipated. Based on the authors' knowledge of the Libraries' collection needs, both the approval plan and the subject librarian were right to decline purchase of *Essential Oils in Food Preservation, Flavor and Safety*, and yet patrons accessed it 202 times.

Neither the simulated approval purchases nor simulated firm orders in this study captured anywhere near the full number of titles available through the Elsevier EBS program. Similarly, neither simulated approval purchases nor simulated firm orders captured all the EBS titles that patrons accessed while they were available. The budgetary constraints under which subject librarians operated while making their selections enabled them to select only 1,074 titles, while the approval plan would have delivered 1,617. During the EBS program, patrons had access to 3,781 and used 2,295 of them.

Therein lies much of the appeal of the evidence-based selection model: it stretches budgets by giving patrons

Table 3. Comparison of Selection Rates within Subject Areas

			Accessed		Approval		Selector	
Elsevier Subject Area	Subject	*N*	*n*	%	*n*	%	*n*	%
Finance	Business	93	57	61	29	31	35	38
Chemical Engineering	Engineering	204	130	64	107	52	44	22
Computer Science	Engineering	391	236	60	223	57	140	36
Earth and Planetary Sciences	Engineering	155	85	55	53	34	49	32
Energy	Engineering	236	160	68	112	47	48	20
Engineering	Engineering	835	508	61	379	45	228	27
Materials Science	Engineering	350	194	55	85	24	57	16
Agricultural, Biological, and Food Sciences	Sciences	335	191	57	82	24	49	15
Biochemistry, Genetics, and Molecular Biology	Sciences	205	131	64	89	43	57	28
Chemistry	Sciences	135	78	58	53	39	45	33
Environmental Science	Sciences	112	64	57	64	57	33	29
Immunology and Microbiology	Sciences	79	50	63	38	48	6	8
Mathematics	Sciences	90	52	58	45	50	40	44
Physics and Astronomy	Sciences	51	24	47	29	57	27	53
Forensics, Security, and Criminal Justice	Social Sciences	170	109	64	54	32	15	9
Psychology	Social Sciences	113	85	75	43	38	80	71
Social Sciences	Social Sciences	213	134	63	131	62	121	57

immediate access to a larger catalog of titles for the same amount of money. However, it should be emphasized that what is expanded is temporary access—in effect, rentals—not permanent ownership. While libraries participate in an EBS plan, their patrons can use all the titles in the agreement. When they discontinue participation, only the titles that they ultimately select for permanent purchase remain in their collection for future use. In that respect, EBS is not unlike the traditional acquisition model in which a library's permanent selections are augmented through temporary ILLs.

Titles were selected for purchase twice—at the end of the first year of the EBS agreement and in March 2019 after the agreement ended. Initial credits sufficed to allow the OU Libraries to purchase 217 titles. The second purchase, made using multiple years' credits, included 1,262 titles. Having concluded the EBS agreement, the Libraries have permanent ownership of 1,479 titles—a number roughly comparable to what would have been acquired via either the approval plan or selectors' firm ordering and substantially smaller than the number that patrons accessed during the EBS agreement. It should be noted again that Elsevier's list prices were higher for many titles than what the Libraries might have paid through GOBI for the same titles. EBS agreements can be an economical way to increase the number of titles immediately available to patrons in the short term, but they assuredly do not represent a revolution in libraries' spending on scholarly books. Understanding that EBS results in approximately the same number of titles being added to the permanent collection as any other acquisition model, librarians who are considering incorporating it into their selection strategies must weigh the reduction in spending flexibility with a given publisher against the benefits of immediate but temporary access to a large e-book catalog and expanded data to inform purchase decisions.

When the selector (this paper's second author) ultimately made purchase decisions, she gave the usage report considerable weight; however, it was not dispositive (she did not hew strictly to the list of the 1,479 most-accessed titles in selecting the Libraries' 1,479 purchases.) She also considered price, topical redundancy, and the predicted ongoing usefulness of each title before adding it to the permanent collection. Furthermore, usage was interpreted in context: average cost per year was considered so that older titles, which had been available to patrons and accumulating views for years, were not automatically privileged over newer titles with lower totals but strong recent usage. Critical judgment, similar to that which subject librarians use to make title-by-title selections, was applied. For example, the EBS collection contained fourteen different guides to the software MATLAB, including multiple editions of some titles. Patrons accessed thirteen of them at least once. In making simulated firm order selections, the science and

engineering librarians chose seven of them. Librarians made the professional judgment that purchasing half of these titles would create a satisfactory treatment of the topic within the permanent collection, taking into account the price, duplication of print holdings, and uniqueness of each title. When the real purchases were ultimately made, nine of the accessed MATLAB books were selected, a decision that balanced users' demonstrated interest in the topic against the professional goal of building a strong collection without wasteful redundancy. The authors suggest that future research, ideally across multiple academic libraries, should examine how librarians weigh and interpret usage data in making purchase selections from their EBS packages.

Conclusion

Publishers promote EBS agreements to reduce the risk of purchasing materials that will not be used by offering librarians the opportunity to defer selections until after they have collected and reviewed usage data. However, there is generally no flexibility during the "rental" period when the EBS agreement is generating data. Libraries commit to a certain spending level and receive access to a fixed collection throughout the period of their EBS agreement, accepting the risk that it may not yield the anticipated usage.

Patrons at the OU Libraries—not unexpectedly—did not access a substantial percentage (39 percent) of books in this study when they were available through the EBS agreement. The authors recommend that vendors increase the flexibility of these agreements during the data-generating period. Libraries should be given the ability to revise the parameters of multi-year EBS agreements after an initial year or two of participation, an option that some vendors have begun to provide. With plans that are structured like the OU Libraries' Elsevier Freedom Collection EBS agreement, those revisions could entail removing specific subject collections from an active agreement. If a customer finds after two years that patrons are not accessing titles in a given collection (the physics and astronomy collection, for example), it would be beneficial to have the option to eliminate it from the EBS agreement in exchange for a fair corresponding price reduction for its remaining years. Some customers might choose to keep all subject collections available and simply make their purchases from more heavily used subject areas. However, customers who planned their spending based on the assumption that all subject areas would prompt purchases might find themselves without enough evidence-based purchases to make if some portions of the EBS collection prove unviable. If librarians are reluctant to remove content from their catalogs entirely, they might consider pursuing other means of providing access to it that will have less impact on their budgets. As an obvious example, they could remove low-use collections from their EBS agreements and then add records for those titles to an e-book aggregator. They may not find themselves able to replace everything—publishers who offer EBS agreements on their own platforms frequently limit availability of titles on aggregators—but a substantial portion could be replaced using this approach. The library would benefit by continuing to offer some access to content in the low-use subjects and would probably spend much less money on STL fees on the aggregator platform than it would on the EBS agreement.

Vendors are never pleased with spending reductions, and from their perspective, increasing the predictability of their customers' spending on e-books is a significant reason they offer EBS packages. However, providing customers with the ability to make changes relatively early in an evidence-based plan could garner a great deal of valuable customer goodwill. If vendors are not receptive to negotiating the contents and price of active EBS agreements, an alternative would be to permit customers to "bank" part of the funds they had committed to paying for e-book purchases and reallocate them to other purchases with the vendor if they are unable to justify purchasing enough e-books to equal the spending originally planned.

The usage reports generated by EBS agreements also allow librarians a new avenue for collection analysis. While patrons have access to an entire EBS package, they are able to use, and demonstrate their use of, resources that libraries might not otherwise have acquired. Librarians may be able to analyze that data to identify gaps in their collection practices. If, for example, an EBS package includes books in a subject area or at a content level that a library does not usually collect, but that patrons use heavily when they are available, librarians might take that as a cue to revise their approval plan parameters.

Neither approval plan selections nor professional selections by subject librarians precisely mirror or anticipate patrons' usage of e-books. However, selection based on usage numbers alone may not create perfect collections either. Evidence-based selection agreements require librarians to commit to certain spending levels within specific packages from specific publishers. In exchange for that reduction in spending flexibility, they receive data to inform their purchases. Simultaneously, they are better able to incorporate professional judgment into their selections than a purely demand-driven acquisition model would allow.

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Notes on Operations

Holistic Collection Development and the Smithsonian Libraries

Salma Abumeeiz and Daria Wingreen-Mason

As part of a larger collections analysis study, this project outlines why a particular, underserved museum unit at the Smithsonian Institution is underutilizing the Smithsonian Libraries' facilities and resources, and how the library can better support this unit's unique research needs. Using a holistic methodology that weds quantitative and qualitative approaches, this study highlights the unit's distinct research profile that includes the various logistical, emotional, and collection-related barriers that impede their usage of the Libraries. Findings from this study signal the utility of a holistic, user-centric methodology to gather pertinent data and facilitate ongoing, interpersonal dialogues between the Smithsonian Libraries and its diverse internal users.

As part of a larger collection development study being undertaken by the Smithsonian Libraries (SIL), this project seeks to demonstrate how a holistic collection development methodology can promote stronger, inter-disciplinary collections while increasing library usage among smaller, "underserved" Smithsonian units. The project proposes alternatives to relying exclusively on quantitative strategies such as checklists or circulation statistics by employing interpersonal approaches that emphasize local research needs.[1] Semi-structured research interviews with Smithsonian curators, researchers, and directors at a distinct research and education unit were undertaken, along with subject analyses of un-accessioned materials, from which the necessity of micro-level collections assessment was concluded. A holistic methodology, the sum of quantitative and qualitative tools used to develop and assess collections, had the potential to uncover multifaceted findings formerly undetected by singular, data-driven assessment strategies.

Historical and contemporary reliance on systemic, data-driven tools among collecting institutions is partly the result of the complex processes of collections assessment. While quantitative findings, such as usage statistics, present a seemingly direct and efficient way for research libraries to justify their collections amid ever-shifting technologies and budget constraints, and formal evaluation strategies help circumvent the labor-intensive process of reviewing collections using an item-by-item approach (referred to as the Conspectus method), exclusively quantitative systematic approaches fail due to their one-dimensionality when evaluating collecting institutions such as museum library networks.[2] Without discrediting the utility of quantitative tools, this study demonstrates that relying on them solely overlooks what exists at a micro-level, such as the quality of a collection's holdings, or weaknesses therein.[3] On their own, circulation statistics and checklists are ill equipped to assess collection omissions as they tend to focus on the number and use of items that encourage uniformity and overlook inter-unit distinctions.

Macro-level collections assessment challenges are exacerbated when applied to an institutional behemoth like SIL. With twenty-one specialized branches, each nested within the disciplines of History & Culture, Art & Design, Natural & Physical Sciences, or Special Collections, SIL's more than two million items

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Manuscript submitted December 28, 2018; returned to authors for revision July 2, 2019; revised manuscript submitted September 2, 2019; accepted for publication September 26, 2019.

represent a multitude of disciplines and subjects. SIL's numerous programs and services include: online research tools; K-12 educational outreach; an array of digital collections; online and physical library exhibitions; interlibrary loan (ILL); and the Smithsonian Research Online (SRO), an aggregate of publication data of works created by Smithsonian staff and affiliates. Across the Smithsonian, each physical museum has a dedicated library branch to serve its research and curatorial needs. However, some Smithsonian units do not fit neatly into this corresponding museum/library pairing. While SIL provides some support to these units, they do not have the luxury of a dedicated library space. For units that do not belong to this museum/library pairing, quantitative strategies fall short because their research profiles are complicated by their lack of proximity to a staffed physical library.

One SIL branch that is uncharacteristically multidisciplinary is the Smithsonian Libraries Research Annex (SLRA), out of which this study's research team is based. SLRA is not a branch dedicated to one museum, but is instead dedicated to all. As SIL's most subject-diverse unit, it houses materials from each of the Smithsonian's branch libraries. The Annex, located off-site in Landover, Maryland, housed over 35,000 monographs and 250,000 periodical holdings when this project was conducted. Originally established as an off-site storage facility for legacy materials, SLRA's holdings are comprised of materials across all areas of study at the Smithsonian: history and culture, applied science and technology, natural and physical sciences, and art. Materials housed there have been culled for fifty years from the many research-specific museum-branch libraries. More recently, due to overcrowded shelf spaces and loss of physical space due to renovations across the Smithsonian network, SLRA's purpose has expanded to include actively used collections. As such, SLRA is an inherently cross-disciplinary collection and operates as a library branch, an institutional legacy collection, and off-site storage.

This study examines the benefits of a holistic collection development methodology between SLRA, a multi-disciplinary off-site library branch, and the Smithsonian Center for Folklife and Cultural Heritage (CFCH), a research unit without a dedicated, physical Smithsonian Libraries branch. It seeks to demonstrate the efficacy of holistic methodology to bring inclusiveness and representation among disenfranchised library users within a large network of research disciplines. The study's findings promote the adaptation of holistic principles by similarly marginalized units in establishing collections that represent the cross-disciplinary interests of their users.

For the purpose of this discussion, a "holistic methodology" refers to a process that "enable[s] a comprehensive approach to organizing the library," whereby various perspectives are accommodated.[4] It is the sum of two composite parts: quantitative assessment—including, but not limited to, evaluating circulation statistics and administering structured surveys; and qualitative assessment—including semi-structured interviews and participant observation. The authors argue that the application of a holistic methodology accomplishes the following: it situates qualitative data by providing a broader overview of the unique institutional context in which they exist; it expands on findings outlined by quantitative assessment data, which does not account for subject omissions; and, finally, it personifies the library, providing an in-person interface that allows library staff to engage directly with collection users, which, in turn, enables library staff to better understand and accommodate users' research interests.

CFCH was deemed an optimal organization to apply a holistic collections methodology for several reasons. Like SLRA, it is also a cross-disciplinary organization. It produces and manages the Smithsonian Folklife Festival, Smithsonian Folkways Recordings, and Ralph Rinzler Folklife Archives and Collections, and their respective exhibitions, documentaries, symposia, publications, and educational materials related to cultural heritage and sustainability. Further, CFCH is considered a small unit (it employs eighty members) but still provides an opportunity for several interdepartmental assessment interactions. Finally, CFCH, like SLRA, does not have a typical Smithsonian museum-to-library relationship, as it has neither its own SIL branch nor its own physical museum space to serve its research and collection needs. By conducting an analysis of ongoing discussions between SLRA and CFCH, this project promotes cooperative collection assessment strategies. It also signals the importance of iterative, sophisticated dialogs with underserved stakeholders, and illustrates the benefits of holistic, personified collections assessment (a holistic methodology) for identifying gaps and areas for growth in SIL's collections, specifically at SLRA.

This project found that CFCH is a diverse organization in both its staff and research profile. Driven overall by the goal of cultural sustainability, its curatorial output is the sum of a variety of interrelated fields, such as language revitalization, ethnomusicology, and folk history. A foundational component to CFCH's research output is that their research goes beyond cultural "preservation," and moves to "more dynamic and ecological models of sustainability" whose findings "support individuals, communities, scholars, policymakers, and other stakeholders around the globe in their efforts to shape cultural futures on their own terms."[5] CFCH staff thus require materials—both print and electronic—to support their work in these areas. Nearly all staff members consulted for this project noted that SIL collections are lacking in cultural sustainability materials, and that their existing research affiliations with external institutions preclude their engagement with the Libraries. Further, this

study uncovered an expanding group of uncataloged materials housed within the CFCH offices, gifted by their various partners and affiliates. Upon assessment, these uncataloged materials were deemed essential to the history and research output of the organization. Further, the materials begin to fill many of the subject gaps in SIL's collections, and serve as a foundation for further subject expansion. These findings were uncovered using a holistic methodology.

Literature Review

Compared to the larger body of collections assessment literature, less inquiry has been applied to museum libraries. This discrepancy may be a result of their complex structure. A 1972 collections development study conducted by Smithsonian visiting researcher Elaine Sloan implies that because museums are multi-disciplinary organizations whose collections are shaped by their individual units, assessment approaches for museum libraries are more complicated than assessments geared towards single institutional entities. Sloan evaluated how curators at the National Museum of Natural History and the former National Museum of History and Technology (now the National Museum of American History) interact with the Libraries' collections. Specifically, Sloan outlined user perceptions of the Libraries and how curators assessed SIL collections in relation to their specific research needs.[6]

Using multiple approaches, including structured observations of library operations, administering a self-completion questionnaire to curators, and conducting interviews with librarians, Sloan provided a holistic set of findings that illustrate how opinions of and engagement with the Libraries can vary among its users. For instance, at the time of the study, most curators at Natural History used SIL collections for their research and relied almost exclusively on their corresponding museum branch. Conversely, those at History and Technology consulted more branches outside their own, and primarily relied on personal collections and external institutions.[7] This discrepancy, Sloan concluded, reflects the diverging nature of each research discipline. Natural History curators who rely exclusively on their branch library reflect the centralization of natural science research, which often does not require them to consult outside disciplines. However, for fields like history, research is inherently cross-disciplinary, and necessitates attention to multiple fields.[8] It is thus necessary to recognize the heterogeneity of research needs among Smithsonian units. Furthermore, this study is indicative of the effectiveness of mixed-method collections assessment strategies in uncovering rich, multi-disciplinary perspectives.

Since the publication of Sloan's pre-integrated library system study, holistic collection development strategies have gradually increased in popularity, particularly in academic institutions. This increase is reflected in recent collections literature, wherein special attention is given to multi-tool assessment approaches. These studies assert that a holistic collection management approach is an effective means of weeding and building collections. Despite their context in academic institutions, considerable overlap in this body of literature exists with museum libraries, namely in the goals, considerations, and results of collections assessment projects. In particular, the process of acquiring, selecting, storing, and refining collections is fundamentally the same between these two collecting bodies.[9] As such, this project addresses evidence gathered from holistic assessment projects conducted within select academic institutions.

As part of its commitment to flexible collection developments, the James Madison University (JMU) Libraries implement "collection practices that encompass the variety of forms that constitute today's scholarly record."[10] This practice is detailed in a 2015 study by Duncan and O'Gara who argue that engaging in "collaborative selection" across library departments allows the libraries to better meet the needs of increasingly interdisciplinary fields and embody shifting curricular needs.[11] By comparing data-driven tools to qualitative findings, JMU engages in flexible collections assessment that allows the libraries to better serve JMU's goals.[12] Such qualitative approaches include, "a literature review, internal and external conversations, several collections pilot projects, and a variety of other investigative mechanisms."[13] Duncan and O'Gara argue that this combined, holistic strategy can help libraries meet the expanding range of library users. The approach is flexible, agile, and can be adapted to meet the goals of rapidly changing learning environments.

Another example of an academic collections project that incorporated a holistic approach is Kelly's 2014 study on the strength of George Mason University's library collections in relation to researcher needs. Kelly emphasizes the necessity of applying holistic assessment strategies in uncovering comprehensive usage patterns. Within the study, Kelly applied a "cumulative or multidimensional approach," whereby collections are qualitatively divided based on the subjects represented by its items.[14] The identified subjects are then systematically assessed using quantitative tools such as peer comparisons, list-checking, and circulation statistics. Cumulative findings generated from this multi-tool analysis uncover usage patterns within a particular collection. Kelly stressed that this cumulative qualitative and quantitative approach can be applied to modify collections that better reflect current demands and engagement.[15]

Similarly, Zainab and Maidaino proposed a "house model" in their 2012 collections study, whereby an instrument was constructed to assess collection security at several university libraries.[16] The instrument was comprised of five

measures, including "collection security governance; operations and processes; people issues; physical and technical aspects of collection security and the security culture in the libraries."[17] Results from this test indicate that "the assessment instrument is reliable and can be used to assess the collection security management in libraries in a more holistic approach."[18] Zainab and Maidabino's results for security assessment can be correspondingly mapped to the governance, process, users, culture, and space of collection assessment in research libraries.

Following the merging of two library departments at Loyola Marymount University into the Acquisitions and Collection Development Department, the libraries began to rethink existing workflows.[19] As departmental conversations began to examine such workflows, the acquisition of e-books emerged as a crucial concern. By creating and employing a multi-tier flowchart diagram that visualized the e-book acquisition process, the library sought to standardize the assessment of e-books. As noted by Lewis and Kennedy in their 2019 study, by employing this flowchart visualization the e-book acquisition process was presented from a holistic perspective.[20] Staff who created the flowchart did so by reviewing pertinent literature, engaging in process mapping, and "highlighting the changes currently taking place in the landscape of e-acquisitions."[21] In so doing, they compartmentalized complex acquisitions processes into more manageable portions. Staff also provided a broader overview of how their department "contribute to the whole of the acquisitions process" and the institution at large.[22]

Griffin, Lewis, and Greenberg argue that the need to "identify a comprehensive, integrated assessment strategy to better focus diminished resources" is necessary in light of shrinking library budgets and reduced staffing, particularly within the context of special collections repositories.[23] Their 2013 study examined the University of South Florida (USF) Tampa Library, wherein Special & Digital Collections developed a holistic, systematic, assessment strategy "to improve a range of services in the Department."[24] By applying several quantitative and qualitative assessment tools, including *Desk Tracker* statistics and Reading Room Patron Surveys, they argued that library staff uncovered findings to propose user-centric modifications, including shifting reading room hours to meet patron needs, and continuing targeted outreach efforts.[25] Such findings signal the potential for holistic assessment to uncover logistical data that hinder user engagement with library resources.

A similar process is echoed by Wiemers et al. who argue for multi-tool assessment strategies that support subject-by-subject analyses.[26] They refer to this assessment as the "ultimate test of the quality of a library collection" that can detect the extent and mode of its use.[27] They contend that comprehensive methodologies can signal subjects that are underutilized and infrequently used while also highlighting those which are used in particular. Data collected from these strategies indicate areas for growth or reduction within a collection that reflect its usage patterns.[28] Hibner and Kelly reiterate this notion in *Making a Collection Count*, wherein they stress the importance of applying holistic methodologies in uncovering a collection's utilization rates. Cross-checking circulation statistics along with information gathered from research interviews can help pinpoint user attitudes towards a particular collection, and indicate the extent to which a collection relates, or not, to a library's overall vision.[29]

Overall, the growing body of holistic assessment literature advocates for in-depth, comprehensive assessment strategies, particularly in the context of multi-disciplinary institutions such as museums. The user perceptions and unit distinctions indicated by Sloan; the flexible and collaborative approaches endorsed by Duncan and O'Gara; the cumulative qualitative/quantitative approaches emphasized by Kelly; Zaiab and Maidabino's stress on the analysis of governance, work culture, and usage patterns; Lewis and Kennedy's recommendation to be mindful of the contributions of individual units within a larger network; Griffin, Lewis, and Greenberg's reminder that comprehensive, integrated, flexibility is useful when analyzing unit's research treads; and Wiemers, Baldwin, Kautz, Albrecht, and Lomker's recommendation to cross-check quantitative data with qualitative, are all particularly relevant to holistic museum library collection assessment.

Method

This study consisted of two phases. The first (henceforth referred to as Phase 1) began during a six-week internship appointment at SLRA in April and May 2017. During this initial stage, the intern, in collaboration with SLRA's branch librarian, applied a holistic collection development methodology by combining quantitative and qualitative assessment tools to determine how SLRA, and SIL in general, could better support CFCH's research needs. The research team determined that CFCH was underutilizing SIL services based on a statistical analyses of CFCH borrowing and ILL, and CFCH's staff participation in Smithsonian Research Online (SRO).[30] Lack of use was determined based on the frequency and quantity of staff engagement with SIL proportionate to the Center's total staff size. For instance, ILL usage was so sparse that data had to be recalled over an eight-year period (2010 to 2018) to uncover substantive findings. During that time period, about sixteen permanent CFCH staff members of approximately eighty full-time staff used the service. To situate this discrepancy, the intern conducted semi-structured interviews with CFCH staff.

These interviews sought to determine each interviewee's unique research needs, how SIL staff and services meet those needs, and where SIL services and collections could be modified to better support them.

Conducted during a second internship appointment at SLRA during April through June 2018, the second iteration (Phase 2) amplified the methodologies used within Phase 1 with additional quantitative and qualitative strategies. The data collection tool used in Phase 2 was a subject and format analysis of the many on-site research materials, including a reference collection, songbooks, zines, music guides, LP covers, pamphlets, festival programs, and monographs. Most of the materials identified were uncataloged and lacked finding aids.[31] The analyses revealed a broad range of research disciplines beyond the findings collected from the Phase 1 interviews, and contributed to a more robust understanding of the Center's research profile. Further strategies used during the second iteration included an analysis of CFCH's ILL statistics and participant observations of CFCH facilities and colleagues. Together, the tools used in Phase 2 demonstrated the dynamic range of research backgrounds, output, and interests that comprise the Center. Phase 2 findings further iterated the benefits of integrating holistic strategies into collections assessment.

Phase 1: The Survey

CFCH was first approached by SIL as part of the Libraries' ongoing outreach to smaller Smithsonian units. "Smaller units" within the Smithsonian refers to any unit that employs less than one hundred staff members and/or lacks a designated museum space. Units that fall within this category in addition to CFCH include the Smithsonian Latino Center and the Smithsonian Asian Pacific American Center. Based in Capital Gallery, an office building located south of the National Mall, these organizations are physically separated from the museum operations. Consequently, staff who are based in Capital Gallery are often excluded from the institution's oversight, which tends to focus on museum-based units, such as the National Museum of Natural History or the National Air and Space Museum. In Phase 1, quantitative findings on CFCH's relationship with the Libraries reinforced the existence of this chasm. It was discovered that CFCH's ILL usage was so infrequent that the research team was forced to recall data over an eight-year period to uncover usage patterns. This time-period indicated that CFCH's engagement with the Libraries was tepid at best.

Indeed, this quantitative data was partly what led the research team to CFCH. What the statistics omitted were the local factors that contributed to this usage discrepancy. Several research questions emerged from this gap: Were CFCH staff familiar with SIL collections and services? To what extent did the Libraries' collections support their research needs? Were there other factors that determined their engagement with SIL? Semi-structured, in-person, on-site interviews were selected to apply this interpersonal, human approach to data collection. As Bryman notes, semi-structured interviews allow researchers to fully explore the contours of what they need to know and allow for new "concepts and theories … [to] emerge out of that data."[32] They encourage conversations to flow freely, thereby allowing the interviewees to interject their own ideas otherwise unprovoked by the question list. This conduciveness to flexibility reinforces the holistic framework of this project by emphasizing individuals' perspectives by encouraging them to explore their own expert knowledge.[33]

Prior to scheduling research interviews with CFCH staff, interviewees were trained on SIL services and collections, with a focus on research support tools to ensure interviewees were familiar with SIL research presence prior to their scheduled interview. This training, which was delivered as a general orientation, covered the SIL online catalog, SRO, and ILL. The research team sought to ensure that participants had taken the time to reflect on SIL and its role in relation to their work at CFCH. Cross-departmental staff from the Ralph Rinzler Archives, Folkways Recordings, and Smithsonian Folklife Festival were contacted by email during the latter half of the intern's six-week internship appointment. In total, the intern interviewed five staff members from the Archives, five from Folkways, and two Festival staff.[34] Individual and group interviews with CFCH archivists, curators, directors, and researchers were scheduled. Group interviews did not exceed more than four interviewees at a time.

The twenty-one-question survey used in Phase 1, titled "SIL Outreach Survey (April-May 2017)" (see Appendix A), was developed specifically for the Center for Folklife and Cultural Heritage. It sought to address five key areas: background information on the organization, including research interests and project output; research needs of staff, including engagement with print and digital materials and institutional affiliations outside the Smithsonian; research materials consulted onsite; engagement with SIL services, including the Research Tools page; use of external research services; and recommendations for SIL, including how the Libraries could help support CFCH's strategic plan. The research questions were adapted, in part, from the Smithsonian Libraries Research Tool Survey (2017) developed for the Smithsonian Libraries Research Tools and Subject Guides Feedback Project (appendix B). Because the Natural and Physical Sciences Feedback Project sought to uncover data including usage patterns, research needs, interviewee profiles, and areas for improvement many of the questions used in their survey were adapted to the SIL Outreach Survey used for these CFCH findings.

The Project, undertaken in early 2017, was created by

the Head of the Natural and Physical Sciences Libraries to determine interviewee status (i.e., staff, fellow, intern, etc.); frequency of engagement with the SIL's Research Tools page; findability of the Research Tools page; and comments, ideas, and suggestions for the Research Page. The adapted SIL Outreach Survey given to CFCH diverged from the Natural and Physical Sciences Feedback Project in its exclusion of multiple-choice questions. Following Bryman's assertion that open questions are conducive to unique perspectives, whereby "respondents can answer in their own terms," the research team sought to extend the research interviews into conversations by not imposing response choices.[35] Unlike the Feedback Project, which was delivered in the form of structured interviews and contained five multiple-choice questions, the SIL Outreach Survey was delivered as a semi-structured research interview, and included open-ended questions. The modified questionnaire was crafted so that SLRA could obtain an in-depth understanding of CFCH and its purpose, and its staff members and their research needs. Byron's approach allowed the research team to better understand the types of services and materials needed by the organization, and was conducive to rich, qualitative findings. Indeed, the interviewees' cumulative, respective responses to the qualitative questions provided a research profile of CFCH that encompassed a multiplicity of unique interests, disciplines, and expertise represented among the staff.

Phase 2: Analysis

Prior to the onset of Phase 2 collection analysis, SLRA's branch librarian conducted a preliminary environmental scan of CFCH to evaluate staff in relation to their collections, additionally noting security, storage, and environmental conditions as Zainab and Maidabino's research implied. Information gathered would inform Phase 2 analysis. Phase 2 officially began with a quantitative assessment of CFCH's external ILL usage. Analyzing subject representation and user status through external ILL requests was essential to understanding the research and curatorial interests of CFCH established in Phase 1. Based on ILL usage from a five-year period (2013 to 2018), subject areas that were represented included folk art (including architecture, textiles, and paintings), teaching grammars, cultural sustainability in the context of museum studies, and ethnomusicology. The breakdown of staff statuses indicated in the ILL requests sample were as follows: 33 percent were temporary staff, including fellows, interns, and a contractor; the remaining staff were permanent. The research team compared recurring subject areas represented within CFCH's ILL to SIL's collections to illuminate subject gaps. The findings also indicated that subject representation could be further amplified by staff status. Analyzing status provided insight into the intent and capacity at which materials were being used and by whom. For instance, while the majority of CFCH staff who utilize ILL are permanent staff, a significant portion (approximately one-third) of engagement came from temporary staff, including interns, fellows, and contractors.

Phase 2 continued with an in-depth subject analysis of CFCH's onsite print, project output, and designated collection spaces. Doing so indicated areas for growth and gap-filling in SIL's history and culture collections, specifically in relation to SLRA. The assessment revealed thousands of items including songbooks, folklore dictionaries, encyclopedias, songbooks, art books, music guides, zines, LP covers, pamphlets, and festival programs. After meeting with SIL's Head of Collections, it was decided that the monograph collection would be analyzed first. A subject analysis of CFCH's in-house research collection was deemed an optimal collection strategy because it allowed subjects "to be viewed from many angles, while gradually developing a picture of the broader collection as a whole."[36] To achieve this, the identified subject areas represented within CFCH's monograph collection were compared to SIL's collections. The intern conducted an environmental scan of the collection in situ, and engaged CFCH staff on the history and usage of the on-site materials. These conversations sought to confirm the immediate research value of the collection on both micro- and macro-levels, and to solicit staff input on the enduring value of the CFCH materials as a legacy collection.

For the published monograph collection, the branch librarian and CFCH archivists discerned three classifications and divided them accordingly. The first classification consisted of published works that were deemed either uniquely representative of CFCH's research history, scarce or valuable publications no longer in print, and canons in the field of folklore and cultural studies. Examples of titles from these aforementioned categories include *Sixty Patriotic Songs of All Nations*, *Good Old Songs*, *Kiwi Youth Songs- 1951 Student Labour and Progressive Youth League Songbook*, and *Songs Around the Table Z'Mirot*. These materials would be cataloged as non-circulating and would remain onsite with restricted use. The second grouping consisted of general collections materials currently used in the field. The last classification consisted of tertiary, ephemeral, or non-essential publications that could be offered as gifts or sold.

Findings: Phase 1

Semi-structured interviews were conducted with CFCH cultural sustainability experts (three participants), researchers (four participants), archivists (four participants), and directors (two participants) across three research divisions

within The Center: Smithsonian Folkways Recordings, the Smithsonian Folklife Festival, and the Ralph Rinzler Folklife Archives and Collections. Cumulatively, the interviews revealed that CFCH's research interests are as diverse as the professional and educational backgrounds of its staff and various units. Because of their vast research scope, CFCH research staff argue that they require specific research materials directly related to their areas of expertise from a wide range of disciplines. They noted that they often encounter instances in which SIL collections both met and failed their research needs.

Project deliberation and output among CFCH units is contingent on several factors. In addition to logistical constraints related to budget, much of their work is "opportunistic." For example, while the annual Smithsonian Folklife Festival features a predetermined theme, many of the Festival's featured programs are a result of individuals or groups approaching CFCH. Consequently, Festival programming is determined in the months preceding the Festival, and requires significant research preparation prior to the annual event. For other units, such as Folkways Recordings, there is also an element of contingency in their output due to the constantly changing music industry. As noted by the Folkways director, the record label must keep up to date with the state of current music to remain relevant and, in so doing, maintain a sustainable platform for their featured folk artists.

Nearly all CFCH staff interviewed during Phase 1 identified gaps in SIL's print and digital collections. Linguists and cultural sustainability researchers identified gaps related to language education, endangered language communities, bilingual education materials, and sociolinguistics. Linguists specifically noted two integral resources in the teaching grammars of American Indian languages were excluded from SIL's collections at the time of their interviews: *International Journal of the Sociology of Languages* and *Bilingualism and Education*. Other CFCH staff, including those from Folkways, noted that journals such as *Ethnomusicology, Yearbook for Traditional Music*, and *Oxford Handbooks Online* were also omitted from SIL's collections at the time that Phase 1 was conducted. This further incentivized CFCH members to consult external research institutions or to purchase their own resources. Interviewers unanimously expressed interest in SIL acquiring pertinent titles, both print and electronic, to CFCH's research needs.

Perhaps the most important outcome of the interviews was that SIL and CFCH needed each other. In an institution as old as the Smithsonian, relatively newer units like CFCH got lost amid an institution that was expanding beyond its more formal museum mission with more programmatic units. The birth of CFCH and the centralization of SIL happened within less than two years of each other, in 1967 and 1969 respectively. CFCH had operated in relative autonomy from their inception, while SIL concentrated its efforts serving the museums proper, and then a decade later to concentrate their efforts on an all-consuming retrospective conversion. SIL never properly situated itself to serve programmatic units such as CFCH. Ultimately, Phase 1 revealed that SIL had research services that could benefit CFCH, and CFCH had research collections documenting an important facet of Smithsonian research history, making it clear that a Phase 2 was needed.

Findings: Phase 2

The ILL statistics pulled for CFCH were not substantial enough to glean any definite findings. However, the statistics were indicative of patterns that could be verified through interviews. The statistics indicated themes (see table 1) related to language revitalization and education, ethnography, and teaching grammars. These topics, necessitating external ILL loans, echoed those areas underrepresented in SIL's collection noted by Phase 1 interviewees. Table 1 also reveals a significant research presence of temporary staff, including CFCH interns, fellows, and contractors, with temporary staff representing approximately 33 percent of the Center's total loans during the applied timeframe.

It is no surprise that the permanent staff interviewed for this study maintain research affiliations with external library systems, such as the Library of Congress, and the academic institutions and international research organizations to which they belonged to prior to being employed at CFCH. Many CFCH staff members noted that they never ceased using these external systems, and thus never transitioned to SIL. This lack of engagement, compounded with searching limitations and quirks of the Horizon integrated library system, accounted for the limited statistical data available on CFCH's SIL usage.

Environmental scans of CFCH's 1,500 monographs in the CFCH onsite research collection revealed that roughly two-thirds of the holdings were unique to SIL's collections. Materials housed on site at CFCH include topics that span a breadth of genres, time periods, languages, geographic regions, and formats. This includes folklore dictionaries, encyclopedias, songbooks, art books, zines, and programs from previous Folklife Festivals. Additionally, the Center accumulates an expanding collection of print materials provided by other affiliate persons or organizations who assist in festival planning. These materials reflect the festival's given themes and are used as resources to bring the theme to fruition. After a festival has concluded, these accumulated materials often remain at the Center as gifts. Thus, the Center's body of uncataloged materials grows on a cyclical basis and serves as a testament to the festival's

Table 1. Breakdown of Interlibrary Loan Statistics: Titles Borrowed from CFCH Staff over a Five-Year Period and the Position of Those Who Used ILL

Status	Loan Title
Contractor	Sauer's herbal cures : America's first book of botanic healing, 1762-1778 // translated and edited by William Woys Weaver.
Smithsonian Staff	Tibetan Paintings: A Study of Tibetan Thankas, Eleventh to Nineteenth Centuries
Smithsonian Staff	Who's asking? : Native science, Western science, and science education // Douglas L. Medin and Megan Bang.
Smithsonian Staff	Ethnography and Language Policy
Smithsonian Staff	Living languages and new approaches to language revitalisation research /
Smithsonian Staff	Family Language Policy: Maintaining an Endangered Language in the Home
Intern	Museums and communities : curators, collections and collaboration // edited by Viv Golding and Wayne Modest.
Intern	Museums in the Digital Age : Changing Meanings of Place, Community, and Culture // Susana Smith Bautista.
Smithsonian Staff	The White House chandeliers : my experiences while working for seven U.S. presidents // Stewart "Calvin" Stevens
Smithsonian Staff	Archival Science
Smithsonian Staff	Dancing from past to present : nation, culture, identities
Intern	The participatory museum /
Smithsonian Staff	Ethnomusicology in East Africa: Perspectives from Uganda and Beyond
Smithsonian Staff	Watewayéstanih : A Cayuga teaching grammar // Marianne Mithun and Reginald Henry.
Smithsonian Staff	On the repatriation of recorded sound from ethnomusicological archives : a survey of some of the issues pertaining to people's access to documentation of their musical heritage /
Smithsonian Staff	Safundi : the journal of South African and American studies.
Smithsonian Staff	Psychoanalysis, culture & society
Smithsonian Staff	Designs of Bhutan // David K. Barker.
Fellow	Making: anthropology, archaeology, art and architecture
Fellow	The subversive stitch : embroidery and the making of the feminine
Fellow	Female and male in West Africa

changing themes.

These materials are largely centralized in a secured access reading room in the Center's Ralph Rinzler Folklife Archives and Collections, though many more materials exist outside of this space in other staff offices. Currently, there is a culture of convenience surrounding these materials as staff can easily access, use, and move the materials between offices and departments. There is no formal method of tracking their whereabouts or duration of use. Discussions from both Phases 1 and 2 suggested that the pattern of use surrounding the materials is deep, but not wide; few staff members engage with the items regularly, while those who do use them do so extensively.

Due to the uncataloged materials' eclectic nature, many of the works present challenges when attempting to determine the kind of collection they could constitute. Two examples are the Center's body of songbooks, and various ephemeral materials. The songbooks are formerly part of Moses "Moe" Asch's personal collection and currently housed in the Archives, barcoded, and were produced between 1875 and 1967. The other items that complicate collection categorization are the Center's music guides, zines, LP covers, pamphlets, and festival programs. The ephemeral materials tend to feature novelty subject areas or events, and are typically less than fifty pages in length. Their conditions range from intact to very poor condition. Staff members consulted during Phase 2 noted the ambiguity of both Asch's songbooks and ephemeral materials, which could belong in either a special collection or vertical file.

When Phase 2 was conducted, CFCH Archives staff divided their uncataloged print materials into three categories: those integral to CFCH's current research output, those that are important to the disciplines represented but no longer reflect CFCH's ongoing curatorial needs, and those that could be given away via gifts and exchange or sold. Of the works in the former category, CFCH staff indicate a strong desire for the materials to remain on site as a non-circulating collection. Converting these materials to a non-circulating collection required them to be moved to a secure, monitored space. For works not deemed essential to the Center's current mission or historically significant, CFCH staff are interested in creating an off-site legacy collection housed with SLRA's cross-disciplinary active

collections. This body of potential legacy materials is large (at the time of the study the Center filled thirty boxes of items for legacy consideration) and interdisciplinary in scope, featuring subjects that cover both global and local (i.e., United States) folk topics. Since the conclusion of Phase 2, the more than 1,500 volumes monographs housed on site at CFCH were shipped to SLRA for further consideration and processing. Of those, approximately 1,350 will be accessioned into SIL as the Center for Folklife and Cultural Heritage Research Collection. The non-circulating volumes to be re-housed at CFCH after cataloging include roughly 450 new titles, and 280 added titles. Circulating volumes to be housed on SLRA include 400 new titles, and 220 added titles. Cataloging this collection is considered Phase 3 of this project and is not discussed in this paper.

Discussion

As the interviews revealed, CFCH's curatorial output is externally collaborative, requiring outside consultation with individuals, groups, and institutions. This research practice is in many ways unique to CFCH and explains one facet of CFCH's lack of engagement with SIL's research tools and collections. Consequently, SIL must consider how to create incentives to enable CFCH staff to consult SIL services. While much of the work that CFCH conducts involves field research, SIL, especially SLRA, can position itself as a supplementary resource, providing the pertinent materials that support this fieldwork. By emphasizing this supplementary relationship, SIL can encourage CFCH staff to use its resources, and rely on SLRA staff support, rather than external rresources from affiliate research institutions.

Another variable that the research team had not considered was the annual influx of research materials in the months leading up to the Festival. This increase contributes to the Center's growing body of on-site, uncataloged materials. Gifts from stakeholders serve as a representation of the many individuals and organizations with which the Center engages. A subject analysis was conducted on these gifted items. This analysis consisted of the research team identifying through background research on the items or skimming their contents and recording the subjects represented by the materials. Upon conducting this analysis, the research team realized that the materials represent an important, encompassing body of knowledge on contemporary cultural sustainability research. This discovery affirmed the team's commitment to oversee the materials' addition to SIL's collections, making the items discoverable and available to those outside of the Center. The CFCH staff who were interviewed unanimously expressed a desire that their materials be used by those external to their own organization. It would also serve to bridge collection gaps related to cultural sustainability, specifically materials on anthropology, folklore, ethnomusicology, and endangered language revitalization.

The mutual commitment between the research team and CFCH to catalog the organization's materials uncovered yet another finding. In analyzing the materials, the research team discovered that many of the unaccessioned items are eclectic, ephemeral, or rare, which complicated the item assessment process. These materials may constitute several potential subcollections, including vertical files or restricted use collections, in addition to the standard print collections. CFCH will require assistance from SIL to disambiguate the formats and types of collections constituted by the uncataloged items. Making clear distinctions between these materials was one of the recommendations inspired by this finding.

In response to the possibility of establishing a non-circulating collection for many of the uncataloged items, questions were raised about the management of these items. Specifically, the research team and interviewees speculated on where the non-circulating collection would be housed, how it would be supervised, and how often it would be made available for use. At the end of Phase 2, the materials were primarily located in the Archives reading room, though others are scattered among bookshelves and storage units throughout the remaining CFCH offices.[37] The collection would also require oversight by a SIL staff member who would be responsible for facilitating the organization and use of these items. Depending on the frequency of the collection's availability (at this time, it is uncertain if the items will be accessible daily or at set times throughout the week), it may require a part- or full-time SIL staff member to oversee the collection's management. These findings, and the considerations emerging therein, will help SIL and SLRA develop the collection's forthcoming policy plan.

CFCH's body of uncataloged materials has been deemed by both the research team and CFCH staff as integral to the Smithsonian's research profile. This holds true for both the on-site items and those sent to SLRA for active use or legacy consideration. Consequently, materials belonging to either category are representative of their mandate and are thus relevant to their current curatorial interests. The research team concluded that they must verify that materials in CFCH collections are not already in the SIL system. Alternatively, if the items are found to be in the system, the Libraries must determine if duplicate items are essential enough to merit multiple holdings.

While Phase 1 and Phase 2 did not overlap, the results of the former necessitated the latter. The semi-structured interviews conducted during Phase 1 revealed that CFCH is a subject-diverse, interdisciplinary organization, with curatorial and research needs that are equally

vast. Furthermore, these initial interviews introduced the research team to the collection of uncataloged materials that had lingered in the CFCH office. To assess these materials and determine how SIL in general, and SLRA specifically, could better support CFCH's curatorial output, the research team determined that ongoing investigations were required. This recognition inspired Phase 2, wherein the team sought to sort through the body of uncataloged materials, determine how they relate to CFCH's research mission, and to continue dialogues with staff to determine how the Libraries could better support their organization.

With the same attention to micro-level distinctions as Phase 1, Phase 2 both reaffirmed CFCH's diverse research profile, while also signaling the areas for growth in SIL's own collections. Indeed, CFCH's cultural sustainability materials will serve to enhance SIL's existing collections by filling gaps related to cultural heritage research and sustainability. They also signal a need for ongoing growth. CFCH expressed hope that the inclusion of these materials will inspire the Libraries to build on their collections by continuing to add, manage, and weed collections that support cultural sustainability research. The close of Phase 2 also confirmed that the omission of cultural sustainability materials within SIL's existing collections was, until then, undetectable by one-dimensional assessment tools.

Conclusion

A holistic inquiry of Smithsonian Center for Folklife and Cultural Heritage illustrated that there cannot be a one-size-fits-all approach to collection assessment, particularly within large research networks like the Smithsonian where the needs of units are distinct and evolving. The process of applying a holistic methodology to research collections not only added an interpersonal dynamic to SIL's outreach, but also it provided direct engagement with marginalized library users and collections. Uncovering CFCH's research profile also afforded the Libraries the opportunity to communicate the extent of their resources to ambivalent or disenfranchised users. Conversely, study participants provided valuable input to the SLRA research team about SIL, indicating collection gaps and potential areas for expansion. This dialogue illuminated topics and research needs overlooked by strictly quantitative strategies that did not, for instance, account for collection omissions and service deficits. In sum, a holistic methodology strengthened the relationship between the Libraries and CFCH, and allowed the organizations to identify complementary interests and opportunities for future collaboration.

The success of this study demonstrates the elasticity of the holistic methodology and how qualitative assessment tools can be used in concert with quantitative tools to support unique institutional profiles. Iterative holistic approaches ensure that collections and services reflect current research needs and trends, especially for units with a dynamic research profile. As Phase 1 and Phase 2 findings show, applying multiple indicator measures can reveal the multifaceted perspectives of a research unit, and is an optimal strategy in determining the unique needs of library users in cross-disciplinary research environments such as museums.

Notes and References

1. The term "underserved" refers to Smithsonian units that do not have a dedicated library on-site with dedicated library staff, and whose primary interface with the Libraries is through online services.
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11. Duncan and O'Gara, "Building Holistic and Agile Collection Development," 65.
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16. Abashe Atiku Maidabino and A. N. Zainab, "A Holistic Approach to Collection Security Implementation in University Libraries," *Library Collections, Acquisitions & Technical Services* 36, no. 3 (2012): 107–20, 107.
17. Maidabino and Zainab, "A Holistic Approach to Collection Security Implementation," 107.
18. Maidabino and Zainab, "A Holistic Approach to Collection Security Implementation," 3.
19. Ron M. Lewis and Marie R. Kennedy, "The Big Picture: A Holistic View of E-book Acquisitions," *Library Resources & Technical Services* 63, no. 2 (2019): 160–72, 171.
20. Lewis and Kennedy, "The Big Picture."
21. Lewis and Kennedy, "The Big Picture," 171.
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23. Melanie Griffin, Barbara Lewis, and Mark I. Greenberg, "Data-Driven Decision Making: A Holistic Approach to Assessment in Special Collections Repositories," *Evidence Based Library & Information Practice* 8, no. 2 (2013): 225–38, 225.
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26. Eugene Wiemers et al., "Collection Evaluation: A Practical Guide to the Literature," *Library Acquisitions: Practice & Theory* 8, no. 1 (1984): 65–76, 65.
27. Ibid., 72.
28. Ibid.
29. Holly Hibner and Mary Kelly, *Making a Collection Count: A Holistic Approach to Library Collection Management* (Witney, Oxford, UK: CP/Chandos Publishing, 2013), xv.
30. Smithsonian Research Online (SRO) is an expanding "collection of published research from Smithsonian scholars. . . . As a discovery tool for Smithsonian Research, SRO has two primary components: a bibliography of publication citations and a repository of full online editions" (Smithsonian Research Online, Smithsonian Libraries, n.d.).
31. Since this project began, SIL has collaborated with CFCH to accession their ready-reference and legacy collection of published monographs. Approximately thirteen hundred volumes of the Center for Folklife and Cultural Heritage Research Collection will be findable in SIRIS, the Smithsonian's online research catalog in 2020. Catalog records will trace the provenance of this collection to inform future research and collection management decisions.
32. Alan Bryman, *Social Research Methods* (Oxford: Oxford University Press, 2016), 12.
33. Bryman, *Social Research Methods*, 492.
34. The call for participants had a high response rate. Of the fifteen research staff that were contacted, twelve responded, making the response rate 80 percent.
35. Bryman, *Social Research Methods*, 247.
36. Kelly, "Applying the Tiers of Assessment," 585–91, 589.
37. In 2019, the print collections were removed to SLRA for pre-processing before cataloging.

Appendix A. SIL Outreach Survey (April–May 2017)

Background

1. What are the main research interests that define CFCH and the work itproduces?
2. How does CFCH decide on which projects (such as exhibits or workshops) it willpursue?
3. When projects are decided upon, how do you typically conduct research and prepare for said projects?
4. How long have you worked for the Smithsonian?

Research Needs

5. Do you perceive print or digital access more valuable in terms of CFCH's research needs?
6. Are you currently affiliated with (or utilize the services of) other research institutions?
7. When you prepare/research forthcoming exhibits or other projects, does this research typically take place while you are physically onsite or offsite (i.e., not within a Smithsonianfacility)?

Print Collections

8. Do you have research materials on hand in your offices?
9. How regularly is your current book and print collection used by staff for curatorialprojects?
10. How do you currently house this book collection? Do you ever encounter any issues in finding space to house this collection? Are they kept in a controlled environment?
11. Would you be interested in the Smithsonian Libraries cataloguing your collection and housing it at one of its branches? Would you be interested in turning it into a legacy collection if the books are not currently in use?

SIL Services

12. Users of Smithsonian Libraries are able to recommend purchase of additional library materials (within budget constraints). Were you aware of this? Is this something you would be interested in taking

advantage of?

13. What kinds of materials, in terms of both content and format, would you be interested in SIL adding for your purposes?
14. Are you aware of/have you used SIL's electronic resources that are available to all SI staff on their desktop or from home via Citrix?
15. Do you feel that the Research Tools page meets, exceeds, or fails your research needs? Please explain why this is thecase.
16. Is there a particular aspect of the Research Tools page that you feel is successful in meeting your re- search-needs?

Recommendations/Comments on SIL Services

17. Would you be interested in receiving annual training in the use of library services? If so, which format would you prefer this training to take place through (i.e., in-person, newsletters, emails,updated pdf manuals)?
18. Did you come across any issues/concerns with the Research Tools page (http://library.si.edu/research) that hindered your experience on the site?
19. Would video tutorials built into the site that address both general questions related to the Research Tools page and helpful search tips be useful to you?
20. Having now been exposed to some of the SIL library facilities and tools, how valuable do you find them? Do you plan on using them in the future? Is there anything about CFCH that you feel the Libraries should know?
21. How else can SIL help you fulfill your mission and strategic plan?

Appendix B. Smithsonian Libraries Research Tools Survey (2017)

Smithsonian Libraries Research Tools / Subject Guides Feedback Project

Use this form to record answers to the questions below

1. Name of SIL Staff Interviewer

   _____

2. Name of SIL Branch or Location

   _____

3. Interviewee Status
   - ○ Staff
   - ○ Fellow
   - ○ Research Associate
   - ○ Intern
   - ○ Emeritus
   - ○ Volunteer

   _____

4. Show the interviewee the Research Tools page (http://library.si.edu/research). Has the interviewee used the Research Tools page before?
   - ○ Yes
   - ○ No

5. If no, find out why they don't use the page, but take a moment to show them what's on the page and ask them if they use it in the future.

   _____

6. If Yes, how do they reach the Research Tools page?
   - ○ Through library.si.edu
   - ○ Through their departmental page
   - ○ Through Prism
   - ○ Other (please specify)

   _____

7. How often does the interviewee use Research Tools?
   - ○ nearly every day
   - ○ weekly
   - ○ monthly
   - ○ a few times a year
   - ○ N/A -- They don't use it.
   - ○ Other (please specify)

   _____

8. What does the interviewee use the most on Research Tools? (let them point it out)
   - ○ OneSearch
   - ○ Siris catalog
   - ○ A-Z lists
   - ○ Illiad
   - ○ Smithsonian Research Online
   - ○ Smithsonian Collection Search Center
   - ○ N/A They don't use it
   - ○ Other (please specify)

   _____

9. If they use the page, what does the interviewee use the lastest? Why?

_____

10. If they use the page, does the interviewee bookmark library pages? Which ones?

_____

11. What would the interviewee expect to find on the Research Tools page that they do not find there?

_____

12. Has the interviewee used Advanced Search in the databases? Which ones?

_____

13. What would the interviewee improve on the pages if they could? What would be the most important change?

_____

14. For this question, show an SIL subject guide. You can find the guides linked to from the library description pages (http://library.si.edu/libraries) or from the How do I? Find XXX Resources in your topic area. Has the interviewee ever used a Library subject guide at the Smithsonian? If so, why did they use it?

_____

15. Show a guide at http://guides.library.yale.edu in your subject area or any other university research guide you admire. Ask the interviewee if they would be more likely to use a guide that is more focused on their research needs? What would be in that guide?

_____

16. What would the interviewee put in a subject guide that would be the most useful to their work (if anything)?

_____

17. Does the interviewee have a similar type of subject guide on their departmental web pages? Do they use it?

_____

18. SIL has just updated its training pages. Show the interviewee the new How Do I? section under Learn on the Research Tools page (http://library.si.edu /research/training). Having they used the SIL training pages before? What did they use?

_____

19. What (if anything) would the interviewee use in the new HOW DO I pages? Would they watch training videos? Do they expect to see PDF's, handouts, etc.?

_____

20. What other comments, ideas, suggestions do they have?

_____

Book Review

Elyssa M. Gould

Assessment Strategies in Technical Services (An ALCTS Monograph). Eds. Kimberley A. Edwards and Michelle Leonard. Chicago: ALA Editions, 2019. 272 p. $69.99 softcover (ISBN 978-0-8389-1857-9).

Assessment of all library services is essential to meeting user needs, and more than ever, it is critical to practice assessment consistently within library technical services departments. Rising costs, space issues, budget issues, changing models within the publishing industry, and providing resources that meet users' needs all have a role in this criticality. Long-standing assessment practices that are likely numbers-based and rely on "how much" of a certain area, such as how many books were purchased or how many new items were added to the collection during a given timeframe, are only a piece of the broader picture of assessment. Statistics have their time and place in library assessment, and *Assessment Strategies in Technical Services* provides a detailed, well-organized introduction to methods that technical services staff can use to either rethink or establish a culture of assessment within their department units.

In chapter 1, Botero and Currico provide a broad overview of library technical services, noting that today's technical services departments typically represent acquisitions, cataloging, preservation, and serials units. These four areas make up the focus of this book. The overview of traditional and contemporary methods of assessment in the areas of acquisitions/collection development, cataloging/metadata, digital preservation, and e-resources/serials is a helpful orientation to the current environment for technical services assessment. The comparison of traditional against contemporary methods is not only helpful in getting a full picture of technical services assessment but also bringing to light that many contemporary methods rely on a more holistic approach where technical services assessment is "part of the larger assessment strategies of the library" when that has not been the case in the past (1).

Chapter 2 is "Assessing Collections Holistically," wherein the authors Kelly and Smith detail their experience with holistic collections assessment at George Mason University (GMU). The authors take the time to explore defining holistic collections assessment—loosely defined as blending multiple assessment methods rather than using one or two assessment instruments—and details both its benefits and challenges through their use of holistic collections assessment of GMU's collections. Easily the most practicable part of the chapter is the methodologies section where Kelly and Smith provide detailed charts and systematic examples for specific strategies, such as how to select assessment data or holdings' comparisons against peer institutions, to name a couple examples.

Chapters 3 and 4 address acquisitions/e-resources and serials/continuing resources, respectively. Chapter 3 is highly recommended for those new to assessing acquisitions work as the authors Shelton and Currico specifically detail how to begin acquisitions assessment, and what exactly ought to be assessed in today's acquisitions environment. Calvert and Jordan continue with serials assessment in the following chapter through an examination of methods and challenges of assessing both print and electronic serials. One idea that this reviewer thought Calvert and Jordan expressed particularly well is that assessment is good stewardship of the collections budget (109). This line of thinking is obvious with serials and their constantly rising prices, but beyond the collections budget, assessment being good stewardship demonstrates why assessment work is *necessary.* It is not enough to maintain a library's collection and hope that users find the resources that they need.

Chapter 5 highlights assessment of cataloging and metadata, with specific focus on the three strategies of benchmarking, user surveys, and balanced score cards (BSC). Pettitt details these strategies, focusing on the significant challenges of assessing cataloging and metadata work: no two cataloging departments are the same; workloads are divided differently on staff position vsersus professional librarian, the time spent on copy, complex copy, or original cataloging can vary widely, etc. For example, benchmarking, defined as "a process in which a comparison is made between the unit being assessed and a similar unit in another organization or department" particularly intrigued this reviewer, as a cataloging department manager (159). However, Pettitt adeptly points out that the benefits of benchmarking are tricky to achieve within cataloging and metadata units. The primary reason being that it can be difficult to identify peer institutions due to the differences described above. Additional exploration of how to mitigate these challenges would have been welcome, but perhaps is a topic for an even more comprehensive look at cataloging and metadata assessment.

Durant examines the area of preservation in chapter 6. Along with thorough coverage of needs and strategies

for preservation assessment, the reminder that assessment is "a discovery process" is notably useful (205). This phrase means that within the context of preservation, assessment involves a physical presence, such as identifying a mold-contaminated location or pests in the collection. In this case, a lack of assessment would have serious, detrimental consequences to a collection. Readers will also find the list of freely available assessment tools for preservation to be of value (207–209).

In chapter 7, appropriately titled "The Future of Technical Services," Servizzi discusses the need for data governance through warehouses. Library workers conducting assessment must have a plan for the data gathered through the various methods described in the preceding chapters. The inclusion of New York University Libraries' data warehouse as a case study makes this chapter especially beneficial with a glimpse at what a data warehouse looks like in practice.

Assessment Strategies in Technical Services excels in not being overly prescriptive in the strategies discussed for each area. The editors state at the beginning that the primary purpose of this book is to provide a starting point so that readers can consider their individual library's situation when developing an assessment framework. A common theme throughout the book is that a one-size-fits-all approach does not work due to institutional hierarchy, staffing, etc. Although this fact is very true and allows for interpretation or tailoring of assessment strategies, the chapters also contain enough practical information so that anyone new to assessment has resources when implementing any of these strategies at their institutions.—*Shay Beezley (sbeezley@uco.edu), University of Central Oklahoma*

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