

## User-Focused Mixed Methods Approaches to Assess Collections

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### Abstract:

*Libraries must maximise their acquisitions funding to ensure that the materials in their collections match the particular needs of their users. This is especially important as budgets shrink and an increasing variety of information sources across a range of media are available. In order to manage these competing dynamics, a sustainable and systematic approach to collection assessment is imperative and will provide libraries with data with which to make informed decisions.*

*This paper describes a unique and focused approach to collection assessment that involves mixed methods techniques. It demonstrates how a combination of quantitative and qualitative data sources relating to specific collection items can be used to consider both their statistical and practical significance. To identify the use of these items a range of quantitative data sources are identified, from standard borrower records to COUNTER statistics to Ezproxy logfiles. Alongside these data are the qualitative information gathered through lobby testing, qualitative surveys, and interviews. These qualitative user-experience approaches allow libraries to gain feedback directly from library patrons about collection items, their use, and their value. All approaches described in this paper are vendor and platform neutral that can be implemented in any library type.*

*An overview of the data collection approaches and how to implement these in practice are discussed to enable libraries to adapt the methods to their specific collection assessment needs. The main body of the paper presents several cases, based on three types of collection items: newly acquired, high cost, and low use. The cases incorporate the different methodological approaches and demonstrate how to interpret the results of the assessment in order to reach informed acquisitions and collection management decisions.*

**Keywords:** Assessment, Collections, Quantitative methods, Qualitative methods, Mixed methods

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## Introduction

Research indicates that nearly 90% of academic and special libraries do not have a ‘formal’ process for assessing their collections (Kelly, 2014, p. 585). Yet the literature indicates that collection assessment may be one of the most important management processes to ensure budgets are well spent and user needs are met. In the past, physical collections and traditional borrower and request records provided much of the data to inform acquisition decisions. However, in 1996, Dobson, Kushkowski and Gerhard recognized the impact of electronic resources on collection assessment and this has rapidly developed to a point where a variety of measures are now used for acquisition decisions (Costello, 2017; Kelly, 2014).

In this paper, we describe a selection of assessment methods and demonstrate how these can be combined to create a user-focused mixed methods approach that offers a sustainable process for all types of libraries. A brief description of the different methods are first presented, followed by three case studies that are intended as a guide to assessing new, high cost, and low use acquisitions. We conclude by discussing the challenges to ongoing sustainable collection assessment and offer some suggestions as to how this might be managed.

The intention of the paper is to offer suggestions and alternative methods of collection assessment that will inform librarians from across the profession. Our hope is that the different methods will be relevant in some form and combination for different libraries and different collections.

## Evaluation methods

### Descriptive statistics for collection use

Knowing where to start or how to determine what is a high or low use collection can be challenging. Statistical methods can be used to identify what collections should be examined more closely. Basic descriptive statistics can be used to divide collection use data into quartiles. To do this, first gather use data for library collections; this can be downloads, COUNTER statistics, EZproxy logfiles, or regular circulation data. Next, determine both the mean and the median. The mean is the average. The median can be found by listing out the download numbers from smallest to largest. Even if two or more numbers are the same they all need to be listed. The median is the middle number. If there is an odd number of collections, the middle number is clearly in the center as seen in Figure 1.

Figure 1: The median for odd number of collection numbers



If there is an even number of data, the average of the middle two numbers is calculated. After determining the median, the lower and upper halves of the collection can be identified by looking at the numbers lower and higher than the median. The lower half includes the numbers lower than the median and the upper half is the numbers higher. By figuring out the median of each half, four quartiles can be identified. Q1 is the lowest quartile and any number lower than the median of the lower half falls within this category. If all other aspects of the collections are equal (for example, the collections are relevant to the same group of users), then collection

usage numbers falling within Q1 can be considered low use and are candidates for further analysis and potentially not being renewed.

Figure 2: Quartiles for collection use data

562	598	650	675	1000	2500	5000	6100	6390	6525	6941
Lower half: 562 - 2499				Median		Upper half: 2501 - 6941				
Q1: 562 - 662.5		Q2: 662.6 - 2499			Q3: 2501 - 6254			Q4: 6255 - 6941		

Descriptive statistics can be performed by hand or using a computer program. Since most libraries usually have a large number of collections, calculating by hand may not be practical. Descriptive statistical functions are available in programs like R, SPSS or SAS. Microsoft Excel and Google Sheets also offer quartile functions. Both tools have a number of Youtube videos that show how to run these processes.

### Demographic and social statistics

Social statistics include demographic data, and these will contribute to a better understanding of a library’s user group(s). For public libraries these data are usually available from national or regional census. In academic libraries the data will belong to the university (most often the human resources area). Parent organizations will also be the source of data for school and special libraries. Social statistics are different to collections use data because, rather than being included in the assessment directly, they are more appropriate to inform a collection assessment choice and may also be useful to check following an assessment. In some instances, the profile of a user community may indicate that some collections are likely to be more important and therefore would benefit from assessment. In other cases, the outcomes of an assessment may indicate low use, however the user community may include important stakeholders. A great deal of caution is required when using data about a user group as it is tempting to draw conclusions that cannot be supported without further qualitative data.

A vast amount of data is available and the first decision is to determine what is most useful in the context of the collection assessment. This will depend on the library type and its user group(s). In public libraries, data on age, socioeconomic status, and language spoken at home will provide useful information in a collection assessment choice. For academic libraries, the number of researchers and students in discrete subject areas are useful.

### Bibliometrics

Bibliometric approaches are most suited to academic libraries where users not only access material in the collection but are also the authors of some of the material. This quantitative method has a long history relating to collections, in terms of identifying core journals (Bradford’s law of scattering) and gaining an appreciation of use through citation analysis (Haddow, 2018).

The most effective application of bibliometrics in a collection assessment exercise is to limit the assessment to a discrete subject area and focus on journal collections use. However, the process is labor-intensive. It involves acquiring the bibliographic details of the published outputs of researchers at the university working in a particular subject area. Databases that include an article’s reference list as output should be used to find the publications. The article details and reference lists of each are then saved into a text file. These data should be copied

into a Word document and sorted by the find & replace function to create a new line for each reference. Using the convert text to table function, the final download will list all journal and book titles in the same column.

Figure 3. Example of text file conversion to table using Web of Science

<b><i>Text file format</i></b>					
Abramo G, 2014, SCIENTOMETRICS, V98, P2275, DOI 10.1007/s11192-013-1185-3; Acosta M, 2011, SCIENTOMETRICS, V87, P63, DOI 10.1007/s11192-010-0305-6; Beaver DD, 2001, SCIENTOMETRICS, V52, P365, DOI 10.1023/A:1014254214337; Boschma RA, 2005, REG STUD, V39, P61, DOI 10.1080/0034340052000320887; Endersby JW, 1996, SOC SCI QUART, V77, P375					
<b><i>Word format (after find &amp; replace)</i></b>					
Abramo G, 2014, SCIENTOMETRICS, V98, P2275, DOI 10.1007/s11192-013-1185-3 Acosta M, 2011, SCIENTOMETRICS, V87, P63, DOI 10.1007/s11192-010-0305-6 Beaver DD, 2001, SCIENTOMETRICS, V52, P365, DOI 10.1023/A:1014254214337 Boschma RA, 2005, REG STUD, V39, P61, DOI 10.1080/0034340052000320887 Endersby JW, 1996, SOC SCI QUART, V77, P375					
<b><i>Word table format</i></b>					
Abramo G	2014	SCIENTOMETRICS	V98	P2275	DOI 10.1007/s11192-013-1185-3
Acosta M	2011	SCIENTOMETRICS	V87	P63	DOI 10.1007/s11192-010-0305-6
Beaver DD	2001	SCIENTOMETRICS	V52	P365	DOI 10.1023/A:1014254214337
Boschma RA	2005	REG STUD	V39	P61	DOI 10.1080/0034340052000320887
Endersby JW	1996	SOC SCI QUART	V77	P375	

By copying the table into Excel the sources column can be sorted to gather journal use data for the researchers in the subject area.

Usability Testing for Understanding Collection Use (or non-Use)

Usability testing is a user-centered methodology that allows researchers to see “what people actually do- what works for them, and what doesn’t—not what you think they do or even what they think they would do” (Barnum, 2011, p. 9). Increasingly library collections are not only located online, but also found by patrons using online systems. Conducting in-person usability tests on acquisitions can help librarians understand more about what users expect from library collections and how they work with those materials.

“On-the-fly” (Arnold, 2016) or lobby-based testing (Daly, 2015) is an in-person, interactive approach to usability testing. This approach can be applied when usability issues may be a cause of patrons not using library collections. To conduct this type of testing, library staff sit in high traffic areas of the library (aka the lobby) and ask library patrons to perform tasks on the library website. Prior to conducting such a test, the library needs to decide on what needs evaluating, what type of questions will need to be asked, and what tasks should be performed. Two library staff members should be present during the test. One person will ask the questions and direct the patron through the usability tasks. The other person will take notes about the

testing by noting what the patron does during the tasks, what the patron says while talking through the tasks, and how the patron answers the testing questions. Results from this type of testing will enhance understanding of how collections are used and found by library patrons.

### Qualitative surveys

Questionnaires and interviews are important tools for gathering qualitative data about collections use. Questionnaires, in particular, have the advantage of scale in that a large proportion of the user group can be invited to respond and data analysis is less time-consuming. However, questionnaires tend to gather data about 'what' is used and are less useful for exploring 'why' certain materials are used. This 'why' question is better answered using interviews and focus groups.

When considering developing a questionnaire to gather collection use data, the following should be decided:

- What data is required?
- Which users will be able to answer your questions?
- How will you invite people to participate?

The most effective questionnaires are:

- Short
- Easy to read and understand
- Asks one question at a time
- Does not lead or presume an answer.

Depending upon the design of the questionnaire, some qualitative information can be gathered using open-ended questions to ask the participants for their opinions, perceptions and/or attitudes.

Ideally, the qualitative data gathered in a questionnaire will inform a smaller survey using interviews or focus groups. It is in these settings that a deeper understanding of the user group will be gained. A selection of pre-specified topics can be used as discussion topics to ensure the data gathered will answer questions relating to the collection being assessed. Notes from these discussions can inform collection assessment activities or transcripts can be examined to identify the key responses.

### **Collection use case examples**

Using the methods presented above, a series of use cases are presented to show how to combine multiple methods to conduct user-based collection assessments. The following use cases present the following scenarios: new acquisitions, high cost, and low use collection assessments.

#### *New acquisitions*

**Scenario:** The library has recently acquired a collection of resources designed to support users with English as a second language. This decision was made after consulting social statistics, which indicated a large proportion of the potential user community were new migrants with English as a second language.

To assess collection use several stages and approaches are appropriate and require time:

Step 1: Awareness raising and information needs through a short survey. Ideally the survey will be distributed at community groups, health centers, shopping centers and at the library. The survey will be translated into the main language(s) of the new migrants. It will ask participants about their awareness of the collection and what they would like to see in such a collection. This information needs data are then checked against the collection items.

Step 2: Several months later, borrowing and, if relevant, downloads/EZproxy statistics are examined for the collection. These data should be examined against the potential user group numbers to calculate a ratio. For example: if the potential user group is 750 and the borrowing numbers are 50, the ratio is 15:1. That means for every 15 people in the user group, one borrowing has occurred. This figure will need to be compared to other collection borrowings to assess its relative value, using quartiles if possible.

\*If the borrowing is low, then consider adding items that were noted in the information needs data.

Step 3: After 12 months repeat Step 2. Compare with the earlier results and with other collection borrowings. At this stage, the library should decide whether the collection is successful, in relative terms, and collection management decisions can be based on this data. If more recent social statistics are available, they too should be consulted to establish whether the potential user group has changed in number.

### High cost acquisitions

Scenario: A group of scientists were recruited to the university several years ago to establish up a new research center. In order to support their work, the university library subscribed to a set of journals that are high cost. Given that journal articles may take a year or more to be published, the assessment of this journal collection should occur after a reasonable period – at least two years.

Assessment of collection use is possible through a combined methods approach:

Step 1: Statistics relating to use are collected via downloads/EZproxy or COUNTER statistics, as available. Descriptive statistic quartiles are used to compare this collection with other journal collections.

Step 2: A bibliometric analysis of the researchers' publications is undertaken to identify use as citations.

Step 3: Interviews with the lead researchers are conducted to discuss the journal collection and their opinion as to its importance.

If appropriate, based on these discussions:

Step 4: Explore alternative options for gaining access to specific journal content (eg., document delivery) and the cost, based on use (Steps 1 & 2).

Step 5. Consult with researchers about the alternative approach.

### Low use acquisitions

**Scenario:** Recent budget cuts force a library to rethink its online subscriptions. Low use acquisitions are targeted as a first round of collections to analyze in order to reach the new budget.

Multiple method approach to deciding what to retain and what to discontinue:

Step 1: Identify low use collections by using descriptive statistic quartiles.

Step 2: With all Q1 collections identified, review the reason why each collection was originally purchased to identify if specific stakeholders (community groups, celebrity professors, etc) need to be consulted before canceling.

Step 3: Contact identified stakeholders and use questionnaires/interview techniques to see if continued subscription is necessary.

Step 4: Conduct lobby testing on low use collections that have been identified as potentially important to maintain in case low use issues are based on interface/usability issues.

Step 5: Compare results from stakeholder interviews and usability testing to see which collections are most reasonable to continue to maintain.

Conducting assessments such as the ones presented above are not time intensive and can easily be implemented in most situations. The use cases show how using many assessment approaches can lead to stronger collection decisions, yet it should be acknowledged that ultimately librarians must do what is most practical for the library. The environment, and the collection itself, will define the approaches that are most appropriate. What may be appropriate for one library, may not be appropriate for another. Practical significance, which is thinking about more than just numbers, takes into account the priorities of the institution. No single measurement or metric should be used to make collection decisions.

### **Conclusion**

The purpose of this paper is to present a variety of assessment methods and ways to systematically apply them. Collection assessment is an essential tool for librarians, regardless of the sector and environment in which they work. Time and sustainability are also factors in collection assessments, but those topics are not discussed in detail here. Research and assessment are best done in planned and systematic ways. Using the methods presented earlier, it is possible to create two to five year plans for collection assessment activities. By creating an assessment plan, a library can prioritise the assessments deemed most important, and create room for the assessment activities that require longer to complete. A variety of research methods and perspectives need to be considered—especially considerations about what is practical for the library and the larger community that supports it. Ultimately, conducting some form of collection assessment is preferable to no assessment at all

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