Chapter 1

Assessing Use and Usage

The Imperative

Abstract

In response to ever-increasing expenditures on collections, especially electronic resources, librarians are increasingly expected to demonstrate the value of the resources in which their institutions have made significant investments. Unfortunately, most attempts at e-resource usage assessment still follow the input-output model that has been so prevalent in evaluation of library resources. This section reviews the development of LIS use and user studies and identifies problems with relying on an exclusively statistical model of evaluation.

Each year, libraries and other information agencies invest millions of dollars in print and electronic collections. As stewards of institutions that rely on outside sources of funding, librarians are charged with demonstrating the cost-effectiveness of their services and resources as well as their effective management of the financial resources with which they have been entrusted; in difficult economic times, this pressure is significantly increased. Furthermore, librarians are frequently tasked with putting this information in "layman's terms" in order to communicate it to library board members, university provosts and presidents, or members of the general public who may have limited knowledge of the policies, procedures, and issues connected to running a library.

Electronic resources are no exception. As "electronic use has skyrocketed,"[1] so have the costs associated with providing library users with quality electronic content. In a harsh economic climate, librarians are searching for approaches to assessing the use and usefulness of hard-won resources (see figure 1). This report focuses on not only the more traditional statistical measures of electronic resource usage, but also models that attempt to assess the use of individual works in more locally relevant ways.

Use, Usage, and the Use Study

Over the years librarians and researchers have studied the usage of books, journals, meeting rooms, photocopiers, programs, and just about any other resource or service libraries have chosen to provide. The reasons for doing so are simple: librarians wish to provide their communities with resources and services of the highest utility, consider *use* or *usage*[2] of those resources and services to be an indicator of their patrons' satisfaction, and undertake these assessments in order to make practical and often difficult decisions regarding staffing, services provision, and management of both the collection and physical facilities. Reflecting the stalwart belief of LIS theoreticians that the best predictor of future use is past use, librarians also assess usage in pursuit of the holy grail of librarianship: effectively foreseeing which materials and services will be popular and which will (literally or figuratively) collect dust.

Much of the literature related to use and usage has concerned specific methods for evaluating or measuring usage of a collection, information resource, service, or facility in order to assess its quality.[3] Much of the discussion of *usage* in the LIS literature takes place in the context of a *Use Study,* the process of which was described

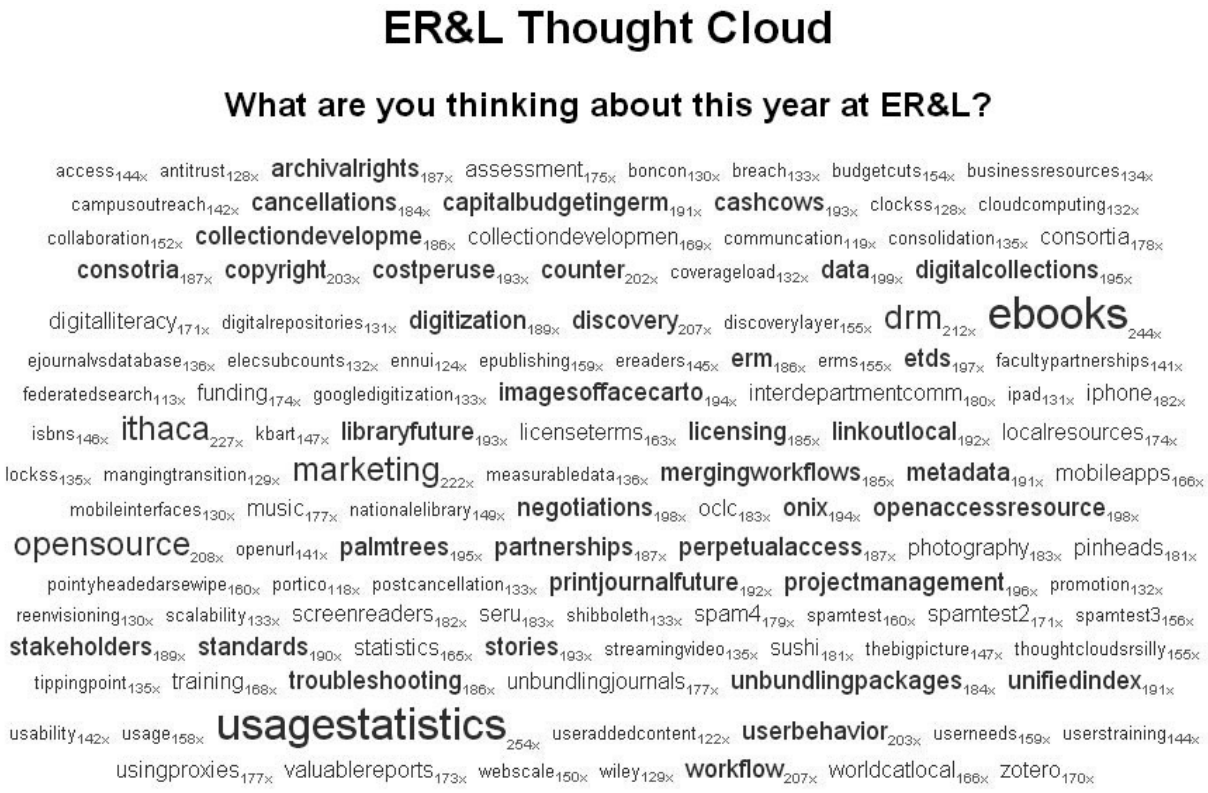

Figure 1
"Thought Cloud" from 2010 Electronic Resources & Libraries Conference Wiki. Attendees were asked to share concepts or issues that they were especially interested in exploring. "Usage" (124), "Usage Statistics" (212), "COUNTER" (159), and "Assessment" (132) were among the most commonly identified. http://electroniclibrarian.org/erlwiki/Thought_cloud.

by Broadus as "start with a group of library materials, then try to determine what use, or how much use, they receive."[4] Studies of the uses made of libraries, their informational sources, and the services they provide can be found in some of the earliest literature of librarianship. For example, Alvin C. Eurich's 1933 *Journal of Higher Education* study, "Students' Use of the Library: Seasonal Variation in the Use of a University Library," measured, as the title implies, changes in student circulation patterns according to the season. It's worth noting that Eurich's references to "use of the library" describe only one type of action (book checkout) occurring in one area of the library (the reserve room).[5]

Perhaps not surprisingly, early discussions of library use focused almost exclusively on this type of quantitative measure. Studies of circulation patterns like Eurich's were—and remain—popular; other authors studied door counts (the number of people who entered the library, often measured by turnstile) and, sometimes, the number of questions asked at a library reference desk. To be fair, book circulation was a fairly accurate representation of the scope of services offered by libraries of the early twentieth century, as reference service as we understand it today did not become widespread until the late 1940s and 1950s.[6] *Use Studies* did not become a *Library Literature* subject heading until 1960. Since then, however, research identified as use or user studies has grown exponentially; a recent search of *Library Literature & Information Science Full Text* and *Library Literature Retrospective* retrieved nearly 7,000 items with the *Use Studies* subject heading (search conducted on June 22, 2010).

The User Revolution

Information science's so-called cognitive turn in the late 1970s brought about a shift in assumptions underlying use-related research.[7] A series of pieces by Brenda Dervin and Douglas Zweizig began a more in-depth discussion of the concepts of library use and information resource usage and their relationship to the user. The authors asked why studying use of the library should be studied *from the perspective of the library*: "implicit in the focus on the measurement of library activities are a number of assumptions. The most obvious is that there is something of value to be obtained as a result of measuring library activities."[8] Zweizig and Dervin shifted the chicken-or-egg model inherent in resource-oriented usage research—that

the purpose of using the library *is* library usage—to a focus on the resolution of the user's individual need, which happens to take place *by visiting the library*. After all, one does not go to the library just to go to the library; one goes to the library *in order to satisfy a need that can be served by visiting the library*. In the authors' words, "Once the question was, 'How much use is made of the library?' Currently, the primary question is, 'Who is the user of the library?' It is suggested here that the questions for the immediate future must be: 'What uses are made of the library? What uses could be made of the library?'"[9]

Zweizig also classified the research approaches inherent in use, usage, and user studies:

- Use: transaction is unit of analysis (circulation, ILL, number of reference questions answered.) Asks: "How much is the library used?"
- User: individual is the unit of analysis. Asks: "Who is using the library?"
- Uses: "What is the library being used for?" Least studied: closest approximation is "user satisfaction" study.[10]

He questioned use studies authors' operationalization of library use, which were frequently based on *input measures*, such as money spent on materials or hours of operation. Input measures, Zweizig argued, demonstrate only the *potential* for service, not necessarily services provided, their quality, or user satisfaction. Instead, he advocated assessment of actual usage of resources and services—that is, improving understanding of the *actual purposes* being served by library and materials use. This shift in approach would require a change in methods as well as in librarians' understanding of use, users, and uses and the differences between them. Such a seemingly simple shift in thinking presented an entirely new lens for viewing and understanding library usage. In 1986, Brenda Dervin and Michael Nilan issued a call for increased research focus on user-level information behavior through recognizing "human beings as actively constructing rather than passively processing information."[11] Focusing on information systems as the operative element in a research project, they said, treated human information-seeking and information-use behaviors as static, transactional, externally oriented, and orderly processes that could best be measured quantitatively and did little to help information workers improve practice and services to actual users.[12]

According to Dalrymple, the influence of Zweizig and Dervin's approach continues. In a 2002 review, she found 83 articles that cited Zweizig's and Dervin's articles in the years between 1977 and the year 2000.[13] That year, their 1977 article was mentioned in the American Society for Information Science and Technology (ASIS&T) Annual Meeting program as having been the last thorough discussion of the concepts of *use* and *user*. "Public Library Use, Users, Uses: Advances in Knowledge of the Characteristics and Needs of the Adult Clientele of American Public Libraries" discussed the shortcomings of the positivist, statistics-based nature of use and user studies prevalent at the time, asking if "the focus of these 'user' studies is, indeed, helpful."[14] Concluding that these studies did little to enhance understanding of user needs, the panelists advocated instead for a more constructivist, situational, and user-centered approach to the study of library users and uses. In 2007, Blaise Cronin identified Dervin and Nilan's publication as one of the most cited chapters published in the then forty-one volumes of ARIST.[15]

Perhaps as a result of this shift in the more theoretical study of information behavior, library-centered information behavior researchers began, at some point, distinguishing use studies from user studies. Rather than focusing on actions such as database logons, researchers who study users speak "with people and [ask] whether, or how much, they use" library and information resources.[16]

Problems with Studies of Use, Users, and Usage

Some have questioned the contribution of the large volume of use and user studies to the knowledge base of LIS. According to Broadus, concerns about "methodology and validity," or the extent to which the study truly measures the variable or phenomenon in question, are among the most frequent complaints about use studies.[17] Butkovich cites several authors who dispute the validity of "single-faceted" use studies which address only one dimension of resource use, such as article downloads or removal of items from shelves.[18] Use studies can be extremely time-consuming; the staffing burden and associated costs often make it impossible for libraries to investigate more than a single dimension of use.

Studies of use, users, or usage also suffer from terminological imprecision—as libraries provide a continually widening variety of services to diverse groups of patrons, *use* seems to have become a stand-in term for whatever a "library user" might do. A quick scan of use study abstracts reveals that "use" is employed as a stand-in for a diverse group of activities, such as checking out books, studying in the library, physically entering the library, removing an item from the shelf, or a combination of these and other measures. Regrettably, in order to determine what type of "use" or "usage" an author has evaluated, one must frequently scour the study's discussion section for clues and extrapolate the operational use in question. As individual libraries provide increasingly diverse and customized services and resources for their

specific user group, one library's usage assessment may become irrelevant to other libraries. Nancy Butkovich points out the problems this creates for applying use study data to decision making: "in practice . . . there is no agreement on what a 'use,' let alone 'low use,' really is."[19]

Figure 2
The concept of "use" in library studies is often amorphous.

For Parker, the underlying principle of collection management is that "some items are more useful than others, and that utility can be measured by demand (i.e., the probability of use)."[20] Sounds good, but if we don't have a clear idea of what "use" or "usage" is, how can we assess it? Bookstein speculates that the breadth of activity under the use umbrella in "thousands of user studies" has contributed to the sum of "very little [knowledge] about how patrons behave in, and respond to, libraries."[21] In concluding his review of use studies, Broadus asked, "when a book is checked out, what does that really say about use? One book may be studied for twenty hours, another for ten minutes."[22] Indeed, many books—both print and electronic—are checked out and never consulted.

A shift in the larger culture of assessment is making it more difficult for libraries to rely strictly on numeric measurements of usage in order to demonstrate effectiveness. In addition to providing data for internal decisions, these measurements of use are "trotted out regularly to show the effectiveness of a library."[23] According to Burns, "traditionally, libraries have equated performance levels with their measures of user satisfaction, but only in terms of outputs from the system. For example, high circulation has always been the hallmark of a successful library system" in spite of the fact that "both measures have only the most tenuous relationship to the qualitative performance measures librarians so diligently seek."[24] As competition for resources and skepticism about the future of the library-as-institution intensify, funding agencies, legislators, administrators, accrediting agencies, and other stakeholders are more frequently asking libraries to demonstrate the long-term impact their resources, services, and faculty have had on constituents through *outcomes*-based assessment.

E-Resource Usage in the Literature of LIS

As library services continue to change and diversify with expansion into the electronic environment, assessing usage of library resources has become more complex. As remote access to library-provided electronic resources continues to become more common, librarians must grapple with determining how patrons make use of the library without entering it physically. Librarians are also becoming increasingly concerned that remote users accessing resources that the library subscribes to through a service like Google Scholar may not even be aware that the resources they've accessed are not just "on the Internet." This can have repercussions for assessment: if a patron is asked in a survey when she "last used the library," will it be obvious to her that by accessing resources remotely she's *using the library*?

Because so much e-resource usage is conducted from outside the library (and away from the librarian's or researcher's observable environment), researchers investigating remote library usage frequently must make do with data about the number and duration of logons to specific databases. Some argue that this approach is the virtual equivalent of door counts and circulation statistics and contributes little to our understanding of the role of the library and information sources in the life of the user. Michael Levine-Clark encapsulates these concerns in discussing a study of e-book usage at the University of Denver: "statistics provided by electronic book vendors . . . show that [our] community uses e-books quite heavily. The data do not show, however, how books are used. For instance, the available statistics show that a book has been accessed but do not differentiate between a one-second click on a title and a five-hour immersion in a book. The data also do not tell us why an electronic version of a book was used instead of the paper version."[25]

Furthermore, the murky terminology that has plagued evaluation of print-based materials usage has not improved significantly in discussion of electronic resources usage. Efforts of agencies to clarify and standardize units of measurement have been significant, but not comprehensive; both Project COUNTER (Counting Online Usage of Networked Electronic Resources) and the Standardized Usage Statistics Harvesting Initiative (SUSHI) of the National Information Standards Organization (NISO) lack a definition for a *usage*. The closest term provided is *usage statistic*, which SUSHI defines as "reports detailing the use of a customer's electronic resources over a given period of time."[26] In other words, a *usage* is a statistical

Figure 3
Sampling of outside agencies to which libraries report statistics.

measure of use, regardless of what that "use" is, or the outcome it has.

In addition to "usage," Blecic, Fiscella, and Wiberley found the International Coalition of Library Consortia's (ICOLC) terminology to describe different aspects of electronic journal usage similarly nebulous:

> Understanding the possible meanings of the terms "sessions" and "searches" is essential when interpreting use statistics. The ICOLC guidelines recognized the terms as important measures of use. In 1998 and 2001, the guidelines did not define "session," but equated it to "logins."[27]

. . . as was that supplied by Project COUNTER:

> In both its first and second releases, The COUNTER Code of Practice for Journals and Databases defined a session as "a successful request of an online service. It is one cycle of user activities that typically starts when a user connects to the service or database and ends by a terminating activity that is either explicit (by leaving the service through exit or logout) or implicit (timeout due to user inactivity.)"[28]

(It should be noted that the language referenced here has not been altered in COUNTER's third release, issued after the article's publication.) The authors also commented that if COUNTER requires any activity, such as a search, to have taken place during the measured session, it is not explicitly stated in the standards.

Not only is it more difficult to observe remote-login patrons as they access e-resources, researchers are finding that time-honored models of information access and retrieval may not apply in the electronic environment. Specifically, some early studies seemed to indicate that, for example, the 80/20 rule—by which twenty percent of the collection accounts for eighty percent of its use in terms of circulation and citation—may not hold true for electronic journals. Peters suggested, "as the pendulum swings from physical library use to online use of libraries, we need to develop measurement and assessment methods to accurately portray how users are using the library," in part because "some of the basic 'natural laws of library and information science' may not apply as well or as consistently in the realm of electronic information discovery and use."[29]

Some scholars believe that the increased availability of high-quality electronic content is dramatically changing user behavior. Nicholas and Huntington questioned the best way to measure the *actual use* of downloaded articles, which the authors called "the ultimate evidence of users satisfaction."[30] Even though some aggregators and databases report high numbers of article downloads by users, "how do we know they actually read or consumed them?" The authors suggest that a large number of articles may be downloaded and saved for future "consumption" that may never occur. They also suggest that short articles are more likely to be read on screen, which would have an impact on *usage* as measured by the number of downloads.[31]

Although the LIS literature features regular assertions that there is much to be learned about patron use behavior from the study of e-resource statistics, models for doing so are thin on the ground. Most studies that claim to focus on "users" actually do little more than provide basic information about the number and nature of database logons and article downloads. Data about the most popular time of day, day of the week, or month of the year for logging on and downloading articles, and the disciplinary affiliation of users or location from which the

patron accessed the database, are illustrative but not comprehensive. While there are approaches to contextualizing e-resource usage in order to improve understanding of outcomes, many e-resources librarians say that they feel overwhelmed with just keeping up with tracking statistical measures of usage as required by accrediting agencies and organizations like the Association of Research Libraries (see figure 3). It seems clear that if e-resource usage assessment is to move from an input/output model to truly measuring impact, libraries will need to shift assessment priorities and resources . . . and vendors will need to improve efforts to facilitate usage evaluation on a deeper level.

Notes

1. Charles Martell, "The Elusive User: Changing Use Patterns in Academic Libraries 1995 to 2004," *College and Research Libraries* 68, no. 5 (Sept. 2007): 435.
2. While the terms "use" and "usage" may seem to be synonymous in discussions of user behavior, "usage" typically refers to activities associated with electronic resources, such as article views or downloads, while "use" can refer to a broader collection of activities. In that respect, "usage" can be considered a type of resource use; this is the intended implication of these terms in this report.
3. Weiss defines *evaluation* as "the *systematic assessment* of the *operation* and/or the *outcomes* of a program or policy, compared to a set of *explicit* or *implicit standards*, as a means of contributing to the *improvement* of the program or policy." Carol H. Weiss, *Evaluation: Methods for Studying Programs & Policies* (New York: Prentice Hall, 1998), 4.
4. Robert N. Broadus, "Use Studies of Library Collections," *Library Resources and Technical Services* 24, no. 4 (Fall 1980): 317.
5. Alvin C. Eurich, "Students' Use of Library, Seasonal Variation in the Use of a University Library," *Journal of Higher Education* 4 (Nov. 1933): 421–424.
6. Arthur T. Hamlin, *The University Library in the United States: Its Origins and Development* (Philadelphia: University of Pennsylvania Press, 1981), 143.
7. Peter Ingwersen and Kalervo Järvelin, *The Turn : Integration of Information Seeking and Retrieval in Context* (Dordrecht, Netherlands: Springer, 2005), 3.
8. Brenda Dervin, "Useful Theory for Librarianship: Communication, Not Information," *Drexel Library Quarterly* 13, no. 3 (1977): 16.
9. Douglas L. Zweizig and Brenda Dervin, "Public Library Use, Users, Uses," *Advances in Librarianship* 7 (1977): 252.
10. Douglas L. Zweizig, "With Our Eye on User: Needed Research for Information and Referral in Public-Library," *Drexel Library Quarterly* 12, no. 1–2 (1976): 7.
11. Brenda Dervin and Michael Nilan, "Information Needs and Uses," in *Annual Review of Information Science and Technology*, ed. Martha E. Williams, 3–33 (Medford, NJ: Knowledge Industry Publications, 1986), 24.
12. Dervin and Nilan, "Information Needs and Uses."
13. Prudence W. Dalrymple, "A Quarter Century of User-Centered Study: The Impact of Zweizig and Dervin on LIS Research," *Library & Information Science Research* 23, no. 2 (Summer 2001): 155–165.
14. Karen E. Pettigrew, Marcia J. Bates, Joan C. Durrance, and Carol Collier Kuhlthau, "What's the Use? Extending and Revising Notions of Use and Users in Information Behavior Research," in *ASIST 2002: Information, Connections, and Community: Proceedings of the Annual Meeting of the American Society of Information Science and Technology, November 18–21, 2002, Philadelphia, Pennsylvania,* (Medford, NJ: Information Today, Inc., 2002), 246.
15. Blaise Cronin, "Introduction," in *Annual Review of Information Science and Technology*, vol. 41, ed. Blaise Cronin (Medford, NJ: Information Today, Inc. & American Society for Information Science and Technology, 2007): vii.
16. Broadus, "Use Studies of Library Collections," 317.
17. Ibid.
18. Nancy Butkovich, "Use Studies: A Selective Review," *Library Resources and Technical Services* 40, no. 4 (1997): 360.
19. Ibid., 359.
20. Ralph H. Parker, "Bibliometric Models for Management of an Information Store: I. Differential Utility among Items," *Journal of the American Society for Information Science* 33, no. 3 (May 1982): 124.
21. Abraham Bookstein, "Sources of Error in Library Questionnaires," *Library Research* 4, no. 1 (Spring 1982): 93.
22. Broadus, "Use Studies of Library Collections," 323.
23. Francine Fialkoff, "The Circulation Trap," *Library Journal* 127, no. 13 (Aug. 15, 2002): 68.
24. Robert W. Burns, Jr., "Library Use as a Performance Measure: Its Background and Rationale," *Journal of Academic Librarianship* 4 (1978): 4.
25. Michael Levine-Clark, "Electronic Book Usage: A Survey at the University of Denver," *portal* 6, no. 3 (2006): 286.
26. National Information Standards Organization, *The Standardized Usage Statistics Harvesting Initiative (SUSHI) Protocol,* ANSI/NISO Z39.93-2007 (Baltimore, MD: NISO, 2007), 2.
27. Deborah D. Blecic, Joan B. Fiscella, and Stephen E. Wiberley Jr., "Measurement of Use of Electronic Resources: Advances in Use Statistics and Innovations in Resource Functionality," *College and Research Libraries* 68, no. 1 (Jan. 2007): 27.
28. Ibid.
29. Thomas A. Peters, "What's the Use? The Value of E-Resource Usage Statistics," *New Library World* 103, no. 1/2 (2002): 45.
30. David Nicholas and Paul Huntington, "Electronic Journals: Are They Really Used?" *Interlending and Document Supply* 34, no. 2 (2006): 49.
31. Ibid., 50.