

The Elusive User: Changing Use Patterns in Academic Libraries 1995 to 2004

Charles Martell

This article documents changes in library use during the past decade. Data from professional organizations reveal that circulation use has declined slightly, with notable variations in health and law and at individual institutions, including the Ivy League. Reference use has declined more steeply. Electronic use has skyrocketed, but counting use remains problematic. The HOLLIS Plus counting results at Harvard University are highlighted. Electronic Serials expenditures at academic research libraries (ARL) suggest that electronic use will continue to expand unabated. Major studies profiling users are cited. Notable benefits are predicted as the shifted librarian and the elusive user interact in virtual space.



Scott Carlson's "The Deserted Library" received remarkable attention because the title was so alarming and the message was being circulated throughout higher education by a prestigious news source.¹ Once the alarm was raised, however, scant effort was made to assess the accuracy of Carlson's observations. In "Deserted No More," Andrew Albanese provided anecdotal commentary.² In their annual *ARL Statistics: Research Library Trends*, Martha Kyrillidou and Mark Young have acknowledged declining use in the areas of circulation, gate count, and reference.³ Declining use in the nation's academic libraries has not been examined in any detail in the published literature except for this author's "The Ubiquitous User: A Reexamination of Carlson's Deserted Library."⁴

Many authors refer to declining use but without providing any evidence to sup-

port this. Their comments fall into the category of hearsay. Kyrillidou and Young's *Library Trends* is commonly cited.⁵ Some authors refer to circumstances within their own libraries. This includes Anne Kenney's analysis of a year-to-year decline in circulation at Cornell that appeared in the in-house publication *Inside CUL*.⁶

This article presents statistical information regarding changes in the physical use of the academic library in the areas of circulation and reference with brief mention of reserve use and gate counts. Statistics have been gathered from law and medical libraries, public and private libraries, and library systems beyond those collected for "The Ubiquitous User."⁷ The profile that results is more varied and more complex than is obvious from previous accounts in the literature.

The degree to which electronic use is replacing physical use is important to plot the current and projected trajectory of the

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academic library. Knowledge of how use varies by discipline, user status (undergraduate, graduate, faculty), nature of use (studying, teaching, research), and type of library will enable librarians to allocate resources more effectively.

Circulation

ARL Libraries

Circulation among the ARL libraries fell 12 percent from 1995 to 2004.⁸ This decline is neither startling nor overly worrisome. The picture becomes more complex as one digs deeper. For example, the ARL law libraries (table 1) experienced a decline of only 2 percent from 1995 to 2004, whereas the ARL medical libraries (table 1) had a 38 percent decline in circulation during the same period. The ARL Ivy League libraries (table 1) showed a 24 percent increase in circulation although their category, Private Academic Libraries (table 1), had a 12 percent decline.

Obviously, the discipline, as in law (collections are largely noncirculating) or medicine, and the type of library, as in public or private, must be taken into account when examining use transactions among the ARL libraries. Averages may obscure

important details. In fact, some of the details may be considered both profound and mind-boggling. Circulation transactions in the Ivy League libraries (table 2) are illustrative. Between 1995 and 2004, four of them experienced increases and four declines. Columbia, Harvard, and Yale had increases in the range of 72–74 percent. Princeton suffered a 46 percent decline. The ups and downs appear unfathomable. For example, circulation at Yale increased from 598,000 in 1999 to 1,281,000 in 2004.

Explanations for these ups and downs are rarely available in the literature or on the public Web sites of the individual libraries or the associations and agencies that collect the data. However, searching the Internet may uncover interesting particulars.

In "Reading the Tea Leaves: Examining CUL Circulation Statistics," Anne Kenney speculates that the 47 percent decline in Cornell's Uris Library circulation figures between 2003 and 2004 may have been caused largely by a change in how laptop checkouts were counted.⁹ Prior to 2004, peripherals were counted separately so that "up to four circulation transactions could have been recorded for each laptop check-

TABLE 1
Circulation Transactions

ARL Library Statistics				
Type of Library	1995	1999	2004	% Change 1995 to 2004
Academic Law	1,482,000	1,327,000	1,446,000	- 2 %
Academic Medical	4,849,000	5,085,000	3,004,000	- 38 %
Ivy League	6,244,000	6,006,000	7,757,000	+ 24 %
Private Academic	16,737,000	17,194,000	14,710,000	- 12 %

Sources: ARL Academic Law Library Statistics 2003-04. Washington, D.C.: Association of Research Libraries, 2005. Accessed 3 March 2006. Available online from <http://www.arl.org/stats/pubpdf/law04.pdf>; ARL Academic Law Library Statistics 1998-99. Available online from <http://www.arl.org/stats/pubpdf/law99.pdf>; and ARL Academic Law and Medical Library Statistics 1994-95. Available online from <ftp://www.arl.org.stat/law/94-95>. ARL Academic Medical Library Statistics 2003-04. Washington, D.C.: Association of Research Libraries, 2005. Accessed 3 March 2006. Available online from <http://www.arl.org/stats/pubpdf/med04.pdf>; ARL Academic Medical Library Statistics 1998-99. Available online from <http://www.arl.org/stats/pubpdf/med99.pdf>. Data Tables. ARL Academic Law and Medical Library Statistics 1994-95. Available online from <ftp://www.arl.org.stat/med/94-95>. Ivy League and Public Academic statistics compiled from ARL Statistics for 1995, 1999, and 2004. Accessed 3 March 2006. Available online from <http://fisher.lib.virginia.edu/cgi-local/arlbin/arl.cgi?task=setupreport>.

TABLE 2				
Circulation Transactions				
ARL Statistics				
Ivy League Universities				
	1995	1999	2004	% Change 1995 to 2004
Brown	309,000	263,000	279,000	- 10%
Columbia	612,000	753,000	1,053,000	+ 72%
Cornell	1,155,000	1,112,000	1,124,000	- 3%
Dartmouth	320,000	254,000	278,000	- 13%
Harvard	1,489,000	1,607,000	2,567,000	+ 72%
Pennsylvania	588,000	472,000	658,000	+ 12%
Princeton	965,000	947,000	517,000	- 46%
Yale	736,000	598,000	1,281,000	+ 74%
Total	6,244,000	6,006,000	7,757,000	+ 24%

Sources: Compiled from ARL Statistics for 1995, 1999, and 2004. Accessed 3 March 2006. Available online from <http://fisher.lib.virginia.edu/cgi-local/arlbina/arl.cgi?task=setupreport>.

out.”¹⁰ As many as 74,924 more circulations may have occurred in 2003, supposes Kenney, “if all those transactions represented computer peripheral charges.”¹¹

Other Libraries

The variability in circulation continues across systems and individual libraries. Between 1999 and 2004 circulation increased 10 percent among the 1,000 or so libraries included in the *ACRL Summary Statistics* (table 3). Within the Association of Southeastern Research Libraries (table 4) circulation declined 9

percent for the same period. The latest comparison available for the National Center for Education Statistics’ *Academic Library Survey* (table 5) is between 1996 and 2000 when circulation transactions declined 16 percent. The membership of the Association of Academic Health Sciences Libraries reports a 26 percent decline in circulation and an 8 percent decline in gate count between 1997 and 2001.¹²

In “The Ubiquitous User,” circulation statistics are cited from a number of other libraries and systems, including the Cali-

TABLE 3			
Use Transactions			
ACRL Summary Statistics			
All Institutions Reporting			
Transactions	1999	2004	% Change
Circulation	84,904,000	93,810,000	+ 10%
Reference	24, 307,000	18,554,000	- 24%
961 institutions reported in 1999 and 1,031 in 2004			

Sources: ACRL Summary Statistics 1999. Chicago: Association of College & Research Libraries, 2000. Accessed 3 March 2006. Available online from <http://www.virginia.edu/surveys/ACRL/1999/sdp1.html> and ACRL Summary Statistics 2004. Accessed 3 March 2006. Available online from <http://ala.org/ala/acrlbucket/statisticssummaries/2004abcde/B17.pdf>.

TABLE 4
Use Transactions

Association of Southeastern Research Libraries				
	1999	2001	2004	% Change 1999 to 2004
Circulation	14,107,000	13,327,000	12,899,000	- 9 %
Reference	3,839,000	3,716,000	2,994,000	- 22 %

Sources: ASERL Statistics 1998-99. Accessed 3 March 2006. Available online from <http://aserl.solinet.net/stat/1999/stats9.html>. ASERL Statistics 2000-2001. Available online from <http://aserl.solinet.net/stat/2001/stats9.htm>. ASERL Statistics 2003-2004. Available online from <http://aserl.solinet.net/stat/index2004.html>.

fornia State University (CSU) libraries.¹³ In-house use transactions are also noted. Within the CSU libraries, in-house use declined 69 percent between 1991 and 2004. ARL libraries experienced a decline of 57 percent between 1996 and 2004.¹⁴ In-house use statistics are not widely available and may not be widely collected. If the ARL and CSU libraries' statistics are any indication, the downward in-house use trend is dramatic and warrants systematic attention.

Gate counts would be helpful as well, but these do not appear with any frequency among the statistics collected and published or available via the Web sites of individual libraries. Physical constraints are an obvious barrier to comprehensive gate counts, which are most easily collected in single-library, single-exit environments.

Circulation—The New or Renovated Library

In "The Library as Place: Changes in Learning Patterns, Collections, Technology, and Use," architect Geoffrey Freeman asserts that "Contrary to the predictions of diminishing use and eventual obsolescence of libraries, usage has expanded dramatically—sometimes doubling or even tripling."¹⁵ Emory, Dartmouth, and several other universities are mentioned specifically by Freeman. According to *ARL Statistics*, the number of circulation transactions at Emory increased from 483,000 in 1995 to 575,000 in 2004.¹⁶ This is a 19 percent increase, but it is far from the doubling or tripling suggested by Freeman. At Dartmouth (table 5), circulation decreased 13 percent from 320,000 in 1995 to 278,000 in 2004.

TABLE 5
Use Transactions

Academic Library Survey National Center for Education Statistics				
Transactions	1996	1998	2000	% Change 1996 to 2000
Circulation	231,500,000	216,100,000	194,000,000	- 16%
Reference	1,900,000	2,100,000	1,600,000	- 16%
Gate Count	16,500,000	16,200,000	16,500,000	0%
3,408 libraries reported in 1996, 3,658 in 1998, and 3,527 in 2000				

Sources: Academic Library Survey: 1996. Washington, D.C.: National Center for Education Statistics, 2000. Accessed 3 March 2006. Available online from <http://nces.ed.gov/pubs2000/2000326.pdf>, Academic Library Survey: 1998. Available online from <http://nces.ed.gov/pubs2001/2001341.PDF>, and Academic Library Survey: 2000. Available online from <http://nces.ed.gov/pubs2004/2004317.PDF>.

TABLE 6
Reference Transactions

ARL Library Statistics				
Type of Library	1995	1999	2004	% Change 1995 to 2004
Academic Law	811,000	741,000	622,000	- 23%
Academic Medical	1,683,000	1,703,000	1,189,000	- 29%
Ivy League*	1,211,000	1,090,000	680,000	- 44%
Private Academic	4,400,000	4,160,000	2,757,000	- 37%
*Dartmouth, Harvard, and Princeton did not submit reference data.				
Sources: ARL Academic Law Library Statistics 2003-04. Washington, D.C.: Association of Research Libraries, 2005. Accessed 3 March 2006. Available online from http://www.arl.org/stats/pubpdf/law04.pdf ; ARL Academic Law Library Statistics 1998-99. Available online from http://www.arl.org/stats/pubpdf/law99.pdf ; and ARL Academic Law and Medical Library Statistics 1994-95. Available online from ftp://www.arl.org.stat/law/94-95 . ARL Academic Medical Library Statistics 2003-04. Washington, D.C.: Association of Research Libraries, 2005. Accessed 3 March 2006. Available online from http://www.arl.org/stats/pubpdf/med04.pdf ; ARL Academic Medical Library Statistics 1998-99. Available online from http://www.arl.org/stats/pubpdf/med99.pdf . Data Tables. ARL Academic Law and Medical Library Statistics 1994-95. Available online from ftp://www.arl.org.stat/med/94-95 . Ivy League and Public Academic statistics compiled from ARL Statistics for 1995, 1999, and 2004. Accessed 3 March 2006. Available online from http://fisher.lib.virginia.edu/cgi-local/arlbin/arl.cgi?task=setupreport .				

Harold Shill conducted a Web survey of 357 academic libraries completing building projects between the years 1995 to 2002.¹⁷ The projects ranged from new buildings to major space reconfigurations. Of the 103 libraries reporting to the question relating to "Impact on Circulation," 56 or 54 percent reported declines after completion of the project, whereas 47 or 46 percent reported increases.¹⁸ Six libraries reported increases in circulation above 100 percent.¹⁹ For the question on "Impact on In-House Collection Use," there was a reported decline for 33 of the projects, or 73 percent, and an increase among 12, or 27 percent.²⁰ Shill concludes, "It is unclear whether specific building enhancements lead to particular types of usage increases."²¹

Reference

ARL Libraries

Between 1995 and 2004, reference transactions declined 42 percent in ARL libraries. Breakdowns by discipline and type of

library show more consistent results than with circulation transactions. Among the ARL Private Academic Libraries (table 6), there was a decline of 37 percent in the same period; and, within the Ivy League (table 6), the decline was 44 percent. Of the five Ivy League libraries (table 7) reporting, four experienced declines ranging from 44 percent to 71 percent and one experienced a 37 percent increase. ARL law libraries (table 6) reported a 23 percent decline and medical libraries (table 6) a 29 percent decline.

Other Libraries

Libraries included in the *ACRL Summary Statistics* (table 3) reported a 24 percent decline in reference transactions between 1999 and 2004, and the Association of Southeastern Research Libraries' *ASERL Statistics* (table 4) reported a 22 percent decline for the same period. The National Center for Education Statistics *Academic Library Survey* (table 5) showed a 16 percent decline between 1996 and 2000.

TABLE 7
Reference Transactions

ARL Statistics Ivy League Universities*				
	1995	1999	2004	% Change 1995 to 2004
Brown	69,000	57,000	36,000	-48%
Columbia	154,000	127,000	211,000	+37%
Cornell	239,000	170,000	110,000	-54%
Pennsylvania	391,000	397,000	220,000	-44%
Yale	358,000	339,000	103,000	-71%
Total	1,211,000	1,090,000	680,000	-44%
*Dartmouth, Harvard, and Princeton did not submit reference data.				
Sources: Compiled from ARL Statistics for 1995, 1999, and 2004. Accessed 3 March 2006. Available online from http://fisher.lib.virginia.edu/cgi-local/arlibin/arlib.cgi?task=setupreport .				

Reserves

The ARL no longer requests reserve use statistics from its member libraries and explicitly excludes it from being counted as a circulation statistic. Many college graduates remember reserve book rooms when they were highly popular. Frustrating waiting lines developed when only single copies of photocopied materials were available. Today there are few reasons to visit the reserve area because articles and many other nonbook materials are available online. As a result, electronic use has increased significantly and physical use has declined precipitously.

Electronic Resources

Increased Availability
Between 1995 and 2004, expenditures for Total Materials among the ARL libraries (table 8) increased 93 percent. Expenditures for Electronic Serials increased 2,175 percent. In 1995, Electronic Serials accounted for 6.39 percent of the Total Materials expenditures. In 2004 it accounted for 31.33 percent. The impact of these expenditures

on print-only resources is considerable. A leveling off will occur, but when and at what level are unknowns. Users who have become dependent on electronic resources and report satisfaction with them are requesting more electronic resources, not fewer.

Library consortia have significantly increased the utility of member libraries' print resources. This role is being expanded, and consortia are acting as brokers with electronic vendors to obtain cost savings for their members. The Wisconsin eBook Consortia and the Consortium of Academic and Research Libraries

TABLE 8
Electronic Resources and Materials Expenditures

ARL Libraries				
Expenditures	1995	1999	2004	% Change 1995 to 2004
Total Materials	526,496,000	727,623,000	1,016,121,000	+ 93%
Computer Files	22,031,000	10,848,000	32,098,000	+ 46%
Electronic Serials	11,848,000	67,125,000	269,601,000	+ 2,175%
Electronic Resources as % of Total Materials	6.39%	10.56%	31.33%	
Source: Compiled from Martha Kyriallidou and Mark Young, ARL Library Trends 2003-04, Table 7, Electronic Resources and Materials Expenditures in ARL University Libraries, 1992-2004. Accessed 3 March 2006. Available online from http://www.arl.org/stats/arlibstat/04pub/04intro.html .				

TABLE 9
Electronic Use Transactions

Harvard Libraries			
	Direct Logins	Deep Links – All Types	Totals
2001	NA	NA	1,336,000
2002	NA	NA	2,170,000
2003	2,710,000	332,000	3,042,000
2004	3,619,000	649,000	4,268,000
2005	4,071,000	1,122,000	5,193,000

“A direct login is counted each time a successful connection is made to the entry page of a given resource — i.e., the page that is linked to by the Harvard-assigned URN.”

“A deep link is counted when a connection is made to an individual article or other component item of the resource.”

Sources: HOLLIS Plus Fiscal Year Usage Statistics 2001 to 2005, Office for Information Systems, Harvard University Libraries. Accessed 3 March 2006. Available online from <http://hul.harvard.edu/ois/systems/portal/stats/YR2005/index.html>.

in Illinois are also working to improve the virtual search environment of their members by means of digital object management, federated search engines, and other software enhancements.²²

Counting Use

Significant progress has been made in counting the use of electronic resources. The COUNTER (Counting Online Usage of Networked Electronic Resources) Code of Practice has been widely supported “by the international community of librarians, publishers, and intermediaries, as well as by their professional bodies.”²³ The ARL is one of its sponsors. COUNTER’s Release 2 (April 2005) focuses on the use of journals and databases.²⁴ A draft Release 1 of COUNTER’s Code of Practice for Books and Reference Works was published for comments in January 2005.²⁵

Harvard University’s HOLLIS Plus usage statistics between the years 2000 and 2005 indicate the magnitude of the transformation that is underway. Table

9 shows that the use of electronic resources has increased from 1,336,000 to 5,193,000, or 389 percent. Clearly, however, a great deal more use is made of the Internet by faculty and students than is routed through the library’s proxy server.

Progress in counting the use of electronic resources has been rapid in recent years. Nonetheless, there appears to be a widespread belief that “our current statistics inadequately capture ... online access to resources.”²⁶ In a *C&RL* article, Wonsik Shim and Charles McClure report the results of an ARL e-metrics study.²⁷ They note, “The provision of usage statistics by electronic content providers is problematic at best.”²⁸ Once database vendors, COUNTER, and others solve the usage statistics problem and everything that can reasonably be counted is counted, librarians collectively will breathe a sigh of relief. They will also gain a welcome measure of control over the digital information contents for which they are responsible.

Using Counts

The circulation of a book or journal counts as a transaction. Asking a reference question does, too. Normally a transaction involves a user interacting with a person employed by the library. A gate count is not a transaction, but an item used in-house and reshelfed is. Transactions can usually be broken down or aggregated so that they have recognizable staffing and fiscal implications. Notable increases or decreases in the number of transactions for any particular service often lead to changes in staffing and budgets. Declines in the physical use of the library of the magnitude documented above should have an observable effect on the allocation of resources. The scarcity of information pertaining to “*how resources are being reallocated in response to declining physical use*” is a serious handicap to anyone wishing to arrive at generalizable conclusions on the subject.

Electronic use presents a different set of problems. For example, what uses count as transactions and what are the recognizable staffing and fiscal implications of these uses? So much is invisible to our common sense way of thinking. Physical transactions are measured in seconds and minutes. Electronic uses may occur in microseconds.

Thus, while the counting of electronic uses has reached a stage of youthful maturity, an understanding of what these counts mean in the language of resource allocation is arguably in its infancy.

Use and Users of Electronic Library Resources

Carol Tenopir's *Use and Users of Electronic Library Resources: An Overview and Analysis of Recent Research Studies* (August 2003) provides an excellent introduction to this subject.²⁹ She summarizes and analyzes more than 200 studies published between 1995 and 2003. The Executive Summary highlights the main findings. Few of them are surprising. Faculty and students use and like electronic resources, and print remains the preferred format for reading books and articles in e-journals. Subject discipline matters as use varies accordingly. Most striking perhaps is the finding that "college and high school students use the Internet more than the library for research."³⁰

The Digital Library Federation/Council on Library and Information Resources/Outsell study deserves special consideration because of its size and detailed findings.³¹ Over three thousand faculty and students were interviewed. The average interview lasted one hour. Use is tracked by discipline, levels of satisfaction and success rates, place (for example, office, home, or library), type of use (such as research, coursework, or teaching), and other variables. The findings are not easy to follow as questions and answers fold back on each other through several closely related iterations. Nonetheless, valuable information can be gleaned from the results. Some of them are reassuring.

For example, 98 percent of those interviewed agreed with the statement "my institution's library contains information from credible and known sources."³²

All students relied heavily on the physical and virtual library for their coursework, and 65–70 percent satisfied their information needs in this manner.³³ Less than 25 percent relied on electronic resources all or most of the time, although this climbed to 30 percent for law students and 42 percent for business students.³⁴

Undergraduates used electronic materials exclusively or almost exclusively 49 percent of the time. Business students topped the list at 63 percent.³⁵ Seventy-five percent of faculty and students indicated a high level of satisfaction with library services.³⁶ At liberal arts colleges, this increased to 87 percent; and, in law, to 89 percent.³⁷

Having enough time was viewed as a major problem by 39 percent of all respondents and by 60 percent of the faculty.³⁸ Denise Troll reports that 75 percent of the 2,000 college students in a netLibrary study said, "They do not have enough time."³⁹ This factor alone is likely to propel all users toward increased use of the Internet and their library's portal for research, coursework, and teaching.

Brinley Franklin and Terry Plum surveyed 15,000 networked electronic services users at four academic health sciences libraries and two main campus libraries.⁴⁰ At the health sciences libraries, there were four remote users for each in-house user.⁴¹ Among faculty, staff, and research fellows, the ratio was five to one.⁴² Sponsored research accounted for almost one third of the activity among remote users.⁴³ At the two main libraries, there were approximately 1.3 remote users for each in-house user of electronic information.⁴⁴ The authors conclude that the purpose of use for networked electronic resources is noticeably different between remote users and in-house users.⁴⁵

In a User Preference Survey of 300 journal titles at the University of California, 84 percent of all users agreed with the

statement that electronic journals were a "suitable alternative" to print.⁴⁶ In only one case, out of ten kinds of use, "in which one format might be superior to another ... did more than 25 percent of respondents 'definitely' or 'mostly' prefer print when browsing current issues of a journal."⁴⁷

Conclusion

The value of electronic resources may already have eclipsed that of physical resources. The benefits to users have been enormous. Students no longer have to come to the library to check out articles for reserve readings. Newspapers can be browsed online. No more fumbling for hours through heaps of printed indexes with their controlled, or lesser, vocabularies. Government documents and legal materials can be accessed online with an ease that makes the old days seem like a bad dream. Quaint microform equipment sits largely idle as users enjoy beautiful, high-density LCD screens and prints that sparkle on the page in color or black and white. Everything seems to be within reach in seconds.

No longer limited by the time and space considerations of the physical library, users voice high satisfaction with our anytime and anywhere orientation. Library portals have proven to be highly beneficial as electronic use skyrockets. No matter how difficult this transition has been, librarians

can be thankful for what the electronic world has provided to those who use our services. As in the past, students are not always selective regarding their sources or the authenticity of these sources. They continue to seek shortcuts. They may ignore convenient resources in print to wade through millions of hits on a favorite search engine. Time seems more precious to them, although large slices may still be consumed because of ineffective information-seeking behavior.

Finally, there are many frontiers for librarians to explore. Among the most critical are those that facilitate interaction between the virtual user and the library professional.⁴⁸ Reference librarians are at the forefront of this effort. They subscribe to services such as *LiveRef*, a Registry of Real-Time Digital Reference Services, to provide users with an ever-increasing range of services. Becoming one with the Web will position reference librarians at the tipping point. From this juncture, they will be able to assist users in ways still unimagined. Prospects for the print collections are, however, far from rosy. Attracting students and faculty to the physical library may provide only marginal benefits at a time when usage patterns suggest that virtual use is becoming, or has become, the preferred method of accessing information.

Notes

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3. Martha Kyrillidou and Mark Young, *ARL Statistics 2003-04: Research Library Trends*. Available online at www.arl.org/stats/arlstat/04pub/04intro.html. [Accessed 3 March 2006].
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10. *Ibid.*
11. *Ibid.*
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Libraries, 2002): xxiv; and Gary D. Byrd, "Association of Academic Health Sciences Libraries: An Exploratory Twenty-Five-Year Trend Analysis," *Journal of the Medical Library Association* 91 (Apr. 2003): 186–202.

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21. Shill and Porter, "Creating a Better Place," 433.

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24. *Ibid.*

25. *Ibid.*

26. Kenney, "Reading the Tea Leaves," 2.

27. Wonsik Shim and Charles R. McClure, "Improving Database Vendors' Usage Statistics Reporting through Collaboration between Libraries and Vendors," *College & Research Libraries* 63 (Nov. 2002): 499–514.

28. *Ibid.*, 2.

29. Carol Tenopir, *Use and Users of Electronic Library Resources: An Overview and Analysis of Recent Research Studies* (Washington, D.C.: Council on Library and Information Resources, Aug. 2003).

30. *Ibid.*, 5.

31. Amy Friedlander, *Dimensions and Use of the Scholarly Information Environment: Introduction to a Data Set Assembled by the Digital Library Federation and Outsell, Inc.*, (Washington, D.C. Digital Library Federation and Council on Library and Information Resources, November 2002): 1–20. Available online at www.clir.org/pubs/abstract/pub110abst.html. [Accessed 26 January 2006].

32. *Ibid.*, 6.

33. *Ibid.*, 7.

34. *Ibid.*, 5.

35. *Ibid.*

36. *Ibid.*, 9.

37. *Ibid.*

38. *Ibid.*, 5.

39. Denise A. Troll, "How and Why Are Libraries Changing?" (2001): 12. Available online at www.diglib.org/use/whitepaper.htm. [Accessed 26 January 2006].

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