

# 2012 top ten trends in academic libraries

## A review of the trends and issues affecting academic libraries in higher education

The ACRL Research Planning and Review Committee is responsible for creating and updating a continuous and dynamic environmental scan for the association that encompasses trends in academic librarianship, higher education, and the broader environment, e.g., economic, demographic, political; providing an annual environmental scan “snapshot.” The committee also is responsible for identifying the ACRL “top ten trends” for release every two years.

In order to identify the trends, the committee members review the literature, attend conferences, and contact experts who are familiar with current trends in higher education. One of the largest groups of experts is the ACRL membership; therefore, the committee organized a discussion forum at the 2012 ALA Midwinter Meeting to provide an opportunity for ACRL members to meet and discuss the trends and issues affecting academic libraries and higher education.

Three leaders in academic librarianship were the catalysts for this discussion: Martin Halbert, dean of libraries at University of North Texas; Joan Lippincott, associate director of Coalition for Networked Information (CNI), and Mark Puente, director of diversity and leadership programs, Association of Research Libraries (ARL). This discussion forum augmented the trends identified by the committee.

These top trends are listed alphabetically. Each trend includes a brief discussion and references to the literature. The committee also compiled additional resources that may be of interest.

### Communicating value

*Academic libraries must prove the value they provide to the academic enterprise.* In a recent editorial, Rick Anderson stated that “unless we give our funding bodies better and more compelling reasons to support libraries, they will be forced by economic reality to stop doing so.”<sup>1</sup> Librarians must be able to convert the general feelings of goodwill towards the library to effective communication to all stakeholders that clearly articulate its value to the academic community.<sup>2</sup> The 2010 ACRL Value of Academic Libraries report is part of a greater initiative to provide tools for libraries to demonstrate how they directly contribute to student and faculty recruitment, retention, and success.<sup>3</sup> The newly revised “Standards for Libraries in Higher Education” include an outcomes-based approach that articulates “expectations for library contributions to institutional effectiveness.”<sup>4</sup> Two 2012 ACRL national summits will address strategies for

---

Members of the ACRL Research Planning and Review Committee: Lynn Silipigni Connaway, chair, is a senior research scientist at OCLC Research, e-mail: lynn\_connaway@oclc.org; Janice S. Lewis is associate dean at East Carolina University, e-mail: lewisja@ecu.edu; Stephanie Alexander is a reference and instruction librarian at the University of Southern California, e-mail: smalexan@usc.edu; Yunfei Du, associate professor at University of North Texas, e-mail: yunfei.du@unt.edu; Brad Eden is dean of library services at Valparaiso University, e-mail: brad.eden@valpo.edu; Barbara Petersohn is digital projects librarian at Georgia State University, e-mail: bpetersohn@gsu.edu; Merrilee Proffitt is senior program officer at OCLC Research, e-mail: proffitm@oclc.org; Lutishoor Salisbury is university professor and head of Chemistry and Biochemistry Library at University of Arkansas, e-mail: lsalisbu@uark.edu

librarians to communicate the library's value in advancing institutional missions and goals.<sup>5</sup> The Lib-Value project, funded by the Institute of Museum and Library Services, is developing assessment tools that will allow libraries to show their contributions to teaching and learning; research; and social, professional, and public engagement.<sup>6</sup>

Recent value-related research has investigated the correlation between library material usage and library instruction with student grade point averages, the impact of liaison librarians, how low library use is related to student achievement, and how library resources contribute to student and faculty success.<sup>7</sup> Work also is underway to show the environmental value of academic libraries.<sup>8</sup>

### Data curation

*Data curation challenges are increasing as standards for all types of data continue to evolve; more repositories, many of them cloud-based, will emerge; librarians and other information workers will collaborate with their research communities to facilitate this process.*

In May 2010, the National Science Foundation (NSF) announced a change in the implementation of its existing policy on sharing research data. Starting in October, all proposals must include a two-page data management plan describing how the proposal will conform to NSF policy on dissemination and sharing of data. This initiative addresses the need for data from publicly funded research to be made widely available and publicly accessible to broad scientific communities.<sup>9</sup>

The increasing inclusion of supplementary data in journal publications and other projects creates a number of challenges for publishers, libraries, repositories, and researchers. The National Information Standards Organization/National Federation of Advanced Information Services' Supplemental Journal Article Materials Project is developing a recommended practice for publisher inclusion, handling, display, and preservation of these materials.<sup>10</sup>

Data curation presents opportunities for "finding new ways to communicate the value

of the skills librarians already possess and in developing roles that were previously not associated with librarians."<sup>11</sup> Librarians and information workers have a vital role to play in helping their research communities design and implement a plan for data description, efficient storage, management, and reuse. Several discipline data repositories already exist, and include librarians as principal collaborators.<sup>12</sup>

### Digital preservation

*As digital collections mature, concerns grow about the general lack of long-term planning for their preservation. No strategic leadership for establishing architecture, policy, or standards for creating, accessing, and preserving digital content is likely to emerge in the near term.*

Academic libraries will "increasingly focus on distinctive and unique collections in service to regional and national scholarly audiences."<sup>13</sup> Many of these collections, particularly those that include rare or unique content or institution-specific materials such as university records and grey literature, are or will be digitized. OCLC Research reports that 97% of the 169 research libraries in the United States and Canada with special collections surveyed have "completed one or more digitization projects and/or have an active program."<sup>14</sup>

However, local digital collections are at risk when the individual institution lacks a comprehensive preservation plan. Most institutions, according to a Portico and Cornell University Library report, are only beginning to understand that their investment in creating digital collections "must be met with a commitment and infrastructure to protect this content for its lifetime."<sup>15</sup>

There also is a lack of significant and standardized architecture and policy. James Neal predicts that the "preservation and archiving of the cultural and scientific record will remain balkanized and episodic with no leadership coordination."<sup>16</sup> Ithaka S+R's 2011 follow-up study of 12 digital content projects suggests that the key to successful

and sustained collections is leaders who have the ability to articulate project goals aligned with the parent institution, identify sources of volunteer support and/or funding, and adapt to changing circumstances.<sup>17</sup>

Collection, preservation, and management of born-digital materials are a growing concern. While 79% of special collections and archives surveyed by OCLC Research report having collected born-digital materials, lack of funding, planning, and expertise were cited as the largest impediments to their management and preservation. Parent institutions are not likely to see the value of planning for the collection and management of born-digital content and are more prone to be reactive in responding to a need for preserving these materials.<sup>18</sup>

## Higher education

*Higher education institutions are entering a period of flux, and potentially even turmoil. Trends to watch for are the rise of online instruction and degree programs, globalization, and an increased skepticism of the “return on investment” in a college degree.*

*Shifts in the higher education surround will have an impact on libraries in terms of expectations for development of collections, delivery of collections and services for both old and new audiences, and in terms of how libraries continue to demonstrate value to parent institutions.*

The report “Disrupting College,” asserts that the current model for higher education is broken; therefore, susceptible to “disruptive innovation.”<sup>19</sup> According to the report, institutions of higher learning have evolved into a nonsensical hodgepodge that cannot effectively and simultaneously support both teaching and learning functions alongside high-quality research, and that organizations that focus on one and not the other will gain cost and market advantage. Online learning environments are identified as “disruptors,” and the rise of “competency certification” supports alternatives to traditional education options.<sup>20</sup>

Taylor Walsh provides an in-depth study and analysis of several online learning ex-

periments, suggesting that online education may provide a sustainable path forward for institutions of higher education.<sup>21</sup> In December 2011, MIT announced an online certification program, MITx (which will be launched in early fall 2012), leveraged from MIT’s ten-year experiment with OpenCourseWare.<sup>22</sup>

The book *The Great Brain Race: How Global Universities Are Reshaping the World* looks broadly at the globalization of higher education.<sup>23</sup> Not only are academic institutions from Western countries expanding their footprint into the Middle East and Asia, but universities in China and India are making their mark on the global ranking tables, offering increased competition for Western institutions. Those who are interested in tracking internationalization in higher education should monitor the WorldWide blog on *The Chronicle of Higher Education* Web site.<sup>24</sup>

Peter Theil, founder of eBay, correctly predicted both the technology bust in the early 2000s and the recent housing crash. Now he asserts that higher education is overvalued and comes with an inflated price tag.<sup>25</sup> The book, *Academically Adrift: Limited Learning on College Campuses*, also questions the value of today’s college education.<sup>26</sup> The journal *Academic Questions* devoted two issues to examining all sides of the “bubble” issue.<sup>27</sup> Further evidence that students seek value for their education dollar is reflected in the strong enrollment numbers in community colleges.<sup>28</sup>

## Information technology

*Technology continues to drive much of the futuristic thinking within academic libraries.*

The key trends driving educational technology identified in the 2012 Horizon Report are equally applicable to academic libraries: people’s desire for information and access to social media and networks anytime/anywhere; acceptance and adoption of cloud-based technologies; more value placed on collaboration; challenges to the role of higher education in a world where information is ubiquitous and alternate forms of credentialing are available; new education paradigms that include online and hybrid learning; and a new emphasis on

challenge-based and active learning.<sup>29</sup> The report cautions that social networks and new publishing paradigms, such as open content, challenge the library's role as curator and place libraries under pressure to evolve new ways of supporting and curating scholarship. These may include helping students develop digital media literacy skills and creating appropriate metrics for evaluating new scholarly forms of authoring, publishing, and researching. The Horizon Report indicates that mobile apps and tablet computing are near-term drivers (discussed as a separate trend below); game-based learning and learning analytics are mid-term (two-to-three year) drivers; and gesture-based computing and the Internet of Things (ubiquitous computing) are long-term (four-to-five year) drivers. Other technology forecasts also highlight virtual faculty, staff outsourcing, and next generation interfaces and content.<sup>30</sup>

Technology trends specific to libraries include Web-scale discovery systems with enhancements such as discipline-scoped searching and customized widgets, community-source library management systems, and vending machines to handle loans of equipment.<sup>31</sup>

### Mobile environments

*Mobile devices are changing the way information is delivered and accessed.* An increasing number of libraries provide services and content delivery to mobile devices. According to the 2011 EDUCAUSE Center for Applied Research (ECAR) study of undergraduate students, 55% of undergraduate students own smartphones, while 62% have iPods, and approximately 21% have a netbook, iPad, or other tablet. More than two-thirds of these students use the devices for academic purposes. Fifty-nine percent use smartphones to get information on the Internet, and 24% use them to access library resources. A comparison with the 2009 ECAR study—in which less than 15% of students said they would likely use mobile library services if they were available—shows how quickly the environment is changing. Also of note is the 2011 Pew Internet Project finding

that 25% of U.S. adults with smartphones use them as their primary information source.<sup>32</sup>

Industry leader EBSCOhost has apps for the iPhone, iPod touch, and Android as well as a mobile interface.<sup>33</sup> Many other vendors, including JSTOR, Elsevier, and Thomson Reuters, have mobile interfaces or apps.<sup>34</sup> SirsiDynix and Innovative Interfaces integrated library systems offer mobile access to library OPACs, while OCLC provides mobile access to Worldcat.<sup>35</sup> Self-service features such as renewing books, placing holds, and finding recommended titles are among the apps library users want.<sup>36</sup>

The 2012 Horizon Report reviews ways higher education institutions are using apps and tablets to enhance learning inside and outside the classroom. Some schools have replaced print textbooks with tablets preloaded with course materials while others use them for lecture capture, tutorials, orientations, and interactive publications.<sup>37</sup>

### Patron driven e-book acquisition

*Patron-Driven Acquisition (PDA) of e-books is poised to become the norm. For this to occur, licensing options and models for library lending of e-books must become more sustainable.* A report on the future of academic libraries identifies PDA as an inevitable trend for libraries under pressure to prove that their expenditures are in line with their value.<sup>38</sup> It notes that academic libraries will jettison “large collections of physical books in open stacks with low circulation,” in favor of licensing agreements with e-book vendors that will enable libraries to purchase only those books that are in high demand. Although PDA is partly about efficiencies, it also is about aligning a library's offerings with the demonstrated needs of its constituencies. PDA makes it possible to present to those constituencies a much larger set of titles than would otherwise be possible.<sup>39</sup>

ALA identified sustainability as a core principle for e-book collections. Sustainability requires secure and ongoing funding, technology solutions that are appropriate to the longevity of the cultural record and long-term management capabilities.<sup>40</sup> New licensing

options and standards must be adopted to facilitate library lending of e-books, provide COUNTER compliant statistics, and allow for portability between devices and platforms.<sup>41</sup>

## Scholarly communication

*New scholarly communication and publishing models are developing at an ever-faster pace, requiring libraries to be actively involved or be left behind.* New publishing models are being explored for journals, scholarly monographs, textbooks, and digital materials, as stakeholders try to establish sustainable models. Developments relevant to journals include open access to historical content, author-funded open access to new content, and uncertainty of the future of “Big Deals” (agreements or subscriptions with the large, usually expensive, publishers).<sup>42</sup>

Some academic libraries have taken an active role in changing the scholarly communication environment by creating or expanding publishing services. A 2011 survey of member institutions of ARL, the Oberlin Group and the University Libraries Group found that approximately half of the respondents had or were developing library publishing services. Three quarters published journals, while half published monographs and/or conference proceedings. The libraries commonly provided digital repository services, author copyright advice, digitization services, and management of research datasets, as well as metadata creation, cataloging, and digital preservation.<sup>43</sup> Academic libraries were less likely to provide traditional publishing services—peer review management, editing, typesetting, design and marketing—that faculty authors at a recent THATCamp publishing forum identified as important.<sup>44</sup>

Simba Information, a research company specializing in publishing, estimates that by 2013, digital textbooks will comprise 11% of the textbook market.<sup>45</sup> While textbook publishers see rentals as one way to keep prices down and eliminate the resale market, innovations spearheaded by academic institutions may help change the model in a more fundamental way and provide greater savings

to students. The University of Michigan Library is partnering with campus groups on a pilot project to use e-textbooks costing about 35% of a hard copy’s price in large, introductory-level classes.<sup>46</sup> Washington state’s community and technical college system offers “The Open Course Library,” which makes textbooks used in some high-enrollment courses freely available through Creative Commons licenses.<sup>47</sup> Librarians, instructors, and instructional designers are involved in the development and peer review of each course.

The Digital Public Library of America (DPLA), a national project that provides access to digital collections from U.S. libraries, museums, and archives, recently received a \$5 million grant to build a work plan that will include a functional technical prototype and targeted content digitization efforts.<sup>48</sup> HathiTrust continues to grow and add members, with its relationship to the DPLA yet to be defined.<sup>49</sup> Changes in the legal and copyright environment to “support equitable knowledge distribution in a digital world” and the U.S. Copyright Office’s “preliminary analysis and discussion document” will inform the work of both groups.<sup>50</sup>

## Staffing

*Academic libraries must develop the staff needed to meet new challenges through creative approaches to hiring new personnel and deploying/retraining existing staff.* Staff development and personnel are the top work place issues for academic librarians, according to a 2011 ACRL survey.<sup>51</sup> The ACRL Discussion Forum held at the 2012 ALA Midwinter Meeting confirmed that staffing issues are a major concern for academic librarians, while the Call for Participation for the ACRL 2013 conference includes five staffing-related items among its 40 “conference tags” describing compelling issues facing academic and research librarians.<sup>52</sup> Continuing education, professional development, strategic and creative approaches to hiring for vacant or new positions, retooling existing positions, and retraining the staff currently in those positions are some of the ways libraries can “grow” the staff they need.

Data curation, digital resource management and preservation, assessment, scholarly communication, and support for faculty instruction and student learning are growth areas where new skill sets are needed.<sup>53</sup>

### User behaviors and expectations

*Convenience affects all aspects of information seeking—the selection, accessibility, and use of sources.* Libraries usually are not the first source for finding information. When queried, respondents describe the library as “hard to use,” “the last resort,” and “inconvenient.” Convenience is a significant factor in both academic and everyday-life information-seeking situations.<sup>54</sup>

With the widespread use of the Internet and search engines such as Google, individuals have little or no problem finding sources. Since libraries are now competing for user attention, the current challenge is to provide immediate, seamless access to sources and information in order to remain in the game. Steven Escar Smith and Carmelita Pickett stated, “The new library should be based on the just-in-time model, where access is more important than vast quantities of nearby inventory.”<sup>55</sup>

Not only is immediate access to electronic sources a critical component of meeting the information needs of students and faculty, but access to human sources also is important. When students and faculty were interviewed in 2005, 2008, and 2010 to identify how they get their information for both academic and personal situations, parents, friends, family, colleagues, and professors are often the first sources queried.<sup>56</sup> Why? Convenience. These sources immediately can be reached by texting, voice calling, IMing, or e-mailing, with an often instantaneous response. Librarians, too, are making themselves available to students and faculty through a number of channels, including social media, chat, IM, and text reference, as well as making themselves physically available or embedded within academic departments, student unions, and cafeterias. Martin Kesselman and Sarah Watstein believe that “with the dramatic increase in electronic resources and technological capabilities,

bringing the library and the librarian to the user, wherever they are—office, laboratory, home, or even on their mobile device—is at the forefront of what it means to be embedded.”<sup>57</sup>

Although campus Information Commons, with cafés and 24/7 access to the facilities and resources, still are popular with students and faculty, convenient access to resources, whether human, print, or electronic is the most critical factor. After all, “If it is too inconvenient, I’m not going after it.”<sup>58</sup>

### Conclusion

Although there were mentions of other trends, these ten issues were the most mentioned and discussed trends in the current literature, at conferences, and by experts. Since this document is the framework for the 2013 ACRL Environmental Scan, the committee welcomes comments and feedback. The committee plans to conduct an ACRL OnPoint Discussion to provide a forum for a more in-depth discussion of this report.<sup>59</sup>

### Acknowledgement

The committee would like to thank Erin Hood, research assistant at OCLC Research, for her assistance in producing this document.

### Bibliography

1. Rick Anderson, “The Crisis in Research Librarianship,” *Journal of Academic Librarianship* 37, no. 4 (2011): 290.
2. Carol Tenopir, “Beyond Usage: Measuring Library Outcomes and Value,” *Library Management* 33, no. 1/2 (2012): 5-13; Michael Germano, “The Library Value Deficit,” *The Bottom Line: Managing Library Finances* 24, no. 2 (2011): 100-106.
3. Megan Oakleaf, *Value of Academic Libraries: A Comprehensive Research Review and Report* (Chicago: Association of College and Research Libraries, 2010), [www.acrl.ala.org/value/](http://www.acrl.ala.org/value/).
4. ACRL Board of Directors, “Standards for Libraries in Higher Education,” ACRL Association of College & Research Libraries, [www.ala.org/acrl/standards/standardslibraries](http://www.ala.org/acrl/standards/standardslibraries).
5. Kara Malenfant, “ACRL Announces 22 Colleges and Universities to Attend IMLS Funded

Summits," *ACRL Insider* (October 18, 2011), [www.acrl.la.org/acrlinsider/archives/4094](http://www.acrl.la.org/acrlinsider/archives/4094).

6. "The Lib-Value Project," LIBValue: Value, Outcomes, and Return on Investment of Academic Libraries, <http://libvalue.cci.utk.edu/node/2>.

7. Shun Han Rebekah Wong and T. D. Webb, "Uncovering Meaningful Correlation Between Student Academic Performance and Library Material Usage," *College & Research Libraries* 72, no. 4 (2011): 361-70; Shun Han Rebekah Wong and Dianne Cmor, "Measuring Association Between Library Instruction and Graduation GPA," *College & Research Libraries* 72, no. 5 (2011): 464-73; Louise Cooke, Michael Norris, Nial Busby, Thomas Page, Ginny Franklin, Elizabeth Gadd, and Helen Young, "Evaluating the Impact of Academic Liaison Librarians on their User Community: A Review and Case Study," *New Review of Academic Librarianship* 17, no. 1 (2011): 5-30; Deborah Goodall and David Pattern, "Academic Library Non/Low Use and Undergraduate Student Achievement," *Library Management* 32, no. 3 (2011): 159-70; Amanda N. Price and Rachel Fleming-May, "Downloads or Outcomes? Measuring and Communicating the Contributions of Library Resources to Faculty and Student Success," *Serials Librarian* 61, no. 2 (2011): 196-99; James G. Neal, "Stop the Madness: The Insanity of ROI and the Need for New Qualitative Measures of Academic Library Success" (paper presented at the ACRL 2011 Conference, Philadelphia, PA, April 2, 2011).

8. Bruce Kingma, "LIBValue: Valuing the Academic Library" (presentation at the ALA Midwinter Meeting, Dallas, TX, January 23, 2012), [www.libqual.org/documents/LibQual/publications/2012/2012\\_ALADallas\\_Kingma\\_LibValue.pdf](http://www.libqual.org/documents/LibQual/publications/2012/2012_ALADallas_Kingma_LibValue.pdf).

9. National Science Foundation, "Scientists Seeking NSF Funding Will Soon be Required to Submit Data Management Plans," news release, May 10, 2010, [www.nsf.gov/news/news\\_summ.jsp?cntn\\_id=116928&org=NSF&from=news](http://www.nsf.gov/news/news_summ.jsp?cntn_id=116928&org=NSF&from=news).

10. Cynthia Hodgson to SERIALST Archives listserv, September 30, 2011, NISO Two-Part October Webinar: Managing Data for Scholarly Communication, <http://list.uvm.edu/cgi-bin/wa?A2=serialst;T713zw;20110930130353-0400>.

11. Sally A. Gore, "E-science and Data Management Resources on the Web," *Medical Reference Services Quarterly* 30, no. 2 (2010): 167-77.

12. "Repositories," DataCite, <http://datacite.org/repolist>; Gore, "E-science and Data Management Resources on the Web," 167-77; "PANGAEA: Publishing Network for Geoscientific & Environmental Data," AWI Alfred Wegener Institute, [www.awi.de/index.php?id=3086&L=0](http://www.awi.de/index.php?id=3086&L=0).

13. James G. Neal, "Advancing from Kumbaya to Radical Collaboration: Redefining the Future Research Library," *Journal of Library Administration* 51 (2011): 69.

14. Jackie M. Dooley and Katherine Luce, *Taking Our Pulse: The OCLC Research Survey of Special Collections and Archives* (Dublin, OH: OCLC Research, 2010), 54. [www.oclc.org/research/publications/library/2010/2010-11.pdf](http://www.oclc.org/research/publications/library/2010/2010-11.pdf).

15. *Preservation of Digitized Books and Other Digital Content Held in Cultural Heritage Organizations* (Ithaca, NY: Portico and Cornell University Library, 2011), 5, [www.portico.org/digital-preservation/wp-content/uploads/2010/01/NEH-IMLS-D-book-model.pdf](http://www.portico.org/digital-preservation/wp-content/uploads/2010/01/NEH-IMLS-D-book-model.pdf).

16. Neal, "Advancing from Kumbaya to Radical Collaboration," 69.

17. Nancy L. Maron and Matthew Loy, *Revenue, Recession, Reliance: Revisiting the SCA/Ithaca S+R Case Studies in Sustainability* (UK: Strategic Content Alliance, 2011), 2, [www.ithaka.org/ithaka-s-r/research/case-studies-in-sustainability\\_2011/Revenue\\_Recession\\_Reliance\\_SCA\\_IthacaSR\\_Case\\_Studies\\_in\\_Sustainability\\_Report.pdf](http://www.ithaka.org/ithaka-s-r/research/case-studies-in-sustainability_2011/Revenue_Recession_Reliance_SCA_IthacaSR_Case_Studies_in_Sustainability_Report.pdf).

18. Dooley and Luce, *Taking Our Pulse*, 58-60.

19. Clayton M. Christensen, Michael B. Horn, Louis Caldera, and Louis Soares, *Disrupting College: How Disruptive Innovation can Deliver Quality and Affordability to Postsecondary Education* (Washington, D.C.: Center for American Progress and Innosight Institute, 2011), [www.americanprogress.org/issues/2011/02/pdf/disrupting\\_college.pdf](http://www.americanprogress.org/issues/2011/02/pdf/disrupting_college.pdf).

20. Richard Vedder, "Beware: Alternative Certification is Coming," *The Chronicle of Higher Education* (January 23, 2012), <http://chronicle.com/blogs/innovations/beware-alternative-certification-is-coming/31369>.

21. Taylor Walsh, *Unlocking the Gates: How and Why Leading Universities are Opening Up Access to Their Courses* (Princeton: Princeton University Press, 2011).

22. News Office, "MIT Launches Online Learning Initiative: 'MITx' Will Offer Courses Online and Make

Online Learning Tools Freely Available," *MITneus*, December 19, 2011, <http://web.mit.edu/newsoffice/2011/mitx-education-initiative-1219.html>.

23. Ben Wildavsky, *The Great Brain Race: How Global Universities are Reshaping the World* (Princeton: Princeton University Press, 2010).

24. WorldWide blog, *The Chronicle of Higher Education*, <http://chronicle.com/blogs/worldwise/>.

25. Sarah Lacy, "Peter Thiel: We're in a Bubble and It's Not the Internet. It's Higher Education," *TechCrunch* (April 10, 2011), <http://techcrunch.com/2011/04/10/peter-thiel-were-in-a-bubble-and-its-not-the-internet-its-higher-education/>.

26. Richard Arum and Josipa Roksa, *Academically Adrift: Limited Learning on College Campuses* (Chicago: University of Chicago Press, 2011).

27. *Academic Questions*, volume 24, issues 3 & 4, published by Springer.

28. Daniel de Vise, "Two-year Colleges Draw More Affluent Students," *The Washington Post*, November 2, 2011, [http://www.washingtonpost.com/local/education/two-year-colleges-draw-more-affluent-students/2011/10/24/gfQADvVigM\\_story.html](http://www.washingtonpost.com/local/education/two-year-colleges-draw-more-affluent-students/2011/10/24/gfQADvVigM_story.html).

29. Larry Johnson, Samantha Adams, and Michele Cummins, *The NMC Horizon Report: 2012 Higher Education Edition* (Austin, TX: The New Media Consortium, 2012), [www.nmc.org/publications/horizon-report-2012-higher-ed-edition](http://www.nmc.org/publications/horizon-report-2012-higher-ed-edition).

30. David Raths, "What's Hot, What's Not," *Campus Technology* (December 29, 2011), <http://campustechnology.com/articles/2011/12/29/2012-whats-hot-whats-not.aspx>; Li Yuan and Phil Barker, *Literature Scan: Technology Forecasts* (JISC Observatory, 2011), <http://blog.observatory.jisc.ac.uk/2011/05/16/technology-forecasting-literature-review/>.

31. David Rapp, "ALA Midwinter 2012: From Consumer Electronics Through Post-ILS, Top Tech Trends Run the Gamut," *Library Journal* (January 22, 2012), <http://lj.libraryjournal.com/2012/01/future-of-libraries/ala-midwinter-2012-from-consumer-electronics-through-post-ils-top-tech-trends-run-the-gamut/>.

32. Aaron Smith, *35% of American Adults Own a Smartphone: One Quarter of Smartphone Owners Use their Phone for Most of their Online Browsing* (Washington, D.C.: Pew Research Cen-

ter, 2011), [http://pewinternet.org/~media/Files/Reports/2011/PIP\\_Smartphones.pdf](http://pewinternet.org/~media/Files/Reports/2011/PIP_Smartphones.pdf).

33. Ron Burns and Sara Rofofsky Marcus, "EBSCOhost Mobile," *The Reference Librarian* 52, no. 1-2 (2011): 190-96.

34. "Library Resources on Mobile Devices," Lafayette College Library, <http://library.lafayette.edu/help/mobile>.

35. Samuel Liston, "OPACs and the Mobile Revolution," *Computers in Libraries* 29, no. 5 (2009): 6-11, 42-47; OCLC, "WorldCat Local Mobile Now in Production," news release, June 17, 2011, [www.oclc.org/news/releases/2011/201134.htm](http://www.oclc.org/news/releases/2011/201134.htm).

36. Lisa Carlucci Thomas, "The State of Mobile in Libraries 2012," *The Digital Shift* (February 7, 2012), <http://www.thedigitalshift.com/2012/02/mobile/the-state-of-mobile-in-libraries-2012/>.

37. Johnson, Adams, and Cummins, *The NMC Horizon Report*.

38. Steve Kolowich, "P.D.A. in the Library," *Inside Higher Ed* (October 28, 2011), [www.insidehighered.com/news/2011/10/28/e-book-acquisition-based-use-and-demand-could-save-libraries-thousands](http://www.insidehighered.com/news/2011/10/28/e-book-acquisition-based-use-and-demand-could-save-libraries-thousands).

39. Joseph Esposito, "The Broader Context of Patron-Driven Acquisitions," *The Scholarly Kitchen* (December 14, 2011), [http://scholarlykitchen.sspnet.org/2011/12/14/the-broader-context-of-patron-driven-acquisitions/?utm\\_source=feedburner&utm\\_medium=email&utm\\_campaign=Feed%3A+ScholarlyKitchen+%28The+Scholarly+Kitchen%29](http://scholarlykitchen.sspnet.org/2011/12/14/the-broader-context-of-patron-driven-acquisitions/?utm_source=feedburner&utm_medium=email&utm_campaign=Feed%3A+ScholarlyKitchen+%28The+Scholarly+Kitchen%29).

40. ALA, "E-book Principles for the Library Community," (draft version, September 22, 2011), <http://americanlibrariesmagazine.org/sites/default/files/EbookPrinciples-Sept2011.pdf>.

41. ALA, "Talking Points on Library Lending of E-books," (draft version, September 22, 2011), <http://web20kmg.pbworks.com/w/file/fetch/46397972/TalkingPointsEbookLending-Sept2011.pdf>.

42. "Early Journal Content on JSTOR, Free to Anyone in World," JSTOR, <http://about.jstor.org/participate-jstor/individuals/early-journal-content>; Michael Kelley, "Royal Society, Scientific American Make Historical Archives Available Online," *The Digital Shift* (November 1, 2011), <http://www.thedigitalshift.com/?s=royal+society>; "SAGE Open," SAGE, [www.sagepub.com/journalsProdDesc](http://www.sagepub.com/journalsProdDesc).



nav?ct\_p=manuscriptSubmission&prodId=Journal202037; Taylor & Francis Group, "OpenAccess," Taylor & Francis LibSite, [www.tandf.co.uk/libsite/pricingInfo/OpenAccess/](http://www.tandf.co.uk/libsite/pricingInfo/OpenAccess/); Wiley Online Library, "Wiley Open Access Publication Charges," John Wiley & Sons, Inc.

43. James L. Mullins, Catherine Murray-Rust, Joylynn L. Ogburn, Raym Crow, October Ivins, Allyson Mower, Daureen Nesdill, Mark Newton, Julie Speer, and Charles Watkinson, *Library Publishing Services: Strategies for Success Final Research Report* (March 2012)(Washington, DC: SPARC, 2012), [http://docs.lib.purdue.edu/purduepress\\_ebooks/24/](http://docs.lib.purdue.edu/purduepress_ebooks/24/).

44. Adeline Koh, "What is Publishing? A Report from THATCamp Publishing," *The Chronicle of Higher Education*, *ProfHacker blog*, comment posted November 28, 2011, <http://chronicle.com/blogs/profhacker/what-is-publishing-a-report-from-thatcamp-publishing/37420>.

45. Christopher F. Schuetze, "Textbooks Finally Take a Big Leap to Digital," *The New York Times*, November 23, 2011, [www.nytimes.com/2011/11/24/world/americas/schoolwork-gets-swept-up-in-rush-to-go-digital.html?pagewanted=all](http://www.nytimes.com/2011/11/24/world/americas/schoolwork-gets-swept-up-in-rush-to-go-digital.html?pagewanted=all).

46. James Iseler, "University Taking Steps Toward E-textbook Use," *The Record Update* (November 29, 2011), [www.ur.umich.edu/update/archives/111129/etext](http://www.ur.umich.edu/update/archives/111129/etext).

47. Michael Kelley, "Library with Free Online College Textbooks Makes Debut," *The Digital Shift* (November 4, 2011), <http://www.thedigitalshift.com/2011/11/ebooks/library-with-free-online-college-textbooks-makes-debut/>.

48. "Digital Public Library of America Announces \$5 Million in Funding, New Collaboration at Conference," Harvard Law School (October 21, 2011), [www.law.harvard.edu/news/2011/10/21\\_dpla-announces-funding-and-collaboration.html](http://www.law.harvard.edu/news/2011/10/21_dpla-announces-funding-and-collaboration.html).

49. "Notes of the HathiTrust Constitutional Convention October 8-9, 2011," HathiTrust, [www.hathitrust.org/documents/HathiTrust-ConCon-Notes.pdf](http://www.hathitrust.org/documents/HathiTrust-ConCon-Notes.pdf).

50. "Legal Issues," DPLA Digital Public Library of America, [http://cyber.law.harvard.edu/dpla/Legal\\_Issues](http://cyber.law.harvard.edu/dpla/Legal_Issues); "Information about the Authors Guild Lawsuit," Hathi Trust Digital Library, [www.hathitrust.org/authors\\_guild\\_lawsuit\\_information](http://www.hathitrust.org/authors_guild_lawsuit_information); Office of the Register of Copyrights, Legal Issues

in Mass Digitization: A Preliminary Analysis and Discussion Document (Washington, D.C.: U.S. Copyright Office, 2011), [www.copyright.gov/docs/massdigitization/USCOMassDigitization\\_October2011.pdf](http://www.copyright.gov/docs/massdigitization/USCOMassDigitization_October2011.pdf).

51. Lynn Silipigni Connaway, e-mail message to ACRL Research Planning and Review Committee, January 7, 2012.

52. "ACRL 2013 Call for Participation," <http://conference.acrl.org/program-pages-166.php>.

53. Steven J. Bell, e-mail message to Lynn Silipigni Connaway, April 6, 2012; Matthew P. Long and Roger C. Schonfeld, *Ithaka S+R Library Survey 2010: Insights from U.S. Academic Library Directors* (New York: Ithaka S+R, 2010), [www.ithaka.org/ithaka-s-r/research/ithaka-s-r-library-survey-2010/insights-from-us-academic-library-directors.pdf](http://www.ithaka.org/ithaka-s-r/research/ithaka-s-r-library-survey-2010/insights-from-us-academic-library-directors.pdf); Mildred L. Jackson, "Re-thinking Positions in Academic Libraries," *The Bottom Line* 24, no. 1 (2011): 61-62.

54. Lynn Silipigni Connaway, Timothy J. Dickey, and Marie L. Radford, "If it is too inconvenient I'm not going after it: Convenience as a Critical Factor in Information-seeking Behaviors," *Library & Information Science Research* 33, no. 3 (2011): 179-90.

55. Steven Escar Smith and Carmelita Pickett, "Avoiding the Path to Obsolescence: Riches-to-Rags Tales in the Retail Business Hold Lessons for Libraries," *American Libraries* 42, no. 9/10 (2011): 38-43.

56. Lynn Silipigni Connaway, Chandra Prabha, and Timothy J. Dickey, *Sense-making the Information Confluence: The Whys and Hows of College and University User Satisficing of Information Needs. Phase III: Focus Group Interview Study* (Columbus, OH: School of Communication, The Ohio State University, 2006), [http://iimslproject.comm.ohio-state.edu/iimsl\\_reports/PHASE\\_III/PH\\_III\\_report.html](http://iimslproject.comm.ohio-state.edu/iimsl_reports/PHASE_III/PH_III_report.html); Marie L. Radford and Lynn Silipigni Connaway, *Seeking Synchronicity: Evaluating Virtual Reference Service from User, Non-user, and Librarian Perspectives*. IMLS Final Performance Report (June 28, 2008), [www.oclc.org/research/activities/synchronicity/reports/20080626-final.pdf](http://www.oclc.org/research/activities/synchronicity/reports/20080626-final.pdf); Lynn Silipigni Connaway, David White, and Donna Lanclus, "Visitors and Residents: What Motivates Engagement with the Digital Environment?" *Proceedings of the 74th ASIS&T Annual Meeting, Volume 48, 2011* (Silver Spring, MD: Richard B. Hill, 2011).

57. Martin A. Kesselman and Sarah Barbara Watstein, "Creating Opportunities: Embedded

Librarians," *Journal of Library Administration* 49, no.4 (2009): 385.

58. Connaway, Dickey, and Radford, "If it is too inconvenient," 179-90.

59. ACRL, "OnPoint Discussions," American Library Association, [www.ala.org/acrl/conferences/onpoint](http://www.ala.org/acrl/conferences/onpoint).

### Additional sources

Applegate, Rachel. 2007. Charting academic library staffing: Data from national surveys. *College & Research Libraries* 68, no. 1: 59-68.

Ashford, Robin. 2011. QR codes and academic libraries: Reaching mobile users. *College & Research Libraries News* 71, no. 10: 526-30.

Christensen, Clayton M., and Henry J. Eyring. 2011. *The innovative university: Changing the DNA of higher education from the inside out*. San Francisco: Jossey-Bass.

De Rosa, Cathy. 2011. Perceptions of libraries, 2010: Context and community. *NextSpace* 18: 10-11, [www.oclc.org/nextspace/018/advocacy.htm](http://www.oclc.org/nextspace/018/advocacy.htm).

De Rosa, Cathy, Joanne Cantrell, Matthew Carlson, Peggy Gallagher, Janet Hawk, and Charlotte Sturtz. 2011. *Perceptions of libraries, 2010: Context and community: A report to the OCLC Membership*. Dublin, OH: OCLC. [www.oclc.org/reports/2010perceptions/2010perceptions\\_all.pdf](http://www.oclc.org/reports/2010perceptions/2010perceptions_all.pdf).

Fischman, Josh. 2012. As journal boycott grows, Elsevier defends its practices. *The Chronicle of Higher Education* (January 31), <http://chronicle.com/article/As-Journal-Boycott-Grows/130600/>.

Frontline Advocacy Toolkit. Libraries: The heart of all communities. ALA, [www.ala.org/frontlineadvocacy](http://www.ala.org/frontlineadvocacy).

Gabridge, Tracy. 2009. The last mile: Liaison roles in curating science and engineering research data. *Research Library Issues: A Bimonthly Report from ARL, CNI, and SPARC* 265, no. 15, <http://www.arl.org/bm-doc/rli-265-gabridge.pdf>.

Haefele, Chad. 2011. One block at a time: Building a mobile site step by step. *The Reference Librarian* 52, no. 1/2: 117-27.

Herther, Nancy K. 2011. From cloud to mobile: Drawing down big info into little apps. *InfoToday* 31, no. 7: 6-11.

ICPSR Inter-university Consortium for Political and Social Research. Guidelines for effective data management plans. Regents of the University of

Michigan, [www.icpsr.umich.edu/icpsrweb/ICPSR/dmp/index.jsp](http://www.icpsr.umich.edu/icpsrweb/ICPSR/dmp/index.jsp).

Kelley, Michael. 2011. Major medical library closing its doors to patrons and moving to digital model. *The Digital Shift* (October 27), [www.thedigitalshift.com/2011/10/research/major-medical-library-closing-its-doors-to-patrons-and-moving-to-digital-model/](http://www.thedigitalshift.com/2011/10/research/major-medical-library-closing-its-doors-to-patrons-and-moving-to-digital-model/).

Kvenild, Cassandra, and Kaijsa Calkins. 2011. *Embedded librarians: Moving beyond one-shot instruction*. Chicago: Association of College and Research Libraries.

Nagy, Andrew. 2011. Analyzing the next-generation catalog. *Library Technology Reports* 47, no. 7: 26-27.

Office of Cyberinfrastructure. Sustainable digital data preservation and access network partners (DataNet). National Science Foundation, [www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=503141](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=503141).

Ogburn, Joyce L. 2010. The imperative for data curation. *portal: Libraries and the Academy* 10, no. 2: 241.

Seeholzer, Jamie, and Joseph A. Salem, Jr. 2011. Library on the go: A focus group study of the mobile web and the academic library. *College & Research Libraries* 72, no. 1: 9-20.

Van Arnhem, Jolanda-Pieta, and Burton Callicott. 2012. QR codes – What's the payoff? *The Charleston Advisor* 13, no. 3: 56-57.

Walter, Scott, and Karen Williams, eds. 2011. *The expert library: Staffing, sustaining, and advancing the academic library in the 21st century*. Chicago: ALA Publishing.

Welburn, William C., Janice Welburn, and Beth McNeil, eds. 2010. *Advocacy, outreach, and the nation's academic libraries: A call for action*. Chicago: Association of College and Research Libraries.

Wildavsky, Ben, Andrew P. Kelly, and Kevin Carey. 2011. *Reinventing higher education: The promise of innovation*. Cambridge: Harvard Education Press.

Wu, Somaly Kim, and Donna Lanclos. 2011. Re-imagining the users' experience: An ethnographic approach to web usability and space design. *Reference Services Review* 39, no. 3: 369-89.

Zitron, Lizz, and Courtney Drew. 2011. Get a clue: Partnering with student affairs on student-centered outreach. *College & Research Libraries News* 72, no. 11: 636-39. **ZZ**