Environmental Scan 2010

by the ACRL Research Planning and Review Committee

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Introduction and Methodology

The 2011 environmental scan of academic libraries is the product of a two year effort by ACRL's Research Planning and Review Committee. This has been a two phase project with the first phase being the development of the Top Trends in Academic Libraries published in *College and Research Libraries News* (Connaway et al. 2010). This effort has expanded into this document. In addition to an extensive literature review, the association membership was surveyed. This document is a scan of the environment and is not an exhaustive examination of every aspect of librarianship.

ACRL has put forward a number of documents in the past year including the Value of Academic Libraries Report (Association of College and Research Libraries 2010) and the Futures Thinking for Academic Librarians: Higher Education in 2025 (Staley and Malenfant 2010). Other groups also have been examining the status of libraries through direct and funded studies including the Association of Research Libraries, the Primary Research Group, IMLS and Ithaka. The environmental scan will be another entry into this ongoing conversation and is intended to be a view of the status of academic libraries in 2011.

Higher Education

The following trends in higher education will affect academic library budgets, clientele, and services, as well as librarians' relationships and roles within their institutions.

Cost of Education

Tuition and fees at public four-year colleges increased an average of 7.9% for in-state students and 6.0% for out-of-state students in 2010-11. Published in-state tuition and fees at these institutions averaged $7,605, while tuition and fees at private nonprofit four-year institutions averaged $27,293. Tuition and fees at public two-year colleges averaged $2,713 in 2010-11, a 6% increase over the previous year (College Board 2010, 3). Surprisingly, inflation-adjusted average *net* tuition and fees were actually lower in 2010-11 than they were five years earlier, according to the College Board, which tracks cost and enrollment trends[1] (College Board 2010, 4). Despite this reality, the public perception clearly is that the cost of education is rising rapidly and is becoming beyond the means of many individuals. Part of the feeling that college is unaffordable is due to stagnation in family income. After adjusting for inflation, average family incomes in 2009 were equal to or lower than they were 10 years earlier, with the largest declines for the lowest-income families (College Board 2010, 24). Another factor is the increasing level of debt incurred by many graduates. College seniors who graduated in 2009 carried an average of $24,000 in student loan debt, a 6% increase from the previous year (Project on Student Debt 2010, 1).

The difference between published and net tuition and fees can cause students and families to conclude that private institutions are beyond their means. To help explain the differences between published costs and net costs, the federal government will require institutions that participate in Title IV student aid programs to place net price calculators on their websites beginning in October 2011. The calculators must provide estimated net price information to current and prospective students based on the student's individual circumstances (Department of Education 2010).

The College Board also tracks institutional expenditures per FTE student over time by Carnegie Classification. In 2008, the average cost of educating a full-time student ranged from a low of $10,400 at public two-year colleges to a high of $34,330 at private doctoral universities. Average institutional expenditures were $15,620 at public doctoral universities, $12,190 at public master's universities, and $16,460 at private master's universities. The average annual growth rate in expenditures between 2002 and 2008 ranged from 0.5% at public two-year colleges, to 1.3% at both public doctoral universities and private master's universities, to 2.4% at private doctoral universities (College Board 2010, 21). State appropriations per FTE student declined by 9% in 2008-09 and another 5% in 2009-10. In 2009-10, appropriations per student averaged 19% lower than in 1999-2000 (College Board 2010, 18).

[1]The College Board defines net price as the average price paid by all full-time students, including those who do and do not receive student aid, after subtracting grant aid from all sources in addition to federal tax credits and deductions.

Community colleges traditionally have received a much higher proportion of their revenue from state and local governments than four-year public institutions, in recognition of their mission to serve as an affordable gateway for access to higher education for non-traditional and lower income students and provide workforce education. According to the Delta Project on Postsecondary Education Costs, Productivity, and Accountability, students at community colleges paid about 31% of the cost of their education in 2008, while students at public research universities paid about 51%. State support has been eroding, however, and in some states, tuition revenue now provides the majority of the operating budget. Community college enrollment has grown, with nearly 40% of all undergraduates enrolled in two-year colleges. Consequences of the erosion in funding include fewer course selections, heavier faculty workloads, and stresses on support services (Kelderman 2011).

How are institutional expenditures allocated among various functions, including libraries? According to the Association of Research Libraries (ARL) a graph plotting library expenditures as a percent of university expenditures for 40 ARL libraries from 1982 to 2008 shows a nearly-steady year-to-year decline. Library expenditures were 2.09% of university expenditures in 2007-08 (the most recent year available), a slight decrease from 2.21% the previous year. The highest percentage, approximately 3.7%, was in 1984. According to the ARL, possible explanations include the need for universities to invest more in technology and infrastructure, increased library collaboration through consortia and centralized purchasing, and the embedding of library functions within the teaching, learning, and research processes (Lowry and Groves 2010).

Implications:

- The sticker shock engendered by published price tuition and fees may discourage middle and lower income students from pursuing college educations. This would have a negative impact on college enrollments and on library funding.
- Investigation is needed to determine if non-ARL academic libraries also have seen steady declines in library expenditures as a percent of university expenditures.
- If the decline in ARL library expenditures as a percentage of university expenditures continues, it is likely to have a negative effect on their ability to achieve their missions.

Online Education

The 2010 Sloan Survey of Online Learning found that online student enrollment grew at a rate 10 times greater than total higher education enrollment in 2009: 21% v. 2%. Over 5.6 million students took at least one online course during the fall 2009 term, an increase of nearly a million students compared to the previous year. Nearly 30% of higher education students take at least one course online. And, although there likely will be a saturation point, the Sloan report found no compelling evidence that it will be reached anytime soon. However, it did note that most of the recent growth in online enrollments has come from the growth of existing offerings, not from new institutions moving into the online arena. In addition, large public institutions indicated that they are feeling budget pressure and competition from for-profit sector institutions, while at the same time, some for-profit schools are concerned that new federal rules on financial aid and student recruiting may have a negative impact on their enrollments (Allen and Seaman 2010).

Some non-profit higher education institutions have outsourced online instruction to private companies such as 2tor Inc., Colloquy Inc, Compass Knowledge Group, Embanet, Higher Ed Holdings, and Total Online Program Service (Parry 2010a). In a July 2010 policy brief, the American Association of State Colleges and Universities (AASC&U) explored outsourcing of instruction, presented examples of various types of private-public partnerships, and summarized the arguments for and against outsourcing. Most partnerships to date have focused on online and specialized degree programs such as education, nursing, allied health and business. However, a few institutions have outsourced instruction of individual general education courses (Russell 2010, 2-3). The AASC&U notes three trends affecting higher education that, in combination with financial pressures, have led some administrators to view academic outsourcing more as an opportunity than a threat. These are:

- Increased competition from the for-profit sector
- A majority of students now earn credits toward a degree at multiple institutions, and institutions routinely accept many kinds of credits earned externally that are not under the control of the institution's faculty
- The growth in the use of adjunct and other non-tenure track faculty changes the nature of student-faculty relationships, affects how students are taught, and sets the stage for contracting instruction to for-profit companies as a logical next step (Russell 2010, 2).

A new development in the online environment is the growing availability of self-paced and start-anytime classes. At Arizona's Rio Salado College, online classes start every Monday. Jefferson Community & Technical College in Louisville, Kentucky, offers 25 start-anytime courses (Parry 2010b).

Implications:

- Increasingly, librarians at all types of institutions will need to support online students and faculty.
- As self-paced online courses increase, the demand for online, on-demand library tutorials will increase. Peak times for services like virtual reference, online course reserves and document delivery will be less predictable.
- Outsourcing degree programs may have implications for library database licensing and access.
- Institutions that outsource instruction may consider outsourcing academic support services including library services, particularly for specialized programs.

Assessment and Accountability

Demands for increased accountability on the part of colleges and universities led to the creation of several voluntary programs that document and communicate student learning outcomes. The largest, the Voluntary System of Accountability (VSA), was developed in 2007 by the American Association of State Colleges and Universities and the Association of Public and Land-Grant Universities. VSA requires that participating institutions use standardized surveys and tests to measure student experiences on campus and student learning gains in critical thinking and written communication. They must report the results via the College Portrait web-based template. The VALUE: Valid Assessment of Learning in Undergraduate Education project is being developed by the Association of American Colleges & Universities as part of its LEAP (Liberal Education and America's Promise) initiative. It will use rubrics to conduct authentic assessment of student coursework. The VALUE project identified fifteen essential learning outcomes and developed institutional-level rubrics for each that reflect faculty expectations of what college students should learn regardless of the type, size, location, or mission of the institution they attend. Lewis reviewed these assessment tools in light of their relevance to academic libraries (Lewis 2010).

In a 2009 survey, the National Institute for Learning Outcomes Assessment (NILOA) found that more assessment activity is underway in higher education than is often assumed. About three-fourths of the institutions responding to the survey said that they had adopted common learning outcomes for all undergraduate students; 92% used at least one assessment approach or tool with institutionally valid samples (Kuh and Ikenberry 2009). However, a subsequent NILOA study found that many college and university websites fail to provide information about student learning outcomes assessment, and when they do, it is buried on lower-level pages targeted to internal audiences (provost/chief academic officer or institutional research) rather than on the home page or admissions page. NILOA recommended that institutions make this information more transparent and understandable (Jankowski and Makela 2010).

The "Achieving the Dream: Community Colleges Count" initiative is aimed at improving success among community college students, particularly low-income students and students of color. The initiative helps community colleges build a "culture of evidence" by collecting and analyzing student performance data. Community colleges then develop intervention strategies designed to improve student outcomes, including progress in developmental education and college-level gatekeeper courses, grades, persistence, and completion of credentials. A report examining the first 26 colleges to join the initiative was published in January 2011. It found that trends in student outcomes remained relatively unchanged, but noted that a majority of the intervention strategies had reached less than 10% of their intended target populations (Rutschow et al. 2011).

The Obama administration and Congress are concerned that regional and national accrediting bodies have varying standards that are too lax and provide limited oversight of core matters. In September, 2010, the Chronicle of Higher Education reported that the Higher Learning Commission of the North Central Association of Colleges and Schools had agreed to several changes in its processes recommended by the U.S. Department of Education. These included developing "basic specific measures of an institution's requirements in six areas, including fiduciary responsibility, public information, programs, and instruction and resources." The president of the Council for Higher Education Accreditation said that over the past few years, accrediting groups have responded to calls for accountability and transparency from the public and legislators by better identifying and judging student achievement and sharing more information about how institutions are performing (Kelderman 2010).

Implications:

- The library's role in institutional assessment activities needs to be identified and integrated into the institution's assessment plan.
- There is a need for institutional use of assessment tools that specifically measure library experiences, information literacy, and research skills.
- Assessment data can provide evidence for decision-making in academic libraries and for teaching and learning at the institutional level.
- The requirements of accrediting bodies can provide guidelines and standards for the provision of library collections and materials.

Tenure

The tenure system continues to be a lightning rod for reformers from both ends of the continuum – those who want to strengthen it and those who want to end it. The Chronicle of Higher Education claims that tenure is "vanishing" as colleges and universities hire more adjuncts, part-time faculty, and non-tenure track full-time faculty (a group sometimes collectively referred to as "contingent faculty) in response to budget constraints and the need for administrative flexibility (Wilson 2010). Indeed, the proportion of full-time professional staff in postsecondary institutions who are tenured or on the tenure track fell from 57% in 1975 to 30% in 2009 (AAUP 2007; Knapp, Kelly-Reid and Ginder 2010). The American Association of University Professors characterizes this decline as "a failure of the social contract in faculty employment" that has negative consequences for student learning, academic freedom, professional autonomy, and the faculty role in governance. (AAUP 2010). It proposes that institutions of all types should convert the status of contingent faculty appointments to appointments eligible for tenure and that many part-time positions should be consolidated into tenure-eligible, full-time positions (AAUP 2010, 92). The Coalition on the Academic Workforce points out that the shift toward a more contingent faculty, heavily reliant on part-time positions, is happening at all types of public and private colleges and universities (Coalition on the Academic Workforce 2010).

Tenure has been criticized for imposing economic inefficiencies, misallocating resources, reducing flexibility, and protecting ineffective faculty. In a recent report, the Center for College Affordability and Productivity identified "reforming academic employment policies" as one of 25 ways to reduce the cost of college. It suggested replacing tenure with a system of renewable long-term employment contracts, increasing the use of contingent faculty, making tenure a fringe benefit with an explicit monetary value, and strengthening the post-tenure review process (CCAP 2010). Additional possible reforms include offering variable probationary periods, a tenure track for faculty members focused on teaching, a non-tenure track that provides a meaningful role in shared governance, tenure for a defined period of time, and the option to earn salary premiums in exchange for tenure (Trower 2009).

The University of Louisiana is considering modifying its tenure policy to allow the termination of tenured faculty positions when academic programs are restructured or reduced, not just when they are completely discontinued (Chapman 2010). It also is considering a revision that would tie the length of notice to be given to terminated tenured faculty members to the percentage loss in state appropriations in the coming fiscal year (Kinchen 2010). As economic pressures in higher education increase, it is anticipated that other institutions will consider similar modifications in an attempt to save money and realign resources.

Implications:

- Librarians with tenure or on the tenure track may be affected by changes to the tenure system at their institutions.
- At institutions where librarians have faculty status, the use of contingent (adjunct, part-time and non-tenure track) library faculty may increase in response to budget constraints and the need for flexibility. Other libraries may see an increase in the employment of part-time professionals, the use of temporary or special appointments, and other personnel practices that maximize administrative and budgetary flexibility.
- Tenure is unlikely to be extended to librarians at institutions that do not currently offer it.
- The increasing number of part-time faculty provides an opportunity for librarians to become more embedded in teaching and learning.

Political Issues that Affect Higher Education

Key political issues affecting higher education during 2010 included ongoing budget cuts in the majority of states, legislation regarding student loans, stimulus funding, roles of community colleges, and investigations of for-profit institutions. Accountability appears to be a central concern in these issues.

Budget cuts in higher education continued to dominate headlines in 2010. While many of the budget shortfalls were at the state level, debates at the federal level regarding student aid also impact college students and funding of colleges and universities. Steep cuts in some states have resulted in discussions of cutting programs as well as actual cuts in programs. Faculty, students, graduate programs, and eventually the library budget are all affected by these decisions. Cuts in foreign language programs have received the most attention during the past year. SUNY Albany, University of Maine, University of Nevada, Reno, and Winona State University are among the institutions that have made decisions to cease programs or are planning to suspend programs (Foderaro 2010). Despite this, the Modern Language Association's 2009 report on foreign language study states that study of foreign languages has grown and diversified during the past decade (Modern Language Association 2010).

The Recovery & Reinvestment Act of 2009 provided $50-75 billion for education, including K-12 education. Highlights included $17.1 billion for Pell Grants and $39.5 billion for "backfilling" state budget shortfalls (Lederman 2009). The act was meant to create new jobs, stimulate the economy while providing for greater accountability and transparency for how the funds were allocated and spent (U.S. Government 2009). Stimulus funding provided temporary relief for higher education, including libraries. Highlights from the Department of Education can be found on their website http://www.ed.gov/recovery . A total of $97.4 billion was distributed by the Department of Education for all levels of education. These funds only were available for a limited time; therefore, funding now must be identified to replace this money.

The U.S. Congress focused on the role of community colleges and on the administration of for- profit institutions as part of President Obama's focus on higher education. College completion, increased job training via certificate programs, and accountability for funding, particularly for student loan debt were all aspects of these debates and hearings. Senator Tom Harkin (D-Iowa) led the inquiry into the examination of for-profit institutions. These include schools such as the University of Phoenix, and Kaplan and others who are being called into question for cost and quality of education. Accreditation of these schools also is being called into question. In October 2010, President Obama led the first White House Summit on Community Colleges. Several new national efforts to improve community colleges were announced at the summit, and participants shared ideas on how community colleges can meet the President's goal of having five million more community college students earn certificates or degrees by 2020 (Gonzalez 2010). Four regional meetings will be held as follow-up to the summit. Following their completion, a report will be issued (Gonzalez 2011).

Implications:

- Budget cuts in higher education will continue to impact library budgets.
- Materials budgets will be affected by budget cuts.
- Administrators will need to be creative in planning and in developing solutions for funding staff, operations, and materials budgets.

- Stimulus funding assisted higher education temporarily. However, funding now must be identified to replace this money.
- Cuts in budgets may lead to more collaborative efforts for sharing resources.

Technology

Recent innovations in technology have changed the way that people interact with information, each other and the world. This section discusses adoption rates and use of popular technologies and changes in Internet activity and behavior.

Popular Technologies

Mobile Phones

In terms of widespread adoption of technological devices, the cell phone reigns king. Eighty-five percent of American adults and 75% of teens now own a cell phone (Smith 2010a, 3). Younger cell phone owners are more likely to own advanced phones that allow Internet use (over 50% of those ages 18-34) (Mintel 2010a). A recent national survey of students on college campuses found that nearly all students (99.8%) own at least one cell phone, and 49% of college students own a smart phone (Truong 2010).

For those who own smart phones, more users are beginning to take advantage of the advanced features of their smart phones (Smith 2010b, 2). The top five highly used features of smart phones include: taking pictures, texting, accessing the internet, playing games and checking email (Purcell, Entner, and Henderson 2010, 2). Use of these features varies by age group, with those 18-29 being the heaviest users of advanced features, but the use of these features by 30-49 year olds is growing rapidly (Purcell, Entner, and Henderson 2010, 5). Among college students with smart phones, 97% use them to text message, with 30% checking and sending email and 25% sending instant messages (Truong 2010).

There has been a recent explosion in the availability and use of software applications (or "apps") for smart phones. The most popular categories for apps include games, weather, maps/search, social networking, and music (Purcell, Entner, and Henderson 2010, 5). The most used individual apps include Facebook, Google Maps, The Weather Channel and Pandora (Nielsen Company 2010). Apps are becoming important in the realm of higher education as well. The 2010 Campus Computing Project report, completed in fall 2010, states that most high-level campus IT officials agreed that "Mobile apps are an important part of our campus plan to enhance instructional resources and campus services" (Green 2010a).

Computers

There has been a large shift in the type of computers that are being purchased. Ownership of desktop computers among American adults has fallen from 68% in 2006 to 59% in 2010, while ownership of laptop computers has grown from 30% in 2006 to 52% in September 2010 (Smith 2010a, 4). The largest growth in laptop ownership is among 18-29 year olds. Seventy-two percent of 18-29 year olds own a laptop while 56% of that same age group own desktop computers (Smith 2010a, 4). The trends in computer ownership among college students reflect what is happening with the general population. Approximately 98% of undergraduate students own a computer, with ownership of laptops surging and desktop ownership decreasing from 2005-2009 (Smith, Salaway, and Caruso 2009, 3).

Tablets, E-Book Readers

These devices are new to the market and are not as widely adopted as mobile devices and desktop/laptop computers, but the adoption of this technology is predicted to grow rapidly in the near future (Fischman 2011). Five percent of American adults currently own an e-book reader (Amazon's Kindle, Barnes and Noble's Nook, others) and 4% of American adults own a tablet computer (Apple's iPad, Samsung's Galaxy Tab, others) (Smith 2010a, 3). These early adopters of the tablet and e-book reader technology tend to be college graduates with high household incomes (Smith 2010a, 9). In a survey administered by Student Monitor, half of the college student respondents indicated they owned or were interested in purchasing an e-reader (Kolowich 2010a). Currently, only 2% of college textbooks are purchased as e-books (Kolowich 2010a). Use of e-books on college campuses is predicted to grow, with 87% of the IT officials who responded to the 2010 Campus Computing Project survey agreeing with the statement that "eBook content will be an important source for instructional resources in five years" (Green

2010a). Electronic books that are digital reproductions of traditional book content are available now, and publishers are developing new, more advanced forms of this potential "transformative technology" that may change the way reading is experienced, including more visual and multimedia elements and social interaction and collaboration (Johnson et al. 2011, 12).

Implications:

- As smartphone ownership becomes more widespread amongst college students:
    - Students primary communication methods may continue to evolve away from emailing to texting/messaging, which could prompt campus technologists to reconsider whether email is the most effective way to communicate with students (Kolowich 2011).
    - There may be expanded opportunities to leverage technologies like Quick Response (QR) codes to share information with students via their smart phones (Stoller 2010; Ashford 2010).
    - More resources will be devoted to the development and use of apps that expand the learning environment, including greater adoption of mobile versions of learning management systems (LMS) (Green 2010a).
- With nearly all college students owning a computer and more students purchasing portable laptops instead of fixed desktops, higher education institutions may increasingly look to closing open computing labs as a way to save money (Green 2010a).
- As tablet and e-book reader ownership becomes more common amongst college students and either the e-book purchasing model becomes more financially appealing or institutions begin to require the purchase of e-textbooks (Young 2010), use of e-textbooks may take off in the way that has been predicted for years.

Changes in Internet Activity and Behavior

More People Accessing the Internet Wirelessly

Currently, 74% of American adults use the Internet, a figure that has been relatively flat since 2006. Young adults and teens use the Internet the most – 93% of Americans aged 18-29 and 93% of teens aged 12-17 use the Internet (Lenhart et al. 2010, 4). The practice of accessing the Internet wirelessly, whether with a wi-fi connection / mobile broadband card (from a laptop, tablet, or a device like the iPod touch) or with smartphones connected to a cellular network, has increased from 51% of all American adults in 2009 to 59% in 2010 (Smith 2010b, 2).

Cloud Computing

The practice of cloud computing, or using Internet-based software, is rising in popularity. The most popular cloud computing applications include social networking (Facebook, MySpace, LinkedIn), webmail (Hotmail, Yahoo! Mail, Gmail), blogging/microblogging (Wordpress, Twitter), video sharing (YouTube), picture sharing (Flickr), and document and application sites (Google Docs) (Anderson and Rainie 2010, 2). Technology experts who participated in the Pew Research Center's fourth "Future of the Internet" survey agreed that most people will store and share information on remote servers ("the cloud") rather than personal computers by the year 2020 (Anderson and Rainie 2010, 2). There are concerns and challenges facing broader adoption of cloud computing practices, including security of private information, intellectual property issues, compatibility issues, quality of service issues, broadband availability, among others (Anderson and Rainie 2010, 4).

Social Networking

Use of social networking sites, apps and software has increased dramatically in the past few years. The top 8 social networking sites had 248 million unique U.S. users in December 2009, an increase of 41% from January 2009 (Mintel 2010b). Forty-seven percent of online American adults and 73% of American teens use social networking sites, up from 37% of adults in November 2008 and 65% of teens in February 2008 (Lenhart et al. 2010, 2). Data indicate that college students are heavy users of social networking sites (SNS), with 95.4% of 18-19 year old students and 94.7% of 20-24 year old students using SNSs (Smith, Salaway, and Caruso 2009, 5). Facebook is the most used among adults (73%), followed by MySpace (48%) and LinkedIn (14%) (Lenhart et al. 2010, 3). Beyond the largest social networking sites, 8% of internet users are using the microblogging site Twitter (Smith and Rainie 2010, 1), and 4% are

using location-based services (like Foursquare or Gowalla) that allow users to share their location with friends and "check-in" to locations and businesses (Zickuhr and Smith 2010, 2).

The awareness of the issues surrounding disclosure of personal information online is becoming more important as the use of social networking tools becomes ubiquitous. On Facebook, the most popular social networking tool, users are sharing 25 billion pieces of information with their "friends" each month (Fletcher 2010). The company's privacy policies and procedures frequently change and the default setting is to share more information, rather than less. In order to privatize the information shared, users must actively choose to opt-out, and the process of making one's personal information "private" is complex (Bilton 2010). Recent research shows increased engagement with privacy protection in the social networking environment among young adults, including an uptick in modification to privacy settings (boyd and Hargittai 2010) and active engagement with the control of personal information that is available online, from "unfriending" individuals and restricting access to individual posts to deleting unwanted comments and removing "tags" that associate them with undesirable pictures (Madden and Smith 2010, 3).

Implications:

- The increased availability of wireless Internet, whether from a laptop or a smartphone, will continue to be a classroom management issue for instructors (Young 2006). On the flip side, increased access to wireless Internet will contribute to students' ability to access classroom material, like lecture capture (Green 2010b) and other online instructional content, from nearly any location.
- The potential and flexibility of cloud computing is appealing for higher education in the current economic environment, but there are many issues (questions of security, risks, governance, among others) that may be preventing widespread adoption and integration (EDUCAUSE and NACUBO 2010). The 2010 Campus Computing Project survey revealed that few campuses (15%) have a strategic plan that addresses cloud computing (Green 2010a), so it is clear that academia is just beginning to address the potential benefits and hazards of students and faculty working and storing data and other information in the cloud.
- With college students using social networking sites heavily, the number of "student security incidents linked to a social networking site" (Green 2010a) is increasing and placing additional burden on information technology services on campus. Some are looking to harness heavy student use of this technology in order to improve student engagement in the classroom (Kolowich 2010b) and commercial learning management system (LMS) vendors are integrating LMS content with social networking platforms (Guess 2008). Awareness surrounding privacy issues with information shared online is on the rise, and user behavior is also changing in this area.

Demographic Trends of Librarians and Library Users

The following demographic trends present pressing issues for academic librarians to consider, and have the potential for great impact on the future of our profession. These trends include:

The Aging of the Librarian Population and Inter-generational Work Issues

The aging of the current population of librarians is well documented (Kyrillidou and Young 2006; Hutley and Solomons 2004; Wilder 2003; Wilder 2007), however, workplace generational differences and conflict are just beginning to be documented and studied (Downing 2009; Williamson, Bannister and Sullivan 2010). With the economic downturn, many older librarians are not retiring, which means three generations of workers in one setting are not unusual. In Downing's study (2009), generational conflict among librarians was observed in three research library settings, yet there were no efforts to minimize conflict or take advantage of intergenerational knowledge transfer. Hutley and Solomons (2004) note the synergy that can occur when multiple generations of librarians work together if the library organization makes efforts to actively harness each individual's strengths. With increasing age diversity in campus faculty and student populations (Ashburn 2008), age diversity in our profession could be a service strength if actively managed.

Issues related to the socialization of new librarians are also noted as being very important and lacking (Chapman 2009; Downing 2009; Oud 2008). While authors noted the need to make more effort to orient new librarians, few address the need of academic libraries to incorporate new librarians' diversity into organizational cultures rather than merely socializing them to existing culture.

Within the 122 top ranked ARL campuses, the percentage of librarians of color remains stagnant at 13%, increasing just two percentage points within the last ten years (Kyrillidou and Young 2006). While programs are in place to recruit minorities to academic librarianship, minority librarians, and librarians 45 and younger, leave the profession at a much greater rate than White librarians and librarians over 45 years old (Hall 2006). One possible reason for the lack of success in diversifying the racial and age make-up of the profession can be found in a distinct lack of career ladders for those who would like to advance in the profession (Hall 2006).

Increasing multiculturalism within the United States, within the student population, and increasing globalism all point to the need for racially diverse librarians to teach and collect knowledge for increasingly diverse campus communities (Adkins and Hussey 2005; Alire 2001; Alire and Stielow 1995; Winston 2001). In order to be responsive to campus-wide diversity initiatives, campus demographics, diverse user needs, expanding curricular areas, multi-linguistic and multicultural needs, academic librarians must be culturally competent and interculturally experienced (Alire 2001; Hall 2006; Winston 2001).

While the aforementioned retirement projections pose many challenges to the profession, it is important to examine the coming turnover of academic library leadership as both a wake-up call and an opportunity for change. Will the next generation of academic librarians simply reflect the current demographics of the profession, or does the profession have the collective will and ability to make lasting and significant change?

Increasing Diversity in Student/Faculty Age, Ethnic/Racial, Nationality, and Socioeconomic Backgrounds

As Staley and Malenfant predict in their ACRL report entitled Futures Thinking for Academic Librarians, "everyone is a non-traditional student" (2010, 12). According to NCES (2002),

> "The 'traditional' undergraduate—characterized here as one who earns a high school diploma, enrolls full time immediately after finishing high school, depends on parents for financial support, and either does not work during the school year or works part time—is the exception rather than the rule. In 1999–2000, just 27% of undergraduates met all of these criteria."

Increasing numbers of non-traditional students bring new challenges for service provision as they may be juggling family and work responsibilities, different cultural contexts, perspectives and experiences, language and mobility barriers,

The process of globalization of higher education is increasing the numbers and diversity of international students on many campuses, and drawing larger numbers of U.S. student abroad (Altbach and Knight 2009; Leask 2009). As Leask (2009, 205) writes, "the increasing mobility of students across national borders" has been a rapid and growing phenomenon. Students from international settings have varying experiences with libraries in their home countries, varying levels of English proficiency, and many different cultural contexts. Academic libraries are presented with many opportunities and challenges in meeting the needs of such diverse users.

Unemployed/laid-off workers will be looking to retool their education for the knowledge workforce, professional programs, certification programs (Bureau of Labor Statistics). Many community colleges are seeing double-digit growth in enrollments (Boggs 2009) as a result of these students. Increasingly, multiple generations make up the student enrollment at most colleges (either virtually or physically). This trend is likely to persist as the unemployed return to school to retool their skills.

Over half of students in post-secondary institutions will attend more than one institution during their tenure (Smith 2010). The number of transfer students is growing due to economic issues, the growing number of returning students, more mobility of students, and universities' response to increasing pressure from state and federal legislatures to ease the ability of students to transfer (Keller 2010). With economic uncertainty and more mobility comes the increasing trend of "reverse transfer" whereby students at four-year institutions transfer to two-year institutions (Moltz 2009).

There also is an increasing divide between public four- year flagship campuses and all the rest of types of post-secondary institutions. Baum (2010) writes that "The populations we have to focus on are exactly those that can least afford to pay…It is imperative that among other solutions, colleges rethink seriously their ways of delivering instruction and administering their organizations" to become more cost effective and affordable to low-income students. Traditional post-secondary programs are seeing increasing competition from for-profit and exclusively online programs.

Racial demographics in the U.S. also are rapidly changing . Between 1980 and 2008, "the White population declined from 80% of the total population to 66%; the Hispanic population increased from 6% of the total to 15%; the Black population remained at about 12%; and the Asian/Pacific Islander population increased from less than two percent of the total population to four percent" (Aud, Fox and Kewal-Ramani 2010). College-going rates are still discrepant; however, there is no doubt the percentage of non-White college students is growing. "In 2008, some 44% of White 18-to 24-year-olds were enrolled in colleges and universities, while in 1980 some 28% were enrolled. In addition, approximately 32% of Black 18- to 24-year-olds were enrolled in colleges or universities (an increase of 12 percentage points from 1980) and 26% of Hispanic 18- to 24-year-olds were enrolled (an increase of 10 percentage points from 1980)" (Aud, Fox and Kewal-Ramani 2010).

User Behavior

Much has been studied and documented about user behaviors. In general, we know that students rely on friends and search engines when identifying new resources to use (De Rosa et al. 2005), and there are differences in user behavior based on disciplinary focus (Connaway and Dickey 2010). Ninety-nine percent of the college students queried use email, 92% use social networking sites, such as Facebook, and 81% use social media sites, such as YouTube (De Rosa et al. 2010). There is some evidence that culturally diverse students use some library resources and services less than White students which is attributed to a perceived lack of cultural relevance and perceived barriers to access (Overall 2009; Shaffer, Vardaman and Miller 2010). In an OCLC study of user perceptions, 75% of college students who had worked with a librarian agreed that librarians add value to the research process (De Rosa et al. 2005).

Quality, quantity and speed are the factors users cite as determinants of satisfaction with information searching (De Rosa et al. 2005). Overall, *convenience* is the number one factor when selecting information sources, and desk-top delivery of electronic resources are most appreciated by users (Connaway and Dickey 2010).

Implications:

- It is time to identify new strategies for integrating younger librarians into a demographically older workforce. Ideas such as multi-generational work-teams, and stronger orientation and mentoring programs are needed (Downing 2009; Hutley and Solomons 2004).
- New strategies for recruiting and retaining librarians from underrepresented groups will be essential to staying relevant to faculty and students in the near and long-term future. Using detailed demographic data from sources such as ARL, we know there are libraries that have had some success at recruitment and retention, and we could look to these libraries as case studies. Encouraging papers on this topic at conferences, and publishing case studies in ACRL publications can assist with dissemination of best practices.
- Multi-lingual user guides and web interfaces will lessen barriers to access for English as a Second Language users. Developing strong collaborations with campus international centers will aid in awareness of possible barriers to access for these user groups.

- The development and marketing of ubiquitous service delivery will become more important for student users who are juggling many priorities in their lives. 24/7 access to digital collections, along with Internet and mobile access to librarians for assistance will be essential for these students who may be doing school work from job sites and family residences. Development of family-friendly user spaces will be welcomed by returning students.
- Stronger collaborations between four-year and two-year academic libraries will assist with service delivery to transfer, first-generation, and resource-challenged users.
- The development of new multimedia technologies will be the catalyst for new types of publications.
- The development and adoption of cultural competencies among academic librarians will become essential to the culturally sensitive delivery of library services (Overall 2009).
- Social marketing of library collections and services can take advantage of the ways that students rely on one another for advice about which library resources to use. We could explore using satisfied students to market our services to other students.

Scholarly Communication

> *"Who has the most scientific knowledge of large-scale organization, collection, and access to information? Librarians."* Peter Bol, Carswell Professor of East Asian Languages and Civilizations, Harvard University (Shaw 2010, 36).

There is a massive amount of literature addressing scholarly communication, which encompasses the information-seeking behaviors and needs of researchers and scholars, publishing – scholarly, digital, and self, open access, and preservation and repositories. There also are sub-themes for each of these topics. It is such a broad term, with many meanings and connotations that there is discussion and disagreement about the term itself.

In a blog entry, Paul Courant (2007) discusses his objections to the phrase scholarly communication. He would like to replace the word communication with a more appropriate, definable term. Courant defines scholarly communication as "the *business* of making scholarly things public, including, the economic viability of academic journals and academic presses, as well as the copyright and other legal and regulatory regimes that affect the business of making scholarship public."

The Blue Ribbon Task Force on Sustainable Digital Preservation and Access uses the term scholarly dissemination for scholarly communication (BRTF-SDPA 2010). They define scholarly dissemination as "the published output of scholarly inquiry: the ideas, theories, analyses of data, assessments of previous scholarship, and conclusions that collectively form the scholarly record" (BRTF-SDPA 2010, 50).

In order to make sense of the vast amount of literature dedicated to the discussion and research of scholarly communication, the literature has been divided into three general areas of discussion: how scholars acquire information, what scholars do with the information, and how scholars disseminate their ideas, thoughts, theories, and data analysis.

Palmer, Teffeau, and Pirmann (2009, 9) identify five core *scholarly information activities* and their *primitives*. Unsworth (2000) defined scholarly primitives as those basic behaviors that are practiced across disciplines. Palmer, Teffeau, and Pirmann (2009, 7) describe the primitives as the "beginning of a larger process" and are sub-sets of the scholarly information activities. The scholarly information activities emphasize "the explicit role of information in the conduct of research and production of scholarship" (Palmer, Teffeau, and Pirmann 2009, 7). The authors also identify four cross-cutting primitives – monitoring, note-taking, translating, and data practices. These primitives cut across the five core activities and indicate how the processes involved in scholarly communication overlap and interconnect.

The five core scholarly information activities include searching, collecting, reading, writing, and collaborating. Searching helps explain how scholars acquire information; collecting and reading identify what scholars do with the information; and writing and collaborating are part of the scholarly dissemination process.

Acquiring Information

> *"As electronic resources for scholarship proliferate, more and more scholars turn to their computers rather than to print sources to conduct their research"* (Maron and Smith 2008, 9).

In 1996, Marcia Bates reported that humanities scholars used simple searches when conducting online searches in proprietary data bases. This behavior has not changed in the current Google-dominated online environment (Palmer, Teffeau, and Pirmann 2009; Connaway and Dickey 2010a). Scholars still prefer simple searches for much of their work and express difficulty in finding information in the library catalog (Connaway and Dickey 2010a). Scholars are conducting basic searches of Google-like interfaces and power browsing for snippets of information (RIN 2009; Wong et al. 2009).

The primitives associated with searching include direct *searching* (searching for known subjects and specific terms and keywords), *chaining* (dependence on bibliographic references and colleagues (Connaway, Prabha, and Dickey 2006), *browsing* (open-ended searching of accessible information both in physical and digital formats), *probing* (exploratory type of searching used for interdisciplinary research), and *accessing* the material. Access is very important in today's information environment and outweighs discovery (Connaway and Dickey 2010a). Scholars want to be able to immediately access information from any location and at any time (Connaway and Dickey 2010a).

Using Information

As researchers search and access information, they build both physical and digital collections. They not only *gather* books, journals, and papers, but also data generated from their projects. One study reported that researchers practice "squirreling" information – downloading articles, papers, etc. for future use (CIBER 2008).

The larger the personal collections, the greater the need for *organizing* the collection. This is a catalyst for many scholars to develop their own systems for organizing their collections.

There is very little research documenting the *reading* processes of scholars. However, there is evidence from e-journal usage and log analysis studies that scholars scan information prior to downloading or reading. While scanning, they *assess* the information to determine its relevance. Scholars may *reread* the information one or more times as their research work progresses (Tenopir et al. 2005). Studies report that scholars spend very little time using content, preferring quick chunks of information. Scholars are visiting e-journal and e-book sites for only a few minutes, demonstrating shorter sessions, using basic search, and viewing fewer pages (CIBER 2008; RIN 2009; JISC 2009; Wong et al. 2009).

Disseminating Ideas, Thoughts, Theories, and Data Analysis

As with reading, there is little research identifying the processes involved in *writing* research results, theories, and ideas. *Assembling* papers is an iterative process and co-authoring has been increasing, especially in the sciences (Biagioli 2003; Cronin 2001).

The dissemination of scholarly work involves assessing publication options and opportunities and the rewriting and reorganization of findings. This includes the decision of whether to publish in established dissemination venues, such as books or journals, in physical or digital formats (or both) or in emerging open access publications, such as collaborative spaces, blogs, websites, and Twitter. An increasing number of scholars are transitioning their work to the web. Zotero and Mendely, online reference management systems, "each claim to store over 40 million articles" (Priem et al. 2010). A report published in September 2010 found that one third of the faculty who responded to a survey indicated they use Twitter (Faculty Focus 2010).

Collaboration is most often associated with scientific research and is not as prevalent in the social sciences and humanities (Borgman 2007). Collaboration involves a great deal of *coordination*, development of relationships (*networking*), and *consulting* with colleagues to discuss ideas and share resources. In some instances, dissemination of research results and sharing of data is mandated, or strongly encouraged. For example, effective January 15, 2011, all grant proposals submitted to the

National Science Foundation (NSF) must include a data management plan which describes how the proposal will conform to NSF policy on the dissemination and sharing of research results via publication of findings and sharing of primary data samples, physical collections and other supporting materials created or gathered in the course of work under NSF grants (NSF 2011b). Many NSF units have provided specific guidance to grantees. The National Institutes of Health guidelines state, “Data should be made as widely and freely available as possible while safeguarding the privacy of participants, and protecting confidential and proprietary data” (UNM University Libraries). Applications requesting $500,000 or more of direct costs in any single year from NIH are “are expected to include a plan for sharing final research data for research purposes, or state why data sharing is not possible” (UNM University Libraries).

Issues related to the dissemination of ideas, thoughts, theories, and data analysis include copyright and intellectual property (who owns the ideas, thoughts, data and opinions of authors), open access publications, and preservation. Copyright and intellectual property issues were brought to the forefront with the class action lawsuit filed by the Authors Guild and the Association of American Publishers against Google and its Library project in September 2005 (Young 2005). The parties signed a settlement agreement in October 2008 (Howard 2008), and an amended settlement agreement in November 2009 (Howard 2009). On March 22, 2011, the U.S. District Court for the Southern District of New York rejected the Amended Settlement Agreement, finding that it was not fair, adequate and reasonable. The court stated that many of the concerns with the settlement (antitrust, orphan books, lack of representation of the interests of academic authors, international law, handling of future proceeds, and release of Google from future liability) could be ameliorated if the agreement were converted from an opt-out settlement to an opt-in settlement (Authors Guild v. Google, Inc.). If the parties decide not to follow the court’s advice to negotiate a new agreement, other options include appealing the decision or moving forward with litigation.

Scholars and researchers also have difficulty understanding the implications of copyright agreements signed with publishers. Many researchers have no recollection of signing publisher agreements or of understanding the agreements therefore, often not complying with them (Connaway and Dickey 2010b*)*.

University promotion and tenure requirements may be the most significant deterrent to open access publications. Until these publications are as equally valued as commercial publications, their popularity probably will continue to lag. This also pertains to institutional repositories. If scholars must choose between an institutional repository or a commercial publication, chances are the commercial publication will be selected. If the commercial publisher has provisions for depositing the publication in an institutional repository, scholars will not bother to do so if the process is not embedded in their workflows and easy to do (Connaway and Dickey 2010b*)*. This practical approach taken by scholars in borne out by the results of a recent international survey from the Study of Open Access Publishing (SOAP) project. According to the survey results, 89% of nearly 40,000 active researchers thought that open access journals were beneficial for their field, but they often decided not to publish in open access journals due to lack of funding to pay publishing charges and a lack of journals of perceived suitable quality (Dallmeier-Tiessen et al. 2011).

Some university presses are now a division of the university library. The launch of HighWire press by the libraries at Stanford University is an example of this (Matthews 2010).

Repositories and print-on-demand technology, such as the Espresso Book Machine (EBM), enable libraries to produce publications without a formal in-house press, although several university libraries now are managing university presses. There are approximately 60 EMBs in operation today, with the majority of them in use in institutions of higher education (Havens and Storey 2010). These opportunities give libraries a new role in disseminating information.

The pressing issues affecting all dissemination of information include preservation, archiving, and curation. The Blue Ribbon Task Force (BRTF-SDPA 2010) addresses the preservation of scholarly discourse for both the established and emerging genres. The University of Michigan created the Inter-University Consortium for Political and Social Research (ICPSR), “an international consortium of about 700 academic institutions and research organizations” to not only maintain a data archive and specialized collections of data, but to also sponsor research that “focuses on the emerging challenges of digital

curation and data science" (ICPSR). NSF encourages researchers to archive their data, reports, etc. in order to make them widely available and usable and adopted a Data Management Plan (DMP) that requires all submitted grant proposals to "describe plans for data management and sharing of the products of research, or assert the absence of the need for such plans" beginning January 18, 2011 (UNM University Libraries; NSF 2011a). NIH also provides information to researchers to help them develop data management plans (UNM University Libraries). These initiatives emphasize the importance of preservation and curation of data and established and emerging scholarly discourse.

Implications:

- It may be time to identify new terminology for accurately depicting the various aspects of scholarly communication that are not included in the current literature and discussions.
- Direct access to information is more important to scholars than discovery (Connaway and Dickey 2010a). Scholars' expectations for information will increase and become more sophisticated.
- Digitize unique materials to make accessible at anytime and from anywhere and utilize print-on-demand capabilities.
- The development of new multimedia technologies will be the catalyst for new types of publications.
- Collaboration will become more important in the coming years. Publishers should consider partnering with third-party archives and libraries to preserve scholarly discourse.
- The federal district court's rejection of the Google Book settlement agreement opens the door to other arrangements for making digitized books easily accessible, such as the March 29 announcement that the HathiTrust collection will be discoverable through Serials Solutions' Summon service (Serials Solutions 2011).
- If librarians proactively work with scholars and educate them in copyright and intellectual property legislation and open access publishing options, librarians will better understand the research process in order to develop institutional repositories that are embedded in the scholars' workflows (Connaway and Dickey 2010b; Connaway et al. 2010).
- "Achieving sustainability—especially for those resources with an open access mandate—is a universal challenge" (Maron and Smith 2008, 34).
- Collect data on faculty research surrogates "for individual faculty and correlate them to faculty behavior and library characteristics" (Association of College and Research Libraries 2010, 15).

Assessment

The assessment of services has gone on in libraries as we counted stuff: books, check outs, door counts, reference questions, etc. These efforts were designed to measure the quantity of library collections or services. While "quantity has a quality all of its own[2]" evidence of real quality is what libraries are now seeking. Assessment efforts take different forms including Evidence Based Practice (EBP) and Return on Investment (ROI). More and more areas of library practice and service are being assessed. This was clearly demonstrated at the ARL Library Assessment Conference held in October, 2010 with 64 contributed papers organized around five themes: service quality, library as space, learning outcomes, performance measures and scorecards, and articulation of value and impact. At the conclusion of his plenary address at this conference, Fred Heath, stated,

> "It is clear that our best efforts at accountability and demonstrating value and return on investment have not spared libraries from the challenges of the current fiscal climate. What our culture of assessment can do is to allow us to concentrate with precision the assignment of available resources to the goods and services our communities most value. If we listen, and if we act purposefully, we will remain indispensible to teaching and learning." (Heath 2011)

Similarly, Joanne Gard Marshall, in a commentary in the inaugural issue of *Evidence Based Library and Information Practice* stated that,

[2]This quote is generally attributed to Joseph Stalin but there is no credible source for it thus it is probably apocryphal.

> "While there are major challenges ahead, including developing the version of EBP that will meet our needs and building the knowledge base to support our practice, we are well positioned to move ahead. The time is now!" (Marshall 2006)

Assessment is becoming more and more essential throughout higher education with accrediting agencies and the state and federal government all demanding accountability. The Southern Association of Colleges and Schools clearly states in its guidelines that "accreditation requires institutional commitment to the concept of quality enhancement through continuous assessment and improvement" (SACSCOC 2010).

In academic libraries ARL's LibQUAL+ survey has become a standard measurement of overall service with the vast majority of institutions using it on a regular basis. (Association of Research Libraries 2011). Project SAILS (Standardized Assessment of Information Literacy Skills) and the Texas Information Literacy Tutorial (TILT) both serve to assess information literacy skills and have been used by a wide variety of institutions (Kent State University 2011; Orme 2004). Assessment of library collections also has moved past simply counting volumes and now includes cost per use studies and citation analysis intended to examine how the collections are used and if they are meeting the teaching and research needs of the library's users.

During the past few years, there has been a great deal of discussion among academic librarians about how to show the value the library provides to the larger institution. This has resulted in some very significant efforts. An effort to establish the return on investment (ROI) of library funding with an emphasis on the development of grant funding began under the auspices of Elsevier Publishing and has now gone through two phases and is beginning a much broader third phase with funding from IMLS. In order to assess where the profession is on establishing the value of academic libraries, the Association of College and Research Libraries provided the funding for a comprehensive review of the literature on demonstrating the value of academic libraries. The resulting report, prepared by Megan Oakleaf, serves as a starting point for further research in establishing the value of libraries in all aspects of their services. To further facilitate these ongoing efforts ACRL Assessment Committee has created the Value of Academic Libraries Toolkit (ACRL Assessment Committee 2010) to provide updated information and new tools for librarians to use in their own institutions.

Implications:

- Efforts to embed new models of assessing user behavior need to be initiated.
- Librarians will need to integrate library assessment into the institutional student learning assessments.
- New skills will be needed for librarians to accomplish these goals and more rigorous library assessments will be necessary.

The Future of the Profession

The profession is, has always been, and will always be defined by change. Ceaseless waves of new technology, new publishing models, and new roles for academic librarians have forced all library professionals into a state of constant awareness of new trends in libraries and higher education. Few librarians define their jobs in terms of a stagnant list of duties; rather, the changing needs of the library user define what it is to be a professional librarian.

A Profession in Flux

In his stirring talk at *Next: A Library Futures Symposium*, R. David Lankes makes an impassioned call for librarians to be masters of change management and adaptability (Lankes 2010). He says, "What will kill librarianship is when librarians have an inability to see what could be and only see what is … Librarianship is a conversation about how we can make this world a better place." He points out that a reliance on established tools and practices will undermine what being a professional librarian is about, which is the practice of making libraries better.

Jennifer Richard, editor of *Partnership: the Canadian Journal of Library and Information Practice and Research*, muses that "better" not only means adaptable and capable of change, but also "relevant,

reliable and in constant flux" (Richard 2009). She describes how definitions of librarianship are changing and believes that those who hang on to traditional definitions of the profession are in danger of losing relevance with the changing needs of higher education.

Adaptability is an implicit trait modern librarians must have, as evidenced in the changing job descriptions found in job advertisements. In their study of forty-four years of ads, Wang, Tang and Knight found that "higher educational backgrounds, more duties & responsibilities, and variety of titles were assigned to academic reference librarian positions from 1966 through 2009" (Wang, Tang, and Knight 2010). In particular, new titles that reflect the increasing role of emerging technologies and changes to resource development have dramatically shaped the job ads that have appeared in the last decade.

Implications:

- Library employers should value evidence of problem solving and critical thinking in potential job candidates
- The library environment should establish a culture of professional engagement to keep up with constantly changing trends in academic librarianship

Library Science Education

Library schools continue to struggle to teach practical skills to library school students – no doubt a result of differentiated skill sets required by different kinds of libraries and the growing duties and responsibilities assigned to librarians in academic and research libraries. For example, Westbrock and Fabian found that "library school is not where librarians are acquiring the proficiencies that they later find very important to their work in instruction" (Westbrock and Fabian 2010). They go on to reveal that most skills and proficiencies are learned on the job or through other education opportunities.

This is not particularly bad. iSchool professor Danny Wallace argues in an editorial that "library and information studies education does not appear to be broken, that opportunities to broaden and extend the field are decidedly more beneficial than harmful, and that the future appears to be quite secure" (Wallace 2009). He notes that the tension between the practical and theoretical has existed for some time, and that the mandates from the American Library Association's Task Force on Library Education that accompanied their *Core Competencies for Academic Librarians* document "imply an extremely narrow – perhaps to the point of insular – interpretation of the library and information professions."

Implications:

- New librarians should be given opportunities to develop practical skills, including support for mentorship programs and continuing education

Defining Librarianship

Attempts to define librarianship have produced extensive lists of job duties and responsibilities. In an appendix of their article on creating academic portfolios as a means of expressing a professional's extensive accomplishments across a variety of areas of responsibility, vanDuinkerken, Coker, and Anderson (2010) enumerate a long list of professional activities one particular academic librarian participates in. The list spans collection development, liaison, instruction, and reference duties.

Christopher Stewart reveals several trends in library staffing that are indicative of a need for new skills in libraries. Even as professional librarian positions are decreasing or remaining stagnant in the face of increased enrollments, a significant number of libraries are *increasing* non-librarian profession positions (Stewart 2010). Stewart suggests that these new professionals might have specialized roles that reflect the new needs of academic library users.

Academic status (tenure versus non-tenure track positions) is also a point of debate within the profession. Tenure-track advocates argue that a tenure system provides the best model for professional librarians to work with the protection of academic freedom, to level the playing field for library-related issues in the landscape of higher education, and to fuel the development of new research and ideas for the profession itself (Coker, van Duinkerken, and Bales 2010). Others argue that the tenure model perpetuates the 'stodgy' librarian who isn't nimble enough to address the fast-paced changes happening in our modern

information environment, and that the library and its staff are somehow superior to our partners in higher education that do not have tenure status (Schneider 2010). The debate still lacks much data to support either side, and collecting such data would likely require defining metrics by which to determine what a successful librarian is and does.

Implications:

- Librarians should seek a place at the table in University committees, regardless of librarian faculty status, to keep abreast of and influence institutional issues.
- A model to embed academic librarians within the academic disciplines should be developed and tested.

Conclusion

The future of libraries is undefined**,** perhaps best described by Char Booth, in her post at *In the Library with the Lead Pipe* aptly titled "Librarian as _____", says it best by claiming that a librarian's professional identity is best defined by her "productive capacity that makes the most sense based on (and to) the people you support, if and when they need that particular kind of support" (Booth 2010). She goes on to say that any attempt at defining the profession descriptively is to lose sight of what librarianship has always been and will always be about: adaptive and self-reflexive, and "Under shifting shapes, librarians remain the singularly knowledgeable, radically neutral, and openly accessible *mavens* of the information world."

While libraries are constantly changing, many of the issues mentioned in the ACRL environmental scan in 2008 are still recurring and examined in this document. Among them are the cost of higher education and its implications for libraries and information services; online education; increased accountability and role of librarians in assessment that will measure library experiences, information literacy and research skills, the advancement of technology, adaption rates and changes in internet activity and behavior. While not exhaustive, the recurrent and emerging issues mentioned in this document will join the repertoire of significant issues facing the academic library in the near future.

Appendix A: ACRL Research Planning and Review Committee Roster 2010-2011

Ryan Johnson, Chair
Head of Information Services
University of Mississippi

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Senior Research Scientist, OCLC Research

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Yunfei Du, Member
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Brad Eden, Member
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Eric Frierson, Member
Library Digital Services Manager
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Mildred L. Jackson, Member
Associate Dean for Collection
University of Alabama Libraries

Janice S. Lewis, Member
Associate Director
Joyner Library
East Carolina University

Lutishoor Salisbury, Member
Head, Chemistry and Biochemistry Library
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References

Introduction and Methodology

Association of College and Research Libraries. 2010. *The value of academic libraries: A comprehensive research review and report.* Chicago: Association of College and Research Libraries. http://www.ala.org/ala/mgrps/divs/acrl/issues/value/val_report.pdf.

Connaway, Lynn Silipigni, Karen Downing, Yunfei Du, Donna Goda, Mildred L. Jackson, Ryan Johnson, Janice S. Lewis, and Lutishoor Salisbury. 2010. 2010 top ten trends in academic libraries: A review of the current literature. *College & Research Libraries News* 71, no. 6: 286-92. http://crln.acrl.org/content/71/6/286.full.

Staley, David J. and Kara J. Malenfant. 2010. Futures thinking for academic librarians: Higher education in 2025. *Association of College & Research Libraries* (June), http://www.ala.org/ala/mgrps/divs/acrl/issues/value/futures2025.pdf.

Higher Education

Allen, I. Elaine and Jeff Seaman. 2010. *Class differences: Online education in the United States, 2010*. Newburyport: MA: Sloan Consortium. http://www.sloanconsortium.org/publications/survey/pdf/class_differences.pdf.

AAUP (American Association of University Professors). 2007. *Trends in faculty status, 1975-2007*. Washington, DC: AAUP. http://www.aaup2.org/research/TrendsinFacultyStatus2007.pdf.

AAUP (American Association of University Professors), Committee on Contingency and the Profession. 2010. Tenure and teaching-intensive appointments. *Bulletin of the AAUP* 96: 89-92. http://www.aaup.org/AAUP/comm/rep/conversion.htm.

CCAP (Center for College Affordability and Productivity). 2010. *25 ways to reduce the cost of college*. Washington, DC: Center for College Affordability and Productivity. http://centerforcollegeaffordability.org/pages/page.asp?page_id=129325.

Chapman, Paige. 2010. U. of Louisiana to consider weakening tenure. *Chronicle of Higher Education* (August 26), http://chronicle.com/article/U-of-Louisiana-to-Consider/124159/.

Coalition on the Academic Workforce. 2010. *One faculty serving all students: An issue brief by the Coalition on the Academic Workforce* (February), http://www.academicworkforce.org/CAW_Issue_Brief_Feb_2010.pdf.

College Board, The. 2010. *Trends in college pricing 2010*. New York: The College Board. http://trends.collegeboard.org/downloads/College_Pricing_2010.pdf.

Department of Education. 2010. *Higher Education Opportunity Act – 2008*. Washington, DC: Department of Education. http://www2.ed.gov/policy/highered/leg/hea08/index.html.

Jankowski, Natasha, and Julia Panke Makela. 2010. *Exploring the landscape: What institutional websites reveal about student learning outcomes assessment activities*. Urbana, IL: University of Illinois and Indiana University, National Institute for Learning Outcomes Assessment. http://www.learningoutcomesassessment.org/documents/NILOAwebscanabridg.pdf.

Kelderman, Eric. 2010. Under Obama, accreditors are still in the hot seat. *Chronicle of Higher Education* (September 12), http://chronicle.com/article/Under-Obama-Accreditation-Is/124361/.

———. 2011. As state funds dry up, many community colleges rely more on tuition than on taxes to get by. *Chronicle of Higher Education* (February 6), http://chronicle.com/article/As-State-Funds-Dry-Up/126240/.

Kinchen, Heidi Rogers. 2010. New changes to tenure, firing rules proposed: UL system board to discuss policies Friday. *HammondStar.com* (November 30), http://www.hammondstar.com/articles/2010/11/30/top_stories/public_meetings/9118.txt.

Knapp, Laura G., Janice E. Kelly-Reid, and Scott A. Ginder. 2010. *Employees in postsecondary institutions, Fall 2009, and salaries of full-time instructional staff, 2009-2010*. Washington, DC: U.S. Department of Education, National Center for Education Statistics. http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2011150.

Kuh, George, and Stanley Ikenberry. 2009. *More than you think, less than we need: Learning outcomes assessment in American higher education*. Urbana, IL: University of Illinois and Indiana University, National Institute for Learning Outcomes Assessment. http://www.learningoutcomesassessment.org/documents/niloaabridgedreport.pdf.

Lewis, Janice Steed. 2010. The academic library in institutional assessment: Seizing an opportunity. *Library Leadership & Management* 24, no. 2: 65-77. http://llama.metapress.com/content/r84036136548nn67/fulltext.pdf.

Lowry, Charles, and Kaylyn Groves, ed. 2010. *E-News for ARL directors*. Washington, DC: Association of Research Libraries. http://www.arl.org/news/enews/enews-oct2010.shtml.

Parry, Marc. 2010a. Outsourced ed: Colleges hire companies to build their online courses. *Chronicle of Higher Education* (July 18), http://chronicle.com/article/Outsourced-Ed-Colleges-Hire/66309/.

———. 2010b. Will technology kill the academic calendar? *Chronicle of Higher Education* (October 10), http://chronicle.com/article/Will-Technology-Kill-the/124857/.

Project on Student Debt, The. 2010. *Student debt and the class of 2009*. Oakland, CA: The Project on Student Debt. http://projectonstudentdebt.org/files/pub/classof2009.pdf.

Russell, Alene. 2010. Outsourcing instruction: Issues for public colleges and universities. *AASCU Policy Matters* (July 1-7), http://www.aascu.org/policy/policy_matters/.

Rutschow, Elizabeth Zachry, Lashawn Richburg-Hayes, Thomas Brock, Genevieve Orr, Oscar Cerna, Dan Cullinan, Monica Reid Kerrigan, Davis Jenkins, Susan Gooden, and Kasey Martin. 2011. *Turning the tide: Five years of achieving the dream in community colleges*. New York: MDRC. http://www.mdrc.org/publications/578/full.pdf.

Trower, Cathy A. 2009. Rethinking tenure for the next generation. *Chronicle of Higher Education* (September 7), http://chronicle.com/article/Rethinking-Tenure-for-the-Next/48262/.

Wilson, Robin. 2010. Tenure, RIP: What the vanishing status means for the future of education. *Chronicle of Higher Education* (July 4), http://chronicle.com/article/Tenure-RIP/66114/.

Political Issues that Affect Higher Education

Foderaro, Lisa. 2010. Budget-cutting colleges bid some languages adieu. *New York Times* (December 3), http://www.nytimes.com/2010/12/05/education/05languages.html.

Gonzalez, Jennifer. 2010. Obama praises community colleges amid doubts about his commitment. *Chronicle of Higher Education* (October 10), http://chronicle.com/article/Obama-Praises-Community/124869/.

———. 2011. Community-college summit focuses on preparing adult learners for careers. *Chronicle of Higher Education* (February 28), http://chronicle.com/article/Community-College-Summit/126542/.

Lederman, Doug. 2009. The final stimulus bill. *Inside Higher Education* (February 13), http://www.insidehighered.com/news/2009/02/13/stimulus.

Modern Language Association. 2010. *Enrollments in languages other than English in United States institutions of higher education.* New York: MLA.

U.S. Government. 2009. Recovery.gov. http://www.recovery.gov/Pages/default.aspx.

Technology

Anderson, Janna Quitney, and Lee Rainie. 2010. The future of cloud computing. *Pew Internet & American Life Project* (June 11), http://pewinternet.org/Reports/2010/The-future-of-cloud-computing.aspx.

Ashford, Robin. 2010. QR codes and academic libraries: Reaching mobile users. *College and Research Libraries New*s 71, no. 10: 526-30.

Bilton, Nick. 2010. Price of Facebook privacy? Start clicking. *The New York Times*, May 12, Technology section, New York edition, http://www.nytimes.com/2010/05/13/technology/personaltech/13basics.html?_r=1.

boyd, danah, and Eszter Hargittai. 2010. Facebook privacy settings: Who cares? *First Monday* 15, no. 8 (August 2), http://firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/3086/2589.

EDUCAUSE and NACUBO. 2010. *Shaping the higher education cloud: An EDUCAUSE and NACUBO white paper.* http://www.nacubo.org/Documents/BusinessPolicyAreas/ShapingTheHECloudWhitePaper(0).pdf.

Fischman, Josh. 2011. Expert predicts a deluge of tablet computers on campuses. *The Chronicle of Higher Education* (January 7), http://chronicle.com/blogs/wiredcampus/walt-mossberg-says-colleges-will-deal-with-a-deluge-of-tablets/28889.

Fletcher, Dan. 2010. How Facebook is redefining privacy. *Time* (May 20), http://www.time.com/time/business/article/0,8599,1990582-1,00.html.

Green, Kenneth. 2010a. Campus computing, 2010: The 21st National Survey of Computing and Information Technology in US Higher Education. Presented at the 2010 EDUCAUSE Conference, October 14, in Anaheim, California. http://www.campuscomputing.net/sites/www.campuscomputing.net/files/Green-CampusComputing2010.pdf.

———. 2010b. Digital tweed: The 2010 Digital Puck Awards. *Inside Higher Ed* (October 17), http://www.insidehighered.com/blogs/digital_tweed/the_2010_digital_puck_awards.

Guess, Andy. 2008. Facebook, meet Blackboard. *Inside Higher Ed* (May 14), http://www.insidehighered.com/news/2008/05/14/sync.

Johnson, Laurence F, R. Smith, Holly Willis, Alan Levine, and Keene Haywood. 2011. *The 2011 Horizon Report.* Austin, TX: The New Media Consortium. http://www.educause.edu/Resources/2011HorizonReport/223122.

Kolowich, Steve. 2010a. All in the delivery. *Inside Higher Ed* (August 31), http://www.insidehighered.com/layout/set/print/news/2010/08/31/ebooks.

———. 2010b. Harnessing social media. *Inside Higher Ed* (November 8), http://www.insidehighered.com/news/2010/11/08/sloan3.

———. 2011. How will students communicate? *Inside Higher Ed* (January 6), http://www.insidehighered.com/news/2011/01/06/college_technology_officers_consider_changing_norms_in_student_communications.

Lenhart, Amanda, Kristen Purcell, Aaron Smith, and Kathryn Zichuhr. 2010. Social media & mobile Internet use among teens and young adults. *Pew Internet & American Life Project* (February 3), http://www.pewinternet.org/~/media//Files/Reports/2010/PIP_Social_Media_and_Young_Adults_Report_Final_with_toplines.pdf.

Madden, Mary, and Aaron Smith. 2010. Reputation management and social media. *Pew Internet & American Life Project.* http://www.pewinternet.org/Reports/2010/Reputation-Management.aspx.

Mintel. 2010a. Mobile phones – US. *Mintel Academic Market Research Reports* (June), http://academic.mintel.com/sinatra/oxygen_academic/search_results/show&/display/id=482692.

———. 2010b. Social networking - US. *Mintel Academic Market Research Reports* (February). http://academic.mintel.com/sinatra/oxygen_academic/search_results/show&/display/id=482479.

Nielsen Company, The. 2010. Games dominate America's growing appetite for mobile apps. *Nielsen Wire* (September 9), http://blog.nielsen.com/nielsenwire/online_mobile/games-dominate-americas-growing-appetite-for-mobile-apps/.

Purcell, Kristen, Roger Entner, and Nichole Henderson. 2010. The rise of apps culture. *Pew Internet & American Life Project* (September 15), http://pewinternet.org/Reports/2010/The-Rise-of-Apps-Culture.aspx.

Smith, Aaron. 2010a. Americans and their gadgets. *Pew Internet & American Life Project* (October 14), http://pewinternet.org/Reports/2010/Gadgets.aspx.

———. 2010b. Mobile access 2010. *Pew Internet & American Life Project* (July 7), http://pewinternet.org/Reports/2010/Mobile-Access-2010.aspx.

Smith, Aaron, and Lee Rainie. 2010. 8% of online Americans use Twitter. *Pew Internet & American Life Project* (December 9), http://pewinternet.org/Reports/2010/Twitter-update-2010.aspx.

Smith, Shannon D., Gail Salaway, and Judith Borreson Caruso. 2009. Key findings: The ECAR study of undergraduate students and information technology, 2009. *EDUCAUSE Center for Applied Research* (October), http://net.educause.edu/ir/library/pdf/EKF/EKF0906.pdf.

Stoller, Eric. 2010. The potential of QR codes. *Inside Higher Ed* (November 18), http://www.insidehighered.com/blogs/student_affairs_and_technology/the_potential_of_qr_codes.

Truong, Kelly. 2010. Student smartphone use doubles; instant messaging loses favor. *The Chronicle of Higher Education* (June 17), http://chronicle.com/blogs/wiredcampus/student-smartphone-use-doubles-instant-messaging-loses-favor/24876.

Young, Jeffrey. 2006. The fight for classroom attention: Professor vs. laptop. *The Chronicle of Higher Education* (June 2), http://chronicle.com/article/The-Fight-for-Classroom/19431.

———. 2010. To save students money, colleges may force a switch to E-textbooks. *The Chronicle of Higher Education* (October 24), http://chronicle.com/article/The-End-of-the-Textbook-as-We/125044/.

Zickuhr, Kathryn, and Aaron Smith. 2010. 4% of online Americans use location-based services. *Pew Internet & American Life Project* (November 4), http://pewinternet.org/Reports/2010/Location-based-services.aspx.

Demographic Trends of Librarians and Library Users

Adkins, Denis, and Lisa K. Hussey. 2005. Unintentional recruiting for diversity. *Public Libraries* 44, no. 4: 229-33.

Alire, Camila. 2001. Diversity and leadership: The color of leadership. *Journal of Library Administration* 32, no. 3-4: 95-109.

Alire, Camila A., and Fred J. Stielow. 1995. Minorities and the symbolic potential of the academic library: Reinventing tradition. *College & Research Libraries* 56, no. 6: 509-17.

Altbach, Philip G., and Jane Knight. 2009. The internationalization of higher education: Motivations and realities. *Journal of Studies in International Education* 11, no. 3-4: 290-305.

Ashburn, Elyse. 2008. After the deluge, the drought? How admissions officers are preparing for a shrinking pool of traditional applicants. *The Chronicle of Higher Education* 54, no. 34 (May 2), http://chronicle.com/article/After-the-Deluge-the-Drought-/4854/.

Aud, Susan, Mary Ann Fox, and Angelina Kewal-Ramani. 2010. *Status and trends in the education of racial and ethnic groups.* http://nces.ed.gov/pubs2010/2010015.pdf

Baum, Sandy. 2010. As students change, colleges must follow. *The Chronicle of Higher Education* (August 22), http://chronicle.com/article/Student-Demographics-As/123919/.

Boggs, George R. 2009. *Democracy's colleges: The evolution of community colleges in America.* http://www.aacc.nche.edu/AboutCC/whsummit/Documents/Combined_Issue_Papers.pdf.

Bureau of Labor Statistics. Employment situation summary. United States Department of Labor. http://www.bls.gov/news.release/empsit.nr0.htm.

Chapman, Connie. 2009. Retention Begins Before Day One: Orientation and Socialization in Libraries. *New Library World* 110, no. 3-4: 122-35.

Connaway, Lynn Silipigni, and Timothy J. Dickey. 2010. *The digital information seeker: Report of findings from selected OCLC, RIN, and JISC User Behavior Projects.* http://www.jisc.ac.uk/media/documents/publications/reports/2010/digitalinformationseekerreport.pdf.

De Rosa, Cathy, Joanne Cantrell, Matthew Carlson, Peggy Gallagher, Janet Hawk, and Charlotte Sturtz. 2010. *Perceptions of libraries, 2010: Context and community*. Dublin, OH: OCLC Online Computer Library Center, Inc.

De Rosa, Cathy, Joanne Cantrell, Diane Cellentani, Janet Hawk, Lillie Jenkins, and Alane Wilson. 2005. *Perceptions of libraries and information resources*. Dublin, OH: OCLC Online Computer Library Center, Inc.

Downing, Karen. 2009. The relationship between social identity and role performance among academic librarians. PhD diss., The University of Michigan. http://deepblue.lib.umich.edu/handle/2027.42/62396.

Hall, Tracie. 2006. Reading and forecasting demographic trends: 21st century library services to Illinois users. http://www.librarydiversity.info/download/DriveIn2006.pdf.

Hutley, Sue, and Terena Solomons. 2004. Generational change in Australian librarianships: Viewpoints from Generation X. http://conferences.alia.org.au/alia2004/pdfs/hutley.s.paper.pdf.

Keller, Josh. 2010. Schwarzenegger signs bill to ease path for transfer students. *The Chronicle of Higher Education* (September 29), http://chronicle.com/blogs/ticker/schwarzenegger-signs-bill-to-ease-path-for-transfer-students/27289

Kyrillidou, Martha, and Mark Young. 2006. *ARL Annual salary survey 2005-2006*. Washington DC: Association of Research Libraries. http://www.arl.org/bm~doc/ss05.pdf.

Leask, Betty. 2009. Using formal and informal curricula to improve interactions between home and international students. J*ournal of studies in International Education* 15, no. 1: 205-21.

Moltz, David. 2009. The new reverse transfer. *Inside Higher Ed* (February 18), http://www.insidehighered.com/news/2009/02/18/reverse.

NCES (National Center for Education Statistics). 2002. *Findings from the condition of education 2002: Nontraditional student*s. http://nces.ed.gov/pubs2002/2002012.pdf.

Oud, Joanne. 2008. Adjusting to the workplace: Transitions faced by new academic librarians. *College & Research Libraries* 69, no. 3: 252-66.

Overall, Patricia M. 2009. Cultural competence: A conceptual framework for library and information science professionals. *The Library Quarterly* 79, no. 2: 175-204.

Shaffer, Christopher, Lisa Vardaman, and Donna Miller. 2010. Library usage trends and needs of international students. *Behavioral & Social Sciences Librarian* 29, no. 2: 109-17.

Smith, Peter P. 2010. You can't get there from here: Five ways to clear roadblocks for college transfer students. *Education Outlook.* No. 5. Washington DC: American Enterprise Institute for Public Policy Research. ERIC Document ED509605.

Staley, David J., and Kara J. Malenfant. 2010. *Futures thinking for academic librarians: Higher education in 2025.* Chicago: Association of College and Research Libraries. http://www.acrl.org/ala/mgrps/divs/acrl/issues/value/futures2025.pdf.

Wilder, Stanley. 2003. *Demographic change in academic librarianship.* Washington, DC: Association of Research Libraries.

———. 2007. *The ARL youth movement: Reshaping the ARL workforce.* Washington, DC: Association of Research Libraries. http://www.publicaccesstoresearch.com/bm~doc/arl-br-254.pdf.

Williamson, Kirsty, Marion Bannister, and Jen Sullivan. 2010. The crossover generation: Baby boomers and the role of the public library. *Journal of Librarianship and Library Science* 42, no. 3: 179-90.

Winston, Mark D. 2001. The importance of leadership diversity: The relationship between diversity and organizational success in the academic environment. *College & Research Libraries* 62, no. 6: 517-26.

Scholarly Communication

Association of College and Research Libraries. 2010. *The value of academic libraries: A comprehensive research review and report.* Chicago: Association of College and Research Libraries. http://www.ala.org/ala/mgrps/divs/acrl/issues/value/val_report.pdf.

Authors Guild et al. v. Google, Inc., The. 2011. No. 05 Civ. 8163 (DC). Southern District of New York. March 22, 2011. http://www1.nysd.uscourts.gov/cases/show.php?db=special&id=115.

Bates, Marcia J. 1996. The Getty end-user online searching project in the humanities: Report no. 6: Overview and conclusions. *College & Research Libraries* 57, no. 6: 514-23.

Biagioli, Mario. 2003. Rights or rewards? Changing frameworks of scientific authorship. In *Scientific authorship: Credit and intellectual property in science*, ed. Mario Biagioli and Peter Galison, 253-79. New York: Routledge.

BRTF-SDPA (Blue Ribbon Task Force on Sustainable Digital Preservation and Access). 2010. *Sustainable economics for a digital planet: Ensuring long-term access to digital information.* La Jolla, CA: Blue Ribbon Task Force on Sustainable Digital Preservation and Access. http://brtf.sdsc.edu/biblio/BRTF_Final_Report.pdf.

Borgman, Christine L. 2007. *Scholarship in the digital age: Information, infrastructure, and the Internet.* Cambridge, MA: MIT Press.

CIBER (Centre for Information Behaviour and the Evaluation of Research). 2008. *Information behaviour of the researcher of the future: A CIBER briefing paper*. London: CIBER. http://www.jisc.ac.uk/media/documents/programmemes/reppres/gg_final_keynote_11012008.pdf.

Connaway, Lynn Silipigni, and Timothy J. Dickey. 2010a. *The digital information seeker: Report of findings from selected OCLC, RIN, and JISC User Behavior Projects.* http://www.jisc.ac.uk/media/documents/publications/reports/2010/digitalinformationseekerreport.pdf.

———. 2010b. *Towards a profile of the researcher of today: What can we learn from JISC projects? Common themes identified in an analysis of JISC virtual research environment and digital repository projects.* http://ie-repository.jisc.ac.uk/418/2/VirtualScholar_themesFromProjects_revised.pdf.

Connaway, Lynn Silipigni, Karen Downing, Yunfei Du, Donna Goda, Mildred L. Jackson, Ryan Johnson, Janice S. Lewis, and Lutishoor Salisbury. 2010. 2010 top ten trends in academic libraries: A review of the current literature. *College & Research Libraries News* 71, no. 6: 286-292. http://crln.acrl.org/content/71/6/286.full.

Connaway, Lynn Silipigni, Chandra Prabha, and Timothy J. Dickey. 2006. *Sense-making the information confluence: The whys and hows of college and university user satisficing of information needs. Phase III: Focus group interview study.* Report on National Leadership Grant LG-02-03-0062-03, to Institute of Museum and Library Services, Washington, D.C. Columbus, Ohio: School of Communication, The Ohio State University. http://imlsproject.comm.ohio-state.edu/imls_reports/PHASE_III/PH_III_report_list.html.

Courant, Paul. 2007. Why I hate the phrase 'scholarly communication.' *Au Courant* (blog), November 23, 2007, http://paulcourant.net/2007/11/23/why-i-hate-the-phrase-scholarly-communication/.

Cronin, Blaise. 2001. Hyperauthorship: A postmodern perversion or evidence of a structural shift in scholarly communication practices? *Journal of the American Society for Information Science and Technology* 52, no. 7: 558-69.

Dallmeier-Tiessen, Suenje, Robert Darby, Bettina Goerner, Jenni Hyppoelae, Peter Igo-Kemenes, Deborah Kahn, Simon Lambert, Anja Lengenfelder, Chris Leonard, Salvatore Mele, Malgorzata Nowicka, Panayiota Polydoratou, David Ross, Sergio Ruiz-Perez, Ralf Schimmer, Mark Swaisland, and Wim van der Stelt. 2011. *Highlights from the SOAP project survey. What scientists think about open access publishing*. http://arxiv.org/pdf/1101.5260.

Faculty Focus. 2010. *Twitter in higher education 2010: Usage habits and trends of today's college faculty.* Madison, WI: Magna Publications. http://www.scribd.com/doc/37621209/2010-Twitter-Survey-Report.

Havens, Andy, and Tom Storey. 2010. Libraries and the changing roles of creators and consumers. *NextSpace* 16, http://www.oclc.org/nextspace/016/1.htm.

Howard, Jennifer. 2008. Google, publishers, and authors settle huge book-scanning lawsuit. *The Chronicle of Higher Education* (October 29), http://chronicle.com/article/Settlement-Reached-in-Google/1281/.

———. 2009. Parties submit new proposal to settle Google Book Search litigation. *The Chronicle of Higher Education* (November 15), http://chronicle.com/article/Parties-Submit-New-Proposal/49163/.

ICPSR (Inter-University Consortium for Political and Social Research). About ICPSR. http://www.icpsr.umich.edu/icpsrweb/ICPSR/org/index.jsp.

JISC (Joint Information Systems Committee). 2009. *JISC National e-Books Observatory Project: Key findings and recommendations: Final report,* http://www.jiscebooksproject.org/reports/finalreport/.

Maron, Nancy L., and K. Kirby Smith. 2008. *Current models of digital scholarly communication: Results of an investigation conducted by Ithaka for the Association of Research Libraries.* Washington, DC: Association of Research Libraries. http://www.arl.org/bm~doc/current-models-report.pdf.

Mathews, Brian. 2010. Innovation juggernaut: The libraries at Stanford have reenvisioned scholarly communications. *American Libraries* 41, no. 11-12: 49.

NSF (National Science Foundation). 2011a. Grants.gov application guide: A guide for preparation and submission of NSP applications via Grants.gov (January 18), http://www.nsf.gov/pubs/policydocs/grantsgovguide0111.pdf?WT.mc_id=USNSF_179.

NSF (National Science Foundation). 2011b. Grant proposal guide: Chapter II - Proposal preparation instructions (January 1), http://www.nsf.gov/pubs/policydocs/pappguide/nsf11001/gpg_2.jsp#dmp.

Palmer, Carole L., Lauren C. Teffeau, and Carrie M. Pirmann. 2009. *Scholarly information practices in the online environment: Themes from the literature and implications for library service development.* Report produced by OCLC Research. Dublin, OH: OCLC Research. http://www.oclc.org/research/publications/library/2009/2009-02.pdf.

Priem, Jason, Dario Taraborelli, Paul Groth, and Cameron Neylon. 2010. Alt-metrics: A manifesto. *Altmetrics* (October 26), http://altmetrics.org/manifesto/.

RIN (Research Information Network). 2009. *E-journals: Their use, value and impact*. London: Research Information Network. http://www.rin.ac.uk/our-work/communicating-and-disseminating-research/e-journals-their-use-value-and-impact.

Serials Solutions. 2011. Serials solutions to enable full-text search of the HathiTrust Collection from the Summon Service. News release, March 28, 2011, http://www.serialssolutions.com/news/detail/serials-solutions-summon-full-text-hathitrust-collection.

Shaw, Jonathan. 2010. Gutenberg 2.0. Harvard's libraries deal with disruptive change. *Harvard Magazine* (May-June): 36-41, 82-83.

Tenopir, Carol, Donald W. King, Peter Boyce, Matt Grayson, Keri-Lynn Paulson. 2005. Relying on electronic journals: Reading patterns of astronomers. *Journal of the American Society for Information Science and Technology* 56, no. 8: 786-802.

UNM University Libraries. Digital data management, curation and archiving: A guide primarily geared toward researchers and data librarians. http://libguides.unm.edu/content.php?pid=137795&sid=1274405.

Unsworth, John. 2000. Scholarly primitives: What methods do humanities researchers have in common, and how might our tools reflect this? Presented at a symposium on Humanities Computing: Formal Methods, Experimental Practice, May 13, at King's College, London. http://jefferson.village.virginia.edu/~jmu2m/Kings.5-00/primitives.html.

Wong, William, Hanna Stelmaszewska, Nazlin Bhimani, Sukhbinder Barn, and Balbir Barn. 2009. *User behaviour in resource discovery: Final report.* http://www.jisc.ac.uk/whatwedo/programmes/inf11/userbehaviourbusandecon.aspx.

Young, Jeffrey R. 2005. Authors' group sues Google over library-scanning project. *The Chronicle of Higher Education* (September 30), http://chronicle.com/article/Authors-Group-Sues-Google/8430/.

Assessment

ACRL Assessment Committee. 2010. *Value of academic libraries toolkit* (October), http://www.ala.org/ala/mgrps/divs/acrl/issues/value/valueofacademiclibrariestoolkit.cfm.

Association of Research Libraries. 2011. LibQUAL: Charting library service quality. http://www.libqual.org.

Heath, Fred. 2011. Library assessment: The way we have grown. *Library Quarterly* (January): 3-18.

Kent State University. 2011. Project SAILS (Standardized Assessment of Information Literacy Skills). https://www.projectsails.org/sails/aboutSAILS.php.

Marshall, Joanne Gard. 2006. Evidence-based library and information practice: The time is now. *Evidence Based Library and Information Practice* 1, no. 1: 110-11.

Orme, William A. 2004. A study of the residual impact of the Texas Information Literacy Tutorial on the information-seeking ability of first year college students. *College & Research Libraries* 65, no. 3: 205-215.

SACSCOC (Southern Associate of Colleges and Schools, Commission on Colleges). 2010. *The principles of accreditation: Foundations for quality enhancement.* http://www.sacscoc.org/pdf/2010principlesofacreditation.pdf.

The Future of the Profession

Booth, Char. 2010. Librarians as _____: Shapeshifting at the periphery. *In the Library with the Lead Pipe*, http://www.inthelibrarywiththeleadpipe.org/2010/librarians-as-_____-shapeshifting-at-the-periphery/.

Coker, Catherine, Wyoma van Duinkerken, and Stephen Bales. 2010. Seeking full citizenship: A defense of tenure faculty status for librarians. *College & Research Libraries* 71, no. 5: 406-20.

Lankes, R. David. 2010. The librarian militant, the librarian triumphant. In *NEXT: A library futures symposium*. Alberta, Canada: The Alberta Library.

Richard, Jennifer. 2009. Is (academic) librarianship dead? *Partnership: The Canadian Journal of Library & Information Practice & Research* 4, no. 1: 1-2.

Schneider, Karen G. 2010. Earning full citizenship: A response to 'Seeking full citizenship'. *ACRLog*, http://acrlog.org/2010/10/26/earning-full-citizenship-a-response-to-"seeking-full-citizenship"/.

Stewart, Christopher. 2010. Half empty or half full? Staffing trends in academic libraries at U.S. research universities, 2000-2008. *Journal of Academic Librarianship* 36, no. 5: 394-400.

vanDuinkerken, Wyoma, Catherine Coker, and Margaret Anderson. 2010. Looking like everyone else: Academic portfolios for librarians. *Journal of Academic Librarianship* 36, no. 2: 166-72.

Wallace, Danny P. 2009. The iSchools, education for librarianship, and the voice of doom and gloom. *The Journal of Academic Librarianship* 35, no. 5: 405-9.

Wang, Hanrong, Yingqi Tang, and Carley Knight. 2010. Contemporary development of academic reference librarianship in the United States: A 44-year content analysis. *Journal of Academic Librarianship* 36, no. 6: 489-94.

Westbrock, Theresa, and Sarah Fabian. 2010. Proficiencies for instruction librarians: Is there still a disconnect between professional education and professional responsibilities? *College & Research Libraries* 71, no. 6: 569-90.

Additional Readings

Association of College and Research Libraries. 2010. *The value of academic libraries: A comprehensive research review and report.* Chicago: Association of College and Research Libraries. http://www.ala.org/ala/mgrps/divs/acrl/issues/value/val_report.pdf.

Booth, Andrew, and Anne Brice. 2004. *Evidence-based practice for information professionals: A handbook.* London: Facet.

Connaway, Lynn Silipigni, and Ronald R. Powell. 2010. *Basic research methods for librarians.* 5th ed. Santa Barbara: Libraries Unlimited.

Davis, Denise M., and Tracie D. Hall. 2007. *Diversity counts.* Chicago: American Library Association. http://www.ala.org/ala/aboutala/offices/diversity/diversitycounts/diversitycounts_rev0.pdf.

Luther, Judy. 2008. *University investment in the library: What's the return?* http://libraryconnect.elsevier.com/whitepapers/0108/lcwp0101.pdf.

Mangan, Katharine. 2010. Texas A&M's bottom-line ratings of professors find that most are cost-effective. *The Chronicle of Higher Education* (September 15), http://chronicle.com/article/Texas-A-Ms-Bottom-Line/124451/.

Matthews, Joseph R. 2011. Assessing organizational effectiveness: The role of frameworks. *Library Quarterly* (January): 87-110.

Nitecki, Danuta A. 2011. Space assessment as a venue for defining the academic library. *Library Quarterly* (January): 45-72.

Oakleaf, Megan. 2011. Are they learning? Are we? Learning outcomes & the academic library. *Library Quarterly* (January): 19-44.

Streitfeld, Rachel. 2009. Unemployed workers heading back to school. *CNN.com* (February 14), http://www.cnn.com/2009/LIVING/02/14/unemployment.education/.

Tenopir, Carol. 2010. *University investment in the library, phase II: An international study of the library's value to the grants process.* http://libraryconnect.elsevier.com/whitepapers/roi2/2010-06-whitepaper-roi2.pdf.

Towne, J. Stephen. 2011. Value, impact and the transcendent library: Progress and pressures in performance. *Library Quarterly* (January): 73-86.

Whitmire, Ethelene. 2003. Cultural diversity and undergraduates' academic library use. *The Journal of Academic Librarianship* 29, no. 3: 148-61.