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Academic Library Services to Distance Learners: In Consideration of Costs, Technology, and Stability

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Abstract

Over the years, news, education, and library literature has shown a strong increase in the implementation of distance education programs in colleges and universities. The improvement of web technologies has allowed higher education institutions to expand their student base through distance education. The challenge for academic libraries will be to create working models of library support for these students that are both economically sustainable and qualitatively equitable to the support given to on-campus students. While focusing on the costs and recent trends in this kind of library service, this article traces the design, implementation, and sustainability of providing support to distance learners at colleges and universities in the United States and addresses several considerations regarding training, technology, and finances.

Keywords: distance education, academic libraries, financial management

Introduction

In October of 2011, the U.S. Department of Education's National Center for Education Statistics reported the following: "From 2000 to 2008, the percentage of undergraduates enrolled in at least one distance education class expanded from 8 percent to 20 percent" (Radford & Weko, 2011, p. 3). Distance education allows the student to attend a course while being physically or geographically removed from the instructor, usually connected through some sort of software equipped with audio, video, and/or instant messaging capabilities (Valentine, 2002, n.p.). Angela P. Whitehurst and Carolyn N. Willis (2009) offer a working description of how distance education students may differ from on-campus students: "Students who participated in distance education are typically older, nontraditional students with unique characteristics who need special services provided by their university library in order to obtain an education equal to their on-campus counterparts" (p. 20). Distance education programs allow colleges and universities to broaden regional, national, or international stature while increasing tuition revenue (Shell, et al.

2010, p. 952). Given this motivation, along with advances in communication technologies, distance education enrollment will continue to increase. Colleges and universities are trying to find stable financial models for maintaining and expanding distance education programs. The question for libraries becomes: how will academic libraries adapt to these educational service models and ensure equitable service and support for all students?

In exploring this question, the author reviews recent literature on library services for distance learners, focusing on effective service methods and financial considerations. Online reference and instructional services, interlibrary loan/document delivery (ILL/DD), and open source software (OSS) solutions are at the core of this paper. A discussion on the skills, education, and training of librarians providing library services to distance learners follows, as well as a discussion on unique ways libraries are increasing their funding and service in order to remain relevant to their parent institution, local community and beyond.

Reference and Instructional Services

A major challenge for academic librarians in providing reference and instructional services to distance education students is to reduce the experiential incongruence between on-campus students and distance learners as much as possible. According to the Association of College and Research Libraries, distance librarians ensure that students enrolled in distance education programs are “provided effective and appropriate library services and resources, which may differ from, but must be equivalent to those provided for students and faculty in traditional campus settings” (Association of College and Research Libraries, 2008). However, the ACRL standards also stipulate that distance learners “face distinct and different challenges involving library access and information delivery” (Association of College and Research Libraries, 2008). In pursuit of these service goals, libraries have been facing financial and technological barriers in providing support to a growing user community.

The common types of services offered to distance education students are almost exclusively electronic. In a literature review on improving library services to distance learners, Jennifer Raraigh-Hopper (2010) found that the most common library services offered to distance learners include: “remote access to online library catalog; electronic databases; electronic books and journals; online information literacy tutorials; electronic research guides on academic and special interest topics; electronic general library guides; Ask-A-Librarian (chat, e-mail, or telephone); interlibrary loan; electronic reserves; and document delivery services” (p. 73). In most cases, seven out of these 10 services are the primary duties of reference and instructional librarians. In all of these services, reference and instructional librarians are the sources of help for both distance and on-campus students.

The experiences of Angela P. Whitehurst and Carolyn N. Willis (2009) show that greater attention is necessary to serve the unique needs of distance education students. Whitehurst and Willis of East Carolina University identify learning gaps between traditional on-campus students and distance education students. The factors that make distance education an attractive option for students—such as age, income, or family and work obligations—are also the factors that make distance education a challenge for both students and support staff (p. 20-21). Improvements in technology since the late 1990s make distance education possible; however, Whitehurst and Willis note that “[t]his shift in technology provides the means for distance learning students to take classes, but also causes great challenges for them, especially if they are not members of the ‘technologically savvy’ Millennial generation” (p. 21). Distance education allows for a greater diversity of students to attain an education, but also creates a number of variables that can make providing library services a greater challenge. Whitehurst and Willis provide a great overview of reference and instructional service considerations for distance learning librarians.

In certain cases, academic librarians have been experiencing a growth in demand for reference and instructional services for distance education students. Elaine Sullo et al. (2012) analyze the embedded librarian model for providing library services to distance education students through integration within the course management system. The Himmelfarb Health Sciences Library at George Washington University began a partnership with the School of Nursing and School of Medicine and Health Sciences. This partnership allows for a reference librarian to be designated as a “Teaching Assistant within the Health Care Leadership course” which allowed for the students to receive “assistance via the discussion board or by sending an individual e-mail request to the librarian” (p. 27). The results proved to be enormously successful: “The initial participation of Himmelfarb librarians in distance education classes began with one librarian offering to become involved with a single class section; this endeavor has turned into six librarians embedded in numerous classes with multiple sections” (p. 32). The success of this program offers a new perspective in the marketing and evolution of academic librarianship related to serving distance education students. Similarly successful embedded librarian services have been explored in the past at the University of Wyoming (Kearley & Phillips, 2004). Hoffman (2011) studied this service at six academic institutions and found that while the service quickly became popular, issues arose in terms of staffing and time management, as most of these librarians juggled multiple roles in their respective libraries.

Interlibrary Loan and Document Delivery

Literature review after literature review show that college students, distance and traditional, prefer immediate web access to traditional ILL/DD services (Behr & Hayward, 2008; Oldham, 2009; Bower & Mee, 2010). However, little has been published looking at the costs related to these services. The fees related to the services of ILL/DD to distance learners have been examined at the regional level. Felicity Walsh and William Walsh (2009) examine the costs related to the lending fees of a sample of academic libraries in the Southeastern region of the United States. Fees attached to ILL/DD services exist for many reasons, the most prevalent of which is “to serve as a deterrent to would-be borrowers who fall outside of an institution’s reciprocal arrangement” (p. 196). Since the 1980’s, these fees have been seen as a problem for library operating budgets (Waldhart, 1985; Cline, 1987). The results of the Walsh and Walsh (2009) study show significant increase in the fees associated with lending books and journal articles to distance learners through ILL/DD (p. 199). While fees are frequently cited as deterrents, the data collected by this study show that “increasing one’s lending fees does not necessarily lead to a decrease in the number of items loaned” (p. 201). This effect is likely to be the byproduct of the scarcity of print materials, given the increasing preference for electronic resources. This point is more clearly articulated in the concluding section of the article:

A bleak economic outlook coupled with even moderate annual inflation on continuing resources, combined with the fact that many libraries have exhausted standard strategies (e.g. eliminating duplicate or multiformat journal subscriptions, reducing the number of monographs purchased, utilizing one-time funds) for trying to stretch their materials budgets, means that we could be facing several years in which libraries of all sizes are forced to adopt more drastic measures to cut back on collections spending. As fewer libraries own a needed item, it is likely that more and more borrowers will need to depend on ILL lenders outside of their current reciprocal arrangements. (Walsh, F. & Walsh, W., 2009, p. 202)

While these costs may pose considerable challenges to the functionality of ILL/DD services as well as preservation and conservation efforts, a fair amount of literature suggests that user preferences have shifted to web-based discovery systems. Part of a librarian’s job is to know what parts of the collection are of high use, and in what formats these materials can be made available to local user communities. This creates the dilemma of collecting electronic resources that can be difficult to preserve, or print materials that can be difficult to make available, especially to distance learners. How this dilemma may manifest itself varies by library.

A larger trend toward the preference for electronic collections has been well documented. Michele D. Behr and Julie L. Hayward (2008) studied the decrease in the use of document delivery for the distance education community at Western

Michigan University (WMU), and surveyed 18 other academic libraries in search of a trend. Their findings show a peak in document delivery requests of print materials in the 2003–2004 academic year, and a steady decline since then (p. 285). The results of their study show that WMU usage trends of the document delivery service among distance learners “appears to be the norm rather than the exception” (p. 290). Behr and Hayward speculate that “a major reason for the decreasing use of document delivery services is the concept of materials found easily in full-text on the Internet being ‘good enough’ for students, distance education students in particular” (p. 290).

The preference for electronic access to library materials closely relates to changes in library services for on-campus students as well. Shirley L. Bower and Susan A. Mee (2010) of the Rochester Institute of Technology (RIT) note: “The line between distance learners and campus learners has blurred as all users now demand access outside the boundaries of the physical location of the library and of the campus itself” (p. 473). In a recent article they outline a multifaceted approach to providing electronic resources and library services to distance learners at RIT. A major shift over the last decade at RIT was in acquisitions. As of 2010, “close to 85% of the annual collections budget at RIT libraries is spent on databases, full-text journals, and books that can be delivered electronically” (pp.473-474). This has created new challenges in collection management, wherein the increase in user expectations in accessibility has led to the purchase and implementation of several software applications that offer federated searching and full-text linking across databases (p. 474). The move toward electronic acquisitions to support the needs of both on-campus and distance students poses questions as to the future of preservation, for which further inquiry is necessary.

Electronic materials and data packages come at a high price, and libraries are finding cost effective, non-commercial alternatives to electronic ILL/DD software. Anthony J. McMullen (2007) explains the process of designing and implementing a homegrown electronic reserves system at Seton Hill University’s Reeves Library. Under strict budgetary constraints, McMullen was able to identify specific design goals of an easy, web-based system that can provide a wide range of file formats across multiple software platforms. McMullen committed to a “Linux-based system that used a combination of the Apache web server, PHP scripting language, and the MySQL relational database to deliver PDF formatted readings” (p. 140). The infrastructure of Linux/Apache/MySQL/PHP (together known as LAMP) applications are all distributed under the GNU General Public License (for more information on GNU Licensing, please visit: <https://www.gnu.org/licenses/gpl.html>). McMullen’s case study is a success story of the use of OSS in a library setting. While he admits that OSS does not come with the user support offered by commercial products, “all of the packages that we use have very active user communities that have repeatedly proven to be quite helpful” (p. 148). Much like

librarianship, OSS relies on the sharing of experiences for the benefit of a larger community.

Open Source Software and Library Services

Open source software offer solutions to the variability of online library systems, and the variety of service needs that both on-campus and distance education students demand. H. Frank Cervone (2004) of Northwestern University examines OSS as a low-cost option for libraries to provide services for distance learners. OSS packages offer the availability of source code which makes it “possible to inspect the program code to review it and modify it to suit local needs” (pp. 148-149). The ability to modify and incorporate programs with other applications is not available with commercial software (p. 149). This is the basic idea—and major appeal—of OSS. Cervone provides a great discussion on some of the confusion surrounding the open source movement and the idea of “free,” based on the different OSS licensing options (pp. 150-151). The ease of licensing restrictions of OSS can be “a major boon, because people can have copies of programs on their machines at home, at work, and on the road and are not penalized by having to purchase more licenses” (p. 152). However, these applications may require a higher computing proficiency than popular, commercially supported applications. The biggest confusion surrounding the consideration of OSS is its cost effectiveness. A major benefit of commercial software is the level of support provided by the vendor. A potential problem with OSS is in support and maintenance:

In some cases, the support costs for open source software may be more than the costs for equivalent commercial software. This is mainly due to the costs of installing and maintaining open source software, which generally requires at least as much, if not more, technological sophistication than that required for commercial software. (p. 152)

This is where a strong foundation in computing education for librarians can play a major role. The common thread in OSS applications, as Cervone discusses, is the ability to modify source code in order to fit the needs of the local institution. Among the most common skills include PHP scripting and SQL. While these skills are typically standard for information technology (IT) professionals, they are sometimes lost in the education of academic librarians. Cervone’s article outlines the essential considerations for all administrators contemplating the adoption of OSS for their library, and is highly recommended as a resource on OSS for library services to distance learners.

In a tough economic climate, the switch from proprietary integrated library systems (ILSs) to OSS may be necessary. Carla P. Wale (2011) discusses open source ILS implementation at academic law libraries, but the need for flexibility and adaptability in software for online services for distance learners may still hold true. ILSs refer to the automated cataloging, circulation, serials, acquisitions, and online public access catalogs (OPACs) used at virtually every academic library (p. 311). As discussed above, the source code of commercially vended software systems is proprietary and often comes at a large licensing fee. This creates a relationship wherein libraries can only adapt as quickly as their vendors, which can be problematic. The rate at which the needs of user communities, especially distance learners, grow is often not the rate at which proprietary software is developed, sold, implemented, and maintained. OSS allows for the libraries or the local IT support staff to make changes as needed, without violating the user licenses of proprietary software: "In lieu of licensing fees, open source software licenses usually stipulate that libraries must release to the public any modifications they make to help advance the software's utility," which seems to be neatly in line with the goals of professional library scholarship (p. 312). Wale's article includes a detailed discussion on the advantages and disadvantages of proprietary vs. open source software before going into a discussion of cloud computing. According to Wale's comprehensive overview, cloud computing is the outsourcing of traditional in-house IT infrastructure to third parties: "Depending on the agreed level of service, the cloud vendor can handle infrastructure, maintenance, and upgrades. There is no longer the need for a dedicated IT department. Funds, once allocated to salaries, warranties, and maintenance contracts, may be reallocated elsewhere" (p. 323). From the user's perspective, this allows for the use and storage of information on a variety of applications without concerns of ownership, management, and maintenance of network resources and applications (Scale, 2010, p. 935). From the library's perspective, this offers a cheap IT option that would provide the opportunity for funds to be directed to the library's core mission of service (Wale, 2011, p. 322). Unlike the use of OSS, however, cloud computing surrenders direct control of networks, servers, data storage, and applications to a third-party host, which could diminish the benefits of the customizable computing experience afforded by OSS. This is a classic dilemma of control versus cost, for which an individual library will need to seriously assess its computing needs to support its services. In either case of consideration, whether its OSS or cloud computing, "the most important steps a library can take to minimize the risks are thorough research and savvy contract negotiations requiring inclusion of as much attention to detail as possible" (Wale, p. 327).

Mark-Shane E. Scale's (2010) forward-thinking article examines the financial and philosophical stakes involved in implementing cloud-computing platforms in distance education services. Scale's review of the literature finds that the library community is ambivalent towards cloud computing (p. 937). His review suggests

that this is forgivable because scholars and IT professionals are still grappling with an agreeable definition of what cloud computing actually involves (p. 394). Some librarians welcome cloud computing because it allows libraries to focus on their advocacy of access to and critical attitude toward information; others argue that the provision of computing infrastructure to third parties undermines intellectual freedom and poses a threat of corporate monopolization (pp. 935-937). However, the current demands of information consumers (including distance learners) may necessitate cloud computing and web collaboration. Scale defines web collaboration as the “the collaborative use of Web-based services and tools to execute tasks” (p. 937). This is the use of practical web-based solutions offered by corporations such as Google, Apple, and Microsoft, which are all possible through cloud computing technology. In his discussion of cloud computing and web collaboration, Scale asserts that considering the adoption of these services to remain relevant to distance education students is, more or less, inevitable. Scale foresees this implementation thusly:

One role that library administrators can play is to ensure that their staff knows about Web-based software and how to use them. The library staff, in turn, then will be able to teach distance library users who may not know about these options. Library staff can also create online tutorials on how to use the Web-based and collaborative tools and resources to enhance student or faculty productivity. (p. 946)

It would appear that a future in librarianship will not be possible without the education, training, and understanding of current and cutting-edge computing technologies. These skills will make structural decisions easier, and will embolden librarians to ensure that the primary goals of the profession are not lost in a cloud of incomprehensible technology.

Emerging Roles in Academic Librarianship

For distance education students and, in many cases, on-campus students, the library website is the library (Linden, 2000, p. 99). In a discussion of the design and organization of an academic library’s website, Kim (2011) notes that, in finding information for academic purposes, the majority of users prefer web search engines to the resources available on their college’s library website. This is likely the result of a disparity between user-friendliness and efficiency. A previous survey investigating this issue reports that students are often of the opinion that library databases are difficult to access and less easy to use than their search engine counterparts (Kim & Sin, 2007). Given how much a typical library devotes in time and funds to the construction, organization, and maintenance of its website, it is problematic that students are more likely to seek information elsewhere. The growing impact of web and digital technologies has led to new responsibilities for

academic librarians which are often an extension of reference librarianship rather than a unique field altogether. Are new librarians meeting the demands of current trends in academic librarianship?

An exploration into library school curricula suggests that library services to distance learners are briefly mentioned or entirely ignored in masters in library and information science (MLS/MLIS) education. Edgar C. Bailey (2010) analyzed courses in academic librarianship based on department websites, class schedules, and course syllabi from 40 ALA-accredited library schools in the United States (p. 35). This analysis was cross-referenced with a survey that was created by Steven Bell in 2008 and distributed among library professionals asking about the skills and proficiencies they think should be included in MLS/MLIS education (p. 38). The examination of course syllabi shows that these programs do not specifically include distance education but instead emphasize a philosophy of librarianship rather than practical workplace challenges. Bailey finds that “the focus is on the institutional environment in which academic libraries exist rather than on the libraries themselves” (p. 37). To be sure, this study is limited to MLS/MLIS courses and syllabi specifically geared to academic librarianship which may not reflect the graduate educational experience as a whole. A possible future study may include the cross-referencing of common technological skill requirements of academic librarian position announcements with the skills covered in courses at a sizable sample of ALA-accredited graduate programs.

Nevertheless, evidence suggests that the current demands of academic and research libraries require additional training and education beyond the MLS/MLIS degree. James L. Mullins (2012) surveyed deans and directors of the Association of Research Libraries (ARL) on how recent MLS graduates fared in meeting the current demands of academic libraries. The current demands of these libraries specifically pertaining to distance education include positions such as Virtual Librarian and Teaching and Learning Librarian, to name a few (p. 129). In response to whether or not the ARL deans or directors feel as though MLS/MLIS graduate programs are sufficiently preparing students to assume professional positions within the changing environment of research libraries, Mullins found that “[a]nswers ranged from: ‘Not really...depends on the school,’ to ‘Can’t count on MLS/MLIS program to deliver what is wanted’” and that “there were some particularly strong negative comments about the quality of several of the distance education programs offered by LIS providers” (Mullins, pp. 130-131). It is interesting that distance MLS/MLIS programs were singled out in these findings. In Sullo et al. (2012), the successful embedded librarian model would seem to lend itself nicely to the experience of MLS/MLIS students enrolled in distance or online classes. Mullins (2012) concluded by asking about what measures these libraries are taking to make sure that these positions are filled. His findings show that “[t]he responses to this question generally focused on the need to invest in the training of

the new librarian” (Mullins, p. 131). While his article does not directly address the emerging roles in which librarians would be supporting distance learners, Mullins substantiates a growing concern among library administrators regarding costs related to the additional training and education of librarians to meet the real-world needs of academic and research libraries.

Among the emerging roles of academic librarians is the distance learning librarian. To understand the nature of this work, it is worth looking at current practitioners to understand the experiences they have had that led them to these positions and what challenges they face day to day. Allyson Washburn (2006) utilized the OFFCAMP listserv to conduct a survey that investigates the career paths of distance learning librarians. Among her findings was that “less than a third of the respondents indicated that they had any education or training in distance education” (p. 496). Her article elaborates further by succinctly outlining job duties of distance learning librarians:

- Learning, using, and troubleshooting technology problems
- Marketing services to both distance education students and faculty
- Providing instruction in the use of library resources
- Understanding and complying with copyright (Washburn, 2006, p. 296).

It is helpful that this list reads like a job posting because this is the way we understand new roles in libraries in the changing environment of higher education. In terms of qualifications, technology and outreach skills were considered the most essential, while the most common challenges facing librarians in this position include lack of adequate budgets and lack of institutional awareness of equitable service for distance learning populations (p. 496). It is interesting that Mullins (2012) found in the comments of ARL directors that students in distance education MLS/MLIS programs were especially unprepared to assume new roles in academic and research libraries because Washburn’s (2006) findings suggest otherwise: “Experience as a distance education student could have honed respondents’ technology skills, or at least could have made them aware of the various technologies used to deliver instruction and services to distance education students” (p. 496). To be fair, Mullins (2012) was not specifically surveying the attitudes of ARL directors about recent MLS/MLIS graduates’ ability to assume roles as distance learning librarians, but without question this is an emerging position that higher education institutions need to account for when expanding their student population to include distance education students.

A recent study on the work and training of distance learning librarians shows a gap in service and support from multiple directions. Similar to Washburn’s (2006) study, Anne Marie Casey and Jack Fritts (2010) studied the training of distance learning librarians. By tapping into five professional networks for distance learning

librarians, Casey and Fritts administered a survey to 141 respondents who hold positions related to distance learning librarianship to learn the nature of the education and training they had received. Their findings show that 91.5% had received no training in distance learning librarianship in their graduate library education; 68.8% had received training through conference or workshop attendance; and in terms of formal on-the-job training, the most common answer was none (p. 622). Respondents to this survey suggest a combination of longer training workshops at conferences and a better integration of library services to distance learners into MLS/MLIS graduate curricula. This study found that only 45% of respondents have a job title that reflects their service to distance learners, while a much larger percentage of respondents hold a job title of reference and instruction librarian. This reflects the trend that support for distance learners is treated more as an extension of traditional academic librarianship than a new role altogether. Such treatment threatens the proper representation of online or distance education students to the library administration, where a distance learning librarian would be their chief advocate. Casey and Fritts conclude: "In other words, if distance learning librarianship permeates the fabric of academic libraries to a continuously growing degree, then the basic professional degree should be providing more education in this area" (p. 623). These findings seriously question the extent to which distance education students are receiving service and support equivalent to that provided for their on-campus counter-parts. While there is little doubt that there are fine academic librarians providing support to distance learners, the level of unpreparedness demonstrated by a majority of practitioners should draw concern. While these experiences may reflect those of librarians in other positions within a library, it is especially true for librarians providing reference and instructional services to distance learners.

Distance Education as a Fundraising Opportunity

The recent financial crisis has led to a decrease in funds available to libraries everywhere. This, along with libraries having to choose between collecting digital or print materials because of budget cuts and the costs related to digitizing documents, has called for creative methods of garnering donor support to keep academic libraries relevant in the face of recent technological advances in higher education. Anne Marie Casey and Michael Lorenzen (2010) address this concern by exploring possible donors through alumni networks from distance education programs. Their article traces the history of library funding, from ancient Rome to the Library of Congress, as being characterized by private philanthropy (p. 517). A shift from private funding to public funding in the United States occurred in the mid-20th century, when "[a]cademic libraries in public universities and colleges were well funded by their parent institutions which were receiving generous public funding" (p. 518). Recent writing has shown that the current political and economic climate is less sympathetic to publicly funding libraries and higher education institutions

(Miller, 2012). While it is important for librarians to maintain a strong public presence as stewards of essential democratic information for public support, Casey and Lorenzen suggest revamping outreach initiatives to tap into the potential private support offered by distance education networks. Through a review of literature regarding fundraising, Casey and Lorenzen offer multiple considerations for libraries to implement development initiatives, including offering alumni full-text access to the library databases by way of alumni subscription licenses (pp. 522-523). Numerous college and university libraries offer on-site access to subscription-based databases to alumni already. With the increase in numbers of alumni from distance education programs, it is worth considering extending this courtesy to these populations as well so that the library may remain an important part in the lifelong education of its institution's affiliates.

The far reach of a college or university's student population encourages the university's outreach program to network with businesses and organizations beyond their region. Normally, these partnerships with private organizations and businesses are for the purposes of job and internship placement. Bower and Mee (2010) reference the success of RIT's cooperative education program in garnering partnerships with nearly 2,000 industry, government, and non-profit organizations (p. 469). Claudette Cloutier (2005) at the University of Calgary library was able to successfully install a fee-based service at their neighboring petroleum businesses (pp. 332-338). The library is able to market its "premier geology collections in Western Canada, with particular emphasis on the Western Canada Sedimentary Basin" and conduct reference searches "using the fee-based *GeoRef* and *Petroleum Abstracts* databases" ("Corporate Research Services," para. 1-2). In other words, the Gallagher Library has found a unique way to extend its reference service to subscription holders from corporate or non-profit organizations. This service brings in a substantial amount of revenue and has proven to be economically sustainable. While access to databases may raise legal issues regarding subscription licenses, Cloutier suggests that the University has negotiated this service with the library's database vendors: "most of this revenue goes towards covering payments to external vendors, copyright tariff charges, and staffing costs for student assistants" (p. 334). Nevertheless, the University of Calgary library has marketed its collections and services beyond its campus and has raised its university's research capacity. In March of 2012 the Haskayne School of Business at the University of Calgary partnered with Enbridge, Inc., a Canadian Energy corporation, to create a research center on environmental and corporate sustainability at the Alberta campus, which will bring in an investment of \$2.25 million over the next ten years ("Enbridge," 2012). This shows that partnerships between businesses and universities over time could result in more substantial donations and investments. While neither the library nor its Corporate Research Service were mentioned by name, it is clear that the reference and research staff of the Gallagher Library will be integral in this and

future partnerships. It will be interesting to see how this strategy is implemented through distance education networks in the future.

Conclusion

In tracking the current literature surrounding the educational, technological, and financial challenges that academic libraries face in providing distance learners with equitable and efficient library services, several considerations may be gleaned:

- Embedded librarianship can be utilized to market and increase the presence of the library to distance learners.
- Document delivery services such as electronic reserves systems can be modified through innovative, home-grown web technologies.
- Open source software solutions should be considered, though they may require the consultation and technological know-how of librarians and IT professionals to assess costs/benefits.
- Librarians must be cognizant of the philosophical and financial implications of cloud computing in library settings.
- The current state of MLS/MLIS education appears to leave graduates with a lack of technological proficiency needed to be leaders in a technologically ubiquitous world.
- There needs to be better representation for distance learning librarians at institutions that offer distance education programs.

With regard to the formal education of librarians, a possible future study may include the cross-referencing of common technological skill requirements of academic librarian position announcements with the skills covered in courses at a sample of ALA-accredited graduate programs. Given the parameters of this paper, the implications of the abovementioned technological changes for preservation and conservation of electronic materials were not considered. As stated by Raraigh-Hopper (2010): “We know that technology is growing and changing so quickly that offering these specialized services does not simply satisfy a ‘want’ of distance learners, but rather a distinct and unquestionable ‘need’” (p. 76). The increase in library user base, from distance education to alumni, should be seen as a good thing, and it is important for librarians to make sure that their library’s benefactors are well aware of the importance of service to these communities as well.

References

Association of College and Research Libraries, 2008. Standards for distance learning library services. American Library Association. Retrieved from <http://www.ala.org/acrl/standards/guidelinesdistancelearning>

- Bailey, E. (2010). Educating future academic librarians: An analysis of courses in academic librarianship. *Journal of Education for Library and Information Science*, 51(1), 30-42.
- Behr, M. D. & Hayward J. L. (2008). Do off-campus students still use document delivery? Current trends. *Journal of Library Administration*, 48(3-4), 277-90.
- Bower, S. L. & Mee, S. A. (2010). Virtual delivery of electronic resources and services to off-campus users: A multifaceted approach. *Journal of Library Administration*, 50(5-6), 468-483.
- Casey, A. M. & Fritts, J. (2010). Who trains distance librarians? A study of the training and development needs of distance learning librarians. *Journal of Library Administration*, 50(5-6), 617-627.
- Casey, A. M. & Lorenzen, M. (2010). Untapped potential: Seeking library donors among alumni of distance learning programs. *Journal of Library Administration*, 50(5-6), 515-529.
- Cervone, H. F. (2004). Open source software to support distance learning library services. *Internet Reference Services Quarterly*, 9(3-4), 147-158.
- Cline, G. (1987). The high price of interlibrary loan service. *RQ*, 27(1), 80-86.
- Cloutier, C. (2005). Setting up a fee-based information service in an academic library. *Journal of Academic Librarianship*, 30(4), 332-338.
- “Corporate Research Services” (2012). University of Calgary: Libraries and Cultural Resources. Gallagher Library. Retrieved from <http://library.ucalgary.ca/branches/gallagher/corporate-research>
- “Enbridge and the University of Calgary Partner to Launch Enbridge Centre for Corporate Sustainability” (2012). University of Calgary. Published: 27 March 2012. Retrieved from <http://www.ucalgary.ca/news/march2012/enbridgecentre>
- Hoffman, S. (2011). Embedded academic librarian experiences in online courses: roles, faculty collaboration, and opinion. *Library Management*, 32(6), 444-456.
- Kearley, J. P. & Phillips, L. (2004). Embedding library reference services in online courses. *Internet Reference Services Quarterly*, 9(1-2), 65-76.

Kim, K. & Sin, S. J. (2007). Perception and selection of information sources by undergraduate students: Effects of avoidant style, confidence, and personal control in problem-solving. *Journal of Academic Librarianship*, 33(6), 655-665.

Kim, Y. (2011). Factors affecting university library website design. *Information Technology and Libraries*, 30(3), 99-107.

Linden, J. (2000). The library's web site is the library: Designing for distance learners. *College & Research Libraries News*, 61(2), 99-101.

McMullen, A. J. (2007). Electronic reserves on a budget: A case study of a homegrown system built with open source and free software solutions. *Journal of Interlibrary Loan, Document Delivery & Electronic Reserves*, 17(1-2), 137-150.

Miller, R. (2012). Damn the recession, full speed ahead. *Journal of Library Administration*, 52(1), 3-17.

Mullins, J. L. (2012). Are MLS graduates being prepared for the changing and emerging roles that librarians must now assume within research libraries? *Journal of Library Administration*, 52(1), 124-132.

Radford, A. W. & Weko, T. (2011). Learning at a distance: Undergraduate enrollment in distance education courses and degree programs. U.S. Department of Education: National Center for Education Statistics. Retrieved from <http://nces.ed.gov/pubs2012/2012154.pdf>

Raraigh-Hopper, J. (2010). Improving library services for distance learners: A literature review. *The Reference Librarian*, 51(1), 69-78.

Scale, M.-S. E. (2010). Assessing the impact of cloud computing and web collaboration on the work of distance library services. *Journal of Library Administration*, 50(7-8), 933-950.

Shell, L. B., Duvernay, J., Ewbank, A. D., Konomos, P., Leaming, A., & Sylverster, G. (2010). A comprehensive plan for library support of online and extended education. *Journal of Library Administration*, 50(7-8), 951-971.

Sullo, E., Harrod, T., Butera, G., & Gomes, A. (2012). Rethinking library service to distance education students: Analyzing the embedded librarian model. *Medical Reference Service Quarterly*, 31(1), 25-33.

Valentine, D. (2002). Distance learning: Promises, problems, and possibilities. *Online Journal of Distance Learning Administration*, 5(3). Retrieved from <http://www.westga.edu/~distance/ojdla/fall53/valentine53.html>

Oldham, B. (2008). Providing library services to distance education students. *Journal of Interlibrary Loan, Document Delivery & Electronic Reserve*, 18(2), 219-227.

Walsh, F. & Walsh, W. (2009). An examination of lending fees at 30 academic libraries in the southeast. *Journal of Interlibrary Loan, Document Delivery & Electronic Reserve*, 19(3), 195-204.

Waldhart, T. (1985). Patterns of interlibrary loan in the U.S.: A review of research. *Library and Information Science Research*. *Library and Information Science Research*, 7(3), 209-229.

Whitehurst, A. P. & Willis, C. N. (2009). Building collaborative reference and instructional services for distance education students. *The Southeastern Librarian*, 57(1), 20-27.