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The Importance of Digitization in Teaching-Oriented University and College Libraries

Craighton Hippenhammer
Olivet Nazarene University

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Craighton Hippenhammer
Digital Initiatives Librarian
Benner Library & Resource Center
Olivet Nazarene University
Bourbonnais, Illinois

ABSTRACT:

An increasing number of university and college libraries have started digitization programs, and there are good reasons why they are doing so. First, we are in the middle of revolutionary change as to how ideas get published and distributed. Over 50 percent of scholarly publishing has gone digital, and over 20 percent has gone open access. Governments worldwide are beginning to require that tax-supported research be published in open access venues. Secondly, it is imperative that academic institutions increase their archives' digital presence. Traditional approaches to preserving institutional histories are being lost because many archives continue to preserve only paper records despite the fact that academic staff now communicate almost entirely by digital means. While all non-research-oriented institutions of higher education do produce some scholarship, they should also consider what local information their schools create that could be published and made available digitally worldwide. Librarians are perfectly placed in our society to know quality research materials, so we need to be a part of new publishing solutions. It's wise to step up now and create new initiatives to be a part of the new information provision scene. It may just help to save the library as an educational institution and center for institutional historical preservation.

Introduction

On January 1, 2012, Benner Library and Resource Center of Olivet Nazarene University (a teaching-oriented, faith-based university in Illinois) started a Department of Digital Initiatives to help support the growing amount of work to be done in maintaining its open access institutional repository and other digitization projects. Setting up the new department involved a number of challenging and important assignments like finding the physical space for the tasks that needed to be accomplished, purchasing new hardware and software, planning for additional staffing, creating new scanning support procedures, establishing a new digital presence for its University Archives, and buttressing faculty communication concerning open access, copyright, publisher contracts, and ejournal publishing – let alone the steep learning curve that lay waiting to be mastered. The author of this article headed up this new effort.

Scholarship publishing business models are changing

All librarians need to do these days to determine the changing nature of how library resources are being published is to look at their budgets going towards scholarship resources to see the large increases being spent on electronic versions of material. First, there's no question that research published by traditional publishers is going digital. The materials budget for electronic resources at Olivet Nazarene University over the last five years, for example, went from 54.31 percent of the total resources budget in 2008 to 78.56 percent in 2013. A report published by the Association of Research Libraries in 2007 said, "Approximately 60% of ... 20,000 active peer-reviewed journals is available in electronic form" (Johnson & Luther). Another 2007 study (Prabha) reported that ARL library ejournal subscriptions reached the 50 percent "tipping point" sometime between 2005 and 2006, which aligns with Olivet's experience. The percent of journals published in *only* electronic format will reach 50 percent in 2016, according to Robin Peek of *Information Today* (2007).

Secondly, serials are slowly going open access, a new way of publishing scholarly material – open to the Internet and without costly subscription fees. Growth of open access publishing has picked up since the early 2000's when the average annual growth rate for the number of open access (OA) journals was around 18 percent (Poynder). To examine the extent of scientific scholarly literature openly available, one study (Bjork et al., 2010) employed a web search engine and a random sample of 1,837 scientific articles published in 2008, finding that 8.5 percent of the articles were freely available at the publishers' sites and an additional 11.9 percent of the articles' free manuscript versions could be found using search engines, making the overall open access percentage 20.4 percent for the sample studied. More recently in 2012, open access advocate Peter Suber estimated that about 25 percent of peer-reviewed journals were OA.

Traditional publishing uses a subscription model to pay for the work that goes into producing scholarly journals. Costs of these journals have been skyrocketing to the point that even large research libraries are complaining that they can no longer afford them; e.g., Yale has conducted a large journal cancellation project based on cost per use analysis (Stranz & Parchuck, 2011a). Their journal subscription purchase request policy states, "We are at the point where each new title purchase requires the cancellation of a currently-held subscription" (Stranz & Parchuck, 2011b). Even Harvard has said that "cumulative price increases had forced the Harvard library to undertake serious cancellation efforts for budgetary reasons" (Suber, 2012, p. 30).

To make matters worse, publishers have created a business model that charges extremely high fees for journals with high impact factors (those that most academic libraries need and want – the ones that are most often quoted in other journals), and then bundle less desirable titles with them, forcing the choice out of the hands of librarians and into the hands of publishers. For example, they'll charge an annual price of $30,866 for the *Journal of Comparative Neurology* (Wiley-Blackwell) or $24,038 for *Brain Research* (Elsevier) that many libraries need, along with less important or less desirable titles that few libraries would acquire individually (Young, 2013). The University of Illinois says, "On average, libraries pay 4 to 6 times as much per page for journals owned by commercial publishers as they do for journals owned by non-profit societies" (University Library, 2009). When compared to their nonprofit counterparts, commercial publishers are locked into expensive practices that include "higher quality branding and marketing, more aggressive customer management, and costly content protection systems" (Van Orsdel & Born, 2008) – all practices that librarians and their institutions of higher education neither want nor need. So multinational journal publishers continue to make unholy profit margins of over 37 percent like Elsevier's journal division did in 2012 (Reed Elsevier). And a 2013 *Library Journal* article (Bosch & Henderson) reports that annual journal subscription prices are expected to continue to increase at a 6 to 7 percent rate for the foreseeable future.

Librarians and scholars are now fighting back by increasingly supporting and publishing in open access publications. There are two kinds of open access serials publishing. Green open access publishes articles in institutional repositories, including materials usually published elsewhere first. Gold open access publishes articles in ejournals that are open access themselves, i.e., published with no up-front subscription (toll-access) fees and on the open Internet. They're also fighting back by boycotting over-pricing multinational publishers like Elsevier at http://thecostofknowledge.com.

Publishers often tout that they make peer review possible and help to maintain the systems required for peer review to function well, but such systems have long had serious weaknesses, including gender bias, the exposure of research to possible theft, and personal viewpoints of reviewers clouding their judgments. But new peer review models are currently being developed and experimented with, including reviewers signing their opinions and open publishing models that use public comments. Institutional repository software often comes with peer review software that helps editors and librarians to keep track of who owes whom the next comment or revision. Eric Schnell (2013) of Ohio State University says of the peer review process, "Regardless of which paradigm emerges, one thing seems certain: the breakup of the marriage between peer review structure and the for-profit scholarly journal model" (p. 424).

Thirdly, our library patrons themselves are showing an increasing preference for scholarship in digital forms. As online learning increases and research paper timeframes shrink, the delivery difference between transmitting electronic excerpts and interlibrary shipment of physical items becomes appreciable. Students now in college are digital natives who are at home in online venues and expect research material to be available in electronic format. As handheld devices continue to become smaller and cheaper, even people living in developing nations are increasingly gaining access to the Internet and the resources that can be reached there. If students and faculty in these countries can avoid paying tolls to access professional literature – subscription fees – they will be able to access scholarship in a way they never have before. Accordingly, increasing the reach of scholarly literature needed by Christian colleges and universities should be seen as both an educational and a missional endeavor.

…We need to be a part of new publishing solutions.

The library is perfectly situated to conserve scholarship in digital repositories

Librarians know scholarship. Libraries specialize in making academic material available to our institutions' scholars. We rub shoulders with publishers, seek out their new offerings, and comparison shop when we can. We join library consortia so we can better compete in the serials marketplace and gain the best prices for our institutions. Some of us are liaisons with disciplines' departments on campus where we make recommendations of resources to our faculty and help them in the process of ordering materials for the collection.

As noted above, librarians are also among the leaders who are experimenting with new open access alternatives to the traditional publishers' subscription models for scholarly work. We need to keep asking ourselves how best to get research resources to our students and faculty who need them. It is increasingly becoming evident that agreeing to pay-wall subscription systems is in most situations counterproductive to that goal, especially when access is prohibitively expensive in the first place.

Of course, scholarship is not limited to text-based material. It's photography, graphic arts and streaming video. It may even include recorded chapel services and lecture series presentations. If professors are involved, those school events may comprise scholarship projects that need publishing, and since institutional repositories are made to handle any media or file type, they're the perfect place to present them to the world. Institutional repositories may even be able to make big data (data sets) available to students and researchers.

The library concerns itself with making scholarship more easily available. We need reference specialists who can navigate not only subscription materials, but also open access materials within all disciplines. Library science, by its nature, is interdisciplinary because librarians help researchers find the connections between disparate ideas all the time. Fortunately,

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respect for interdisciplinary studies has been growing for decades, particularly as shown in many grant requirements, especially Federal grants that insist on grant applicants having interdisciplinary partners. Since libraries communicate easily with many disciplines, we can uncover information that is hidden or overlooked because it is located between disciplines.

Libraries all around the world run institutional repository software. Choices include DSpace (http://www.dspace.org/), Fedora Commons (http://www.fedora-commons.org/), ePrints (http://www.eprints.org/us/), and Digital Commons (http://digitalcommons.bepress.com) repository software – all key tools for providing open access to valuable information. Step up and be a leader. The tools await you.

Your college archives is a diamond-in-the-rough

It seems that university and college archives are often neglected and frequently relegated to only part-time staff, but that must change. College records now are mostly digital. Email needs to be archived and conserved, as do Word files and class management system files. Find ways and technologies to keep these records permanently. Someone needs to be doing digital conservation! The one body on campus responsible for conserving institutional records is the library's archives. Investigation will likely reveal that important physical institutional records are no longer finding their way into your archives because those records are now only in digital form. Without systematic digital record keeping, these materials will almost certainly be lost to posterity. University archives need to add a digital component for both public and private materials. Institutional repository software can archive internal documents that should be public, while Enterprise content management and archival solution software can archive forms and documents that should stay private.[1]

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1 The solution we use at Olivet is Softdocs' Doc e Fill and Doc e Scan. See http://www.softdocs.com/solutions/

One of the requirements of the Higher Education Opportunity Act (HEOA) of 2008 is that institutions post their copyright policies and warnings to students online where anyone can find them. Copyright requires that copyright permission forms be kept for the life of the author plus 70 years (Sonny Bono Copyright Term Extension Act, 1998). Students whose papers are published in their school's repository may live another 60 to 70 years, which makes the total timespan for which copyright documentation must be kept close to 140 years. With the recent governmental emphasis on compliance, higher education must now track and keep records for a set number of years for a wide range of records. The only hope for keeping track of such records for so long is software that is designed for that purpose: digital information and records management software.

Archives in our institutions need to grow, especially digitally. If archival records were digitized and made available online, libraries and their institutions could experience the benefits of improved public relations. What materials in the archives could researchers and alumni get excited about? What if the community could tell from home what's in archives? What if they could actually read materials or see a picture from home? Implementing digitization techniques can make both real world objects and their metadata available around the world, improving the reach of our institutions and the depth of our relationships with current and potential constituents. But these benefits only accrue when our libraries intentionally pursue digital conservation.

How can small libraries add digitization capabilities?

At Olivet, I'd been the technology librarian for 20 years or so when we added our institutional repository in 2009. I had many goals for starting digitization capability and scholarly communication but couldn't get to most of those tasks. My Informatics Department had grown large and demanding (3 staff and 25 students), so I handed the department off to a colleague I'd trained and started the Digital Initiatives Department.

Office or workroom space will be needed. My office has only 115 square feet, but it contains two computer workstations – one for me and one for students – and three scanners that both computers can connect to. The three scanners have extra long USB cables so each computer can attach to each scanner. The room also has lots of shelves/cubbies for processing physical materials in and out.

The scanners that we added are an 11x17 inch book edge scanner (Plustek OpticBook A300), an 11x17 inch photo scanner with transparency adapter cover (Epson 10000XL), and a sheet feeder duplex 20ppm/40ipm scanner (iVina BulletScan S400). The scanning/OCR software programs we use the most are ABBYY Finereader, which has excellent optical character recognition, and Adobe Acrobat Pro, which offers the best pdf manipulation. If you need to conserve funds, purchase an 8½x11 scanner and use the software that comes with it. Educational pricing on scanning software, though, is reasonable and well worth the money.

Student hours have to be added for scanning and librarian hours added for oversight. The librarian is responsible for several tasks: 1) search out and prioritize digitizing projects; 2) oversee scanning; 3) manage the institutional repository; 4) create and proofread metadata; 5) communicate with faculty about scholarly issues, including publishing and copyright; and 6) coordinate digital conservation issues with the archivist and with IT.

Possible new librarian titles that could be considered are Scholarly Communications Librarian, Digital Initiatives Librarian, and Digital Archivist, depending on the local situation and the staff positions that are already in place. It's a whole new career path to consider, and consider it we must.

Summary

Scholarship publishing business models are changing. Not only is publishing on paper giving way to publishing in electronic form, but the way publishers are paid is also changing. The new open access model pays one-time publisher fees before publishing takes place so once the scholarship is published online it is open freely to all forever. In contrast, the traditional publishing model that is being replaced pays the publisher after items are published in the form of subscription fees that repeat year to year, which restricts access to researchers. The library is perfectly situated to digitize and conserve scholarship and archival material. With HEOA's copyright requirements and the economic motivation for encouraging the growth of open access, creating digitization capacity in our libraries is becoming a necessity. ⚜

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