LIBRARIANS VERSUS THE MACHINE: LEVERAGING FACULTY RELATIONSHIPS TO INCREASE OPEN ACCESS PARTICIPATION

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Abstract

Indiana University-Purdue University Indianapolis (IUPUI) wanted to determine how liaison librarian intervention affected faculty participation in an Open Access (OA) Policy as compared to generic communication by the Library's Center for Digital Scholarship (CDS). Liaison guidance for the OA policy participation was piloted with promising results in the School of Nursing. Using the pilot as a model, a working group was formed to determine how liaison librarians should be involved in the new, faculty-adopted OA Policy. Based on the Harvard Model, the OA Policy followed an opt-out style, meaning that scholarly output is included by default unless the author explicitly chooses not to contribute. Successful open access policy implementations at other universities show that author participation increases when library staff and faculty help to design and deploy the service. The charter group tested a workflow designed by the CDS, and offered guidance for refining this workflow and related OAservices. During this trial period, faculty participation rates from the sample liaison group and the CDS were tracked and compared, which determined that librarian relationships with faculty members did result in higher participation rates.

Keywords: liaison librarians, open access, academic libraries, digital scholarship

INTRODUCTION

Open Access (OA) aims to reduce barriers to scholarly literature by providing free access with few or no restrictions on reuse to digital works. In doing so, OA reduces information inequities and makes the world a better place. The scholars, librarians, and technical support staff that work together to make this form of OA possible have found in it ways to pursue a response to the serials crisis, challenge the status quo of the publishing industry, allow people to share and preserve knowledge for years to come. Scholars around the world can benefit from the knowledge shared through this process, as well as reciprocate by building the infrastructure skills, and relationships to implement their own OA initiatives. According to Stephen DeGuilio, the ICOAH conference chair, "This conference asks the question: how can we join forces to cultivate the creativity and courage to forge a path to a more peaceful future?" (DeGiulio, 2016). OA publishing and the OA Movement are providing a very real path to a global exchange of knowledge that is more inclusive and far-reaching than the traditional publishing model.

Open Access and the OA Movement

In 2002, the Budapest Open Access Initiative (BOAI) released a document that provided a good definition of OA, which also became a guiding statement for the already-extant OA movement:

> "There are many degrees and kinds of wider and easier access to this literature. By 'open access' to this literature, we mean its free availability on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts ofthese articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. The only constraint on reproduction

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and distribution, and the only role for copyright in this domain, should be to give authors control over the integrity of their work and the right to be properly acknowledged and cited."

(Chan *et al.*, 2002)

Many different approaches and interpretations have emerged since then, and the BOAI updated their recommendations in 2010. At the same time, the OA movement was growing, finding advocates in many professional fields including librarians. The Scholarly Publisining and Academic Research Coaltion (SPARC), which was founded in 1998, created a conference for students and early career researchers called Open Con in 2014. These are only some of the major developments in the history of the movement and of the development of OA methods.

OA methods include both gold OA and green OA. Gold OA is a form of OA distribution that involves sharing the final version of a published article online for free; however, it often comes with a steep publishing cost that the author must pay. Articles are then available from the publisher's website to anyone with an internet connection. Green OA is a different form of distribution that involves making authors' manuscripts--either pre- or post-prints--to their published articles available online, typically archived on an author's website or in an online scholarly repository. Depositing them in a campus's institutional repository (IR)is considered a form of self-archiving. Green OA is free to both authors and readers.

Many scholars believe the best way to encourage participation in an IR is through policy: "One of the strategies is the implementation of a mandate policy, mostly at the institutional level and in certain cases at the departmental or college level inside an institution, that requires all faculty members to deposit their publications in the repository with which they are affiliated" (Xia, 2007).

There are funder-driven OA and institutional-driven OA policies. Funder-driven policies include the U.S. National Institutes of Health (NIH) Public Access Policy. This executive agency funded by the U.S. federal government, requires that all NIH-funded research to be deposited in the open access repository, PubMed Central.

In the United States, several universities have also adopted faculty-driven OA policies. Many of these policies follow the Harvard model (Sheiber, 2015; Harvard Open Access Project, 2016). In these cases, faculty members have retained their rights to scholarly articles and are expected to deposit them in the institutional repository or to opt out.

OA at IUPUI

Implementation of an IR requires resources, both monetary resources and staff with technical skills. At Indiana University-Purdue University Indianapolis (IUPUI), we have our own IT staff who set up the technology infrastructure. Because of this, we were able to build the repository without applying for grant funds. If an institution does not have its own IT staff, it is still possible to use a hosted solution, such as Digital Commons.

Liaison librarians at IUPUI are subject specialists who liaise with specific schools and departments on campus. We have faculty status and are promoted in a similar tenure-track process. The librarians passed a departmental OA policy on April 5, 2009 that required us to share our work openly in our IR.

University Library (UL) hired a Scholarly Communications Librarian, Jere Odell, in 2013 to encourage and support open access approaches to scholarly dissemination on the IUPUI campus. Along with others in the Center for Digital Scholarship, he advocated for an OA policy. The advocacy approach was heavily influenced by a chapter in the book *The Institutional Repository: Benefits and Challenges*. In their chapter, Duranceau and Kriegsman, describe one university's approach:

> "The University of Kansas launched its implementation by targeted outreach, working initially with known supporters. […] Their focus was to 'build up a cadre of adopters' in a way that was 'organic rather than systematic.' One way they built trust and gained early adopters was asking distinguished professors to participate."(Duranceau and Kriegsman, 2013)

At IUPUI, we also sought known supporters and called them "OA champions." Jere and the CDS staff worked to identify and cultivate relationships with

likely OA champions on campus to ask them to begin depositing their work in the repository. Because we needed broad support on our large and complex campus, he tried to find one champion in every school and disciplinary area. These faculty also served as examples for how green OA can work for the purposes of garnering political support on campus. Additionally, through this outreach effort, Jere laid the groundwork for future adoption on campus by other faculty authors. When it came time for the librarians to ask other faculty in their liaison areas to participate, these OA champions were already familiar with the concept of OA and the process of submitting manuscripts, and they became exemplarsin their schools and departments.

In 2013, the Executive Office of the President issued a memo from the Office of Science and Technology Policy (OSTP) entitled, "Memorandum for the Heads of Executive Departments and Agencies: Increasing Access to the Results of Federally Funded Scientific Research." The memo stated,

> "To the extent feasible and consistent with law[, …] the results of unclassified research that are published in peer-reviewed publications directly arising from Federal funding should be stored for long-term preservation and publicly accessible to search, retrieve, and analyze in ways that maximize the impact and accountability of the Federal research investment"(Holdren, 2013).

The publication of this memo emboldened efforts on campus to move toward a mandate policy. The library received an endoresement from the Council of Research Deans that IUPUI should consider a policy. Jere and the dean of the library, David Lewis, took the endorsement to the Library Affairs Committee of the Faculty Council. Using the 2008 opt-out model policy from Harvard, this committee wrote and propsed a policy to the Executive Committee of the Faculty Council. This work, which began in early 2013, culminated when the faculty unanimously voted to adopt the campus-wide OA policy on October 7, 2014.

Implementing the Policy

Although the library had already been actively promoting OA and archiving scholarship,the campus-wide OA policy adoption prompted the library to formally systematize our work to insure the policy was implemented across campus.

Most publishers do not permit authors to upload and share the published version of their article for free online. However, many universities implement OA policies by depositing the author's accepted manuscript (not the final published version) in the insitutional repository. The manuscript is typically a pre- or post-print. Depositing work in IUPUI Scholar Works, our IR, involves requesting article and conference paper manuscripts from faculty authors, checking the publisher's copyright permissions, turning the manuscript into a PDF with correct metadata, and then uploading the file to Scholar Works where it can be discovered by researchers across the globe.

The policy also prompted more librarians to learn about OA and publicize it more widely with their faculty. Some librarians began visiting their respective liaison areas (schools and departments) to discuss the policy and encourage faculty to deposit their manuscripts. Many faculty members had questions, but those OA champions functioned as advocates and spoke about their experience and ease of the process. One English faculty member was so pleased with the exposure to her work, she exaggerated that her article had been downloaded "about a million times!" These OA champions bridged the gap between the librarians and their liaison areas to help encourage other faculty in their schools and departments to share their work in this way.

Although UL nearly reached depositing 50% of the annual publication rate in 2014, much of this work was done by only a few individuals in UL, so in light of the new OA policy, the library needed a better way to get other employees involved in order to reach all faculty.

IUPUI OA Policy Implementation Charter Group

The IUPUI campus is home to 17 schools, including the second largest medical school in the United

States. Implementing the policy would require lots of communications across various networks. Some disciplines, such as physics with arXiv and law with SSRN, had already embraced the practice of archiving work in repositories, but other disciplines were slower and even skeptical of the process. Despite the existence of well-known and successful disciplinary repositories, most IUPUI schools and departments were not quick to embrace the institutional repository, IUPUI Scholar Works. As with any local context, the success of the policy hinged on a local solutions. UL recognized a need for a uniform message and a mechanism to reach all schools on campus to communicate about the new policy in order to increase faculty participation.

In fall 2014, at the same time of the passing of the OA policy, the library was undergoing a organizational redevelopment plan that included "the creation and integration of small, agile working groups to address current project work and long-term goals in a responsive manner" (Lewis, 2015).These working group structures, meant to support cross-organization collaboration through members who wrote a charter document, came to be called charter groups. The authors had already been working closely with Jere Odell on Open Access projects. Jere and Caitlin A. Pike created a new Charter Group in January 2015 called the Open Access Policy Implementation Charter Group. Bronwen K. Maxson, along with five other librarians and non-librarian professional staff, joined the group to pilot a workflow structure that positioned liaison librarians as the mechanism for outreach to the various campus schools.

The liaison librarians focused on communicating about the policy and creating a sustainable and responsive workflow. First, the liaisons needed to craft a message to send to disciplinary faculty about the ease and legality of publishing their work OA.

Legal Implications

The IUPUI OA Policy is based on the widely-used Harvard opt-out model and can be read at https://openaccess.iupui.edu. A Harvard-style policy has been adopted by at least 66 North American institutions, including: MIT, University of Kansas, Duke, and the University of California (Harvard Open Access Project, 2016). Our policy requires all faculty to deposit the manuscripts of their articles and conference proceedings in IUPUI Scholar Works for open access distribution, or to opt out at the item level. Archiving is supported by the library and opt-out waivers are signed by the university's Academic Affairs Office with no questions asked. As a rights retention policy, all faculty have retained their copyrights to scholarly articles. These rights are not transferred to the university, but the policy does give the university a non-exclusive permission to archive and share the works in the IR:

> "More specifically, each Faculty member retains copyright and grants to the Trustees of Indiana University a nonexclusive, irrevocable, worldwide license to exercise any and all rights under copyright relating to each of his or her scholarly articles, in any medium, for the purpose of making their articles widely and freely available in an open access repository, provided that the articles are not sold, and appropriate attribution is given to authors, and to authorize others to do the same"(IUPUI Faculty Council, 2014).

This assertion of rights preempts any copyright or license agreement an author may sign with a publisher. Given that many authors sign copyright and license agreements without considering their own rights to their own work, emphasizing this aspect of the policy is important for educating faculty and turning them into OA advocates. Navigating the legal permissions can be tricky for individual faculty. In a widely-read commentary, Dorothea Salo observed that few libraries "offer substantive help negotiating intellectual-property minefields, despite significant faculty ignorance and fear surrounding copyright" (2008).

UL would be an exception to this observation. The librarians are in a position to advocate for the rights of faculty authors, educate the campus community about the publishing landscape and increase access to scholarship through archiving manuscripts. In additon to supporting questions about the copryight, we offer additional services, such as digitization and requesting permissions from publishers, to make the process even easier for faculty to participate. We believe it is not only appropriate for librarians to be

involved in this process, but essential for favorable outcomes. The role of the librarian is to facilitate access to information, so we are committed to streamlining our internal workflow to increase OA participation on our campus and with the OA policy.

METHODS

The OA Policy Implementation Charter Group at UL met to decide how librarians should be involved in the work created by the new policy. Successful open access policy implementations at other universities show that author participation increases when library staff and faculty help to design and deploy the service(see Foster and Gibbons, 2005; Jenkins, Breakstone and Hixson, 2005; Palmer, Teffeau and Newton, 2008; and Salo, 2008). The charter group tested a workflow designed by the CDS, and offered guidance for refining this workflow and related OA Policy services. During this trial period, a search strategy for IUPUI authors was written for use in the Scopus database. Scopus does not have complete coverage of the humanities, so another was developed for Google Scholar to find those author's works that did not appear in Scopus.

Furthermore, faculty in certain disciplines are already familiar with and adept at self-archiving but other disciplines have not yet used this green OA approach. This presented a challenge for the library to not only communicate about the policy and model, but to create cultural change in a campus school or department with which they may or may not be well-integrated. Xia writes, "Disciplines that already encourage information sharing may produce more faculty members willing to self-archive items in their IR. For example, economists, physicists, and computer scientists are very comfortable making regular contributions to digital repositories, while faculty in the humanities and some social science disciplines may show reluctance toward self-archiving, with or without a mandate in place" (2012). Since liaison librarians are positioned between the library and their respective disciplines and have created relationships with disciplinary faculty, they are ideally situated for these tasks.

Process with Scopus

The Scopus database indexes the affiliations of each author and co-author of a publication. Users may use the affiliation search option to find articles authored by individuals at their institution. In our case, IUPUI authors often affiliate with their specific school and not always with the campus itself. As a result, the Scopus affiliation search for IUPUI must include the IU School of Medicine, the IU School of Dentistry, and the Robert H. McKinney School of Law. While there are other units on the IUPUI campus that authors choose to list as their affiliation--research centers, for example--we have found that adding these to the search does not increase the returns. Because the scope of the OA policy is limited to scholarly articles and conference proceedings, the search is limited to the document types that would mostly likely be described as "articles." A sample search for the IUPUI campus is provided below:

> ((AF-ID("Indiana University-Purdue University Indianapolis" 60024609)) OR (AF-ID("Indiana University School of Medicine Indianapolis" 60021947)) OR (AF-ID("Indiana University School of Dentistry" 60031692)) OR (AF-ID("Indiana University School of Law Indianapolis" 60013712))) AND (LIMIT-TO(DOCTYPE,"ar") OR LIMIT-TO(DOCTYPE,"ip") OR LIMIT-TO(DOCTYPE,"re") OR LIMIT-TO(DOCTYPE,"cp"))

The search results are not flawless. A portion of the articles are authored by graduate students and others with non-faculty status. Likewise, some letters to the editor, editorials, and other non-article documents are returned even when document type limits are selected. Because of the need to review results, requests for manuscripts cannot be automated or assigned to CDS non-librarian staff, Librarians can quickly identify the type of article and the author in order to make a request for a manuscript. Thus, the familiarity of liaison librarians with their schools and departments is not only an asset, but a necessity for making the process efficient.

Process with Humanities Authors

For Google Scholar, the search was not as elaborate as with Scopus, however, the inclusion of the name of the state was important as was limiting to the author field. Google Scholar has an advanced search option. Using the 'return articles authored by' field as well as the 'anywhere' field, it is possible to build a sucessful

search. Google Scholar uses the search syntax, **author:Lastname**. To find the correct author, the searcher needs to add the state, institution, or organization. For example, a search for this paper would look like the following: **Indiana (author: Maxson AND author: Pike)**. Still, there may be many people at the same institution with similar names, so using a first name, a person's first and middle initials, a second last name, etc. will help reduce false hits. By adding quotation marks around the person's full name, for example **Indiana author:"Bronwen K. Maxson"**, Google will search for an exact match of that name. Once the correct version of a faculty author's name is identified in Google Scholar, the librarian records how this person is identified in Google, which attempts to combine all forms of a person's name under one controlled version (in the case of one of the authors, her name appears as two versions in Google Scholar: 'B Maxson' and 'BK Maxson'), to use it for future searches. Additionally, many faculty authors have set up a Google Scholar profile, which allows the librarian to 'follow' them and receive future notifications of newly published articles. Up to nine or so names can be searched at once to make the process more efficient. The custom range date filter is used to look for articles only published since the adopt on of the OA policy. References are recorded in a spreadsheet and investigated further to identify those which are governed by the policy.

Charter Group Member Workflow

The CDS conducted a campus-wide search for all faculty-authored works after the adoption of the policy in October 2014. Once the publications were found, the CDS sent a list of faculty publications to the librarians in the charter group to alert them to the publications corresponding to the disciplines of their liaison schools or departments. The six librarian participants in the initial charter group included those librarians who liaise with the Schools of Nursing; Public and Environmental Affairs; Chemistry and Psychology; English and Spanish; Engineering and Technology; and Biology, Earth Sciences, and Mathematics.

Beginning in January 2015, these librarians contacted their faculty members by email to request the final, pre-publication manuscript for archiving in Scholar Works. The authors were encouraged to reply to the email with the manuscript attached, though they were also given instructions on how to upload the file themselves via a new OA webpage on the university website for the librarians to review and upload to Scholar Works.

When a faculty member responded with their manuscript, the librarian checked the manuscript to ensure it was not the final PDF version and that it was free of errors, and then forwarded the email with the attachment to a general CDS email created for this purpose. The CDS representative uploaded manuscript and assigned the metadata in Scholar Works. The librarian also tracked the response rate for the articles requested in a spreadsheet to send a reminder email for those faculty members who did not respond after two weeks.

CDS Workflow

For the remaining citations found in Scopus for which the subject areas did not correspond to a librarian in the charter group, the CDS sent a generic email requesting the manuscript, which was not tied to any specific person but the Library as a whole. The CDS representative also tracked the faculty responses and sent reminder emails.

RESULTS

Although the work of the charter group is ongoing, the study concluded on March 31, 2015. The study resulted in 1401 deposited articles and conference papers in Scholar Works, 190 default "Opt Outs", 37 direct "Opt Outs," 45 articles notified of NIH compliance needs, and four waivers requested by publishers.

In comparing the subject librarians and the Center for Digital Scholarship, the librarians had better success following one attempt at email communication. Liaisons had a 28% (n=74) participation rate compared to 19% (n=58) for the CDS. The librarian for the School of Nursing had the highest number of deposits (n=22), while the English and Spanish librarian had a 100% request-to-deposit rate (n=4). The Biology, Earth Sciences, and Mathematics librarian had the highest rate of no response, with 23 of the requested 29 articles receiving no feedback from faculty.

The overall particpation rate was 47%, with 37% of eligible articles being deposited and 10% of them being opted-out by their authors. In looking at just those articles identified by Scopus, the depositrate was 43%. Figure 2 (below) shows IUPUI outperforming the University of Rhode Island and Duke University.

Campus	Deposits/Articles Published (Scopus)
MIT	55%
Rice	46%
IUPUI	43% (1,401/3,286)
Rhode Island	38%
Duke	28%

Figure 2 IUPUI in Comparison. Data based on comparing repository holdings with institutional Scopus searches.

As of 23 September 2016, Scholar Works has 3,252,179 downloads and 1,495,505 additional views from over 190 countries. Three of top 10 downloaded articles are from the humanities and social sciences.

DISCUSSION AND CONCLUSION

The combination of the faculty-adopted OA policy with and liaison librarian relationships with their disciplinary faculty have increased participation in the IR. Our workflow is changing as we watch how the policy is taking hold on campus and how the wider forces are shaping OA in the world.

Open Access makes knowledge available to anyone with an internet connection. Certainly, further research is needed to examine how areas of the world with censored internet access scholarly publications. The digital divide is of great concern since some groups have much more familiarity with and higher-quality internet access. Additionally, IR software, such as Dspace is available for free, however, it requires technical expertise and funds to support website hosting. The sustainability of OA is also in question; although it has been around for many years, there is a serious lack of digital preservation of online materials—especially those archived on corporate or for-profite websites.

Further research and time is needed to see how the publishing industry evolves to accommodate this model. Researchers also need to identify ways to increase participation from Arts and Humanities scholars, whose disciplines have been slower to adopt OA methods of sharing work.

Future work in OA will also focus on integrating this publishing option with the promotion and tenure (P&T) practices at universities. Cullen and Chawner suggest that libraries get invovled in this endeavor:

> "[…] by adopting their own quality assurance measures, and distinguishing more carefully between types of content, [libraries] can focus on gaining the leverage for their institutions' research output by maximizing the "quality advantage" that Open Access enhances by maximizing the accessibility, and the citability of the very best output of their institutions, thereby also inserting themselves into the institutional rewards system." (Cullen and Chawner, 2011).

At IUPUI UL, we agree that libraries play a part. "Building a culture that values OA requires the participation of library and non-library faculty. IUPUI is continuing to realign promotion and tenure values for OA with top-down (changes in policy) and bottom-up (changes in practice) approaches" (Odell, Coates and Palmer, 2016).

When librarians join together with faculty to create and disseminate creative work, we give back to the community and the world benefits from shared knowledge. We believe this creates a better and more peaceful world, one that tears down barriers to knowledge and access to information and one that fosters global exchange. Change begins with small local action, so we will work to make Xia's prediction come true: "Eventually…non-author depositorship will alter the concept of 'self-archiving' and re-define 'disciplinary culture'" (2007).

ACKNOWLEDGEMENTS

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