

Satellite Meeting: Serials and Other Continuing Resources Section & Acquisition and Collection Development

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Date: 16-17 August 2017

Location: European Solidarity Center (ESC), Gdańsk (Poland)

Taking Stock: Organizing Open Access Operations Based on Researcher Practices

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Abstract:

In 2017, the members of the Scholarly Communication Initiatives (SCI) Department at the University of Nevada, Las Vegas (UNLV) developed a strategic goal for the department to “create organizational shift” at UNLV in regard to improving campus-wide knowledge of and support for open access (OA). One method by which to work toward this multi-year goal was to gain additional insight about UNLV faculty members’ support of OA by assessing their participation in OA publishing and repositories.

Through direct conversations with faculty, information gleaned through liaison librarians, and questions about the IR and related services, it was clear there was already interest in OA. However, it is difficult to gauge interest at the department, college, or university level based on ad-hoc contacts alone. Understanding participation in OA at a broader organizational level could help create the desired organizational shift, via improved outreach efforts.

This paper proposes that improved understanding about existing local OA practices can provide useful and strategic information for OA operational planning. It demonstrates the use of research databases, selected subject repositories, and the institutional repository, to identify local OA practices. These data inform operations through identification of potential OA advocates, and new audiences to include in OA outreach.

Keywords: open access, outreach, scholarly publishing, repositories

Introduction

Launching (or re-launching) a library’s open access (OA) outreach efforts can be a daunting task for any librarian. Having a good understanding of local OA uptake may assist with the development of a sound plan and lead to more accurate and practical knowledge of the campus community experience with OA.

This paper proposes that a basic level of understanding about existing local OA practices can provide useful and strategic information for OA operational planning. For example, do certain faculty members or departments tend to publish in OA journals more often than others? Who participates in arXiv or other disciplinary repositories? Which departments participate the most in the institutional repository (IR)? Taken together these insights can inform understanding about OA acceptance locally and provide leads and priorities for improved outreach efforts.

This work is based on a project at the University of Nevada, Las Vegas (UNLV) to renew efforts to encourage an organizational shift towards broader support and understanding of OA locally. This paper demonstrates the use of research databases, selected subject repositories, and the IR, to identify local OA practices. Analysis of these data were expected to help identify participation in OA at the department, college, or university level, potential OA advocates, and audiences to include in OA outreach initiatives. While this project is a case study of UNLV OA activity, it is hoped that ideas and methods presented provide ideas for others to learn more about their own institutional uptake of OA and inform their own outreach strategies.

A Place for Open Access

With or without OA outreach efforts by a library, researchers encounter, make decisions, and form opinions about open access. Authors encounter OA through their disciplinary networks, conferences, and other scholarly or academic venues. They may engage with OA as authors and in editorial roles, through academic news sources such as *The Chronicle of Higher Education*, and by submitting works to disciplinary or institutional repositories.

Additionally, OA is quickly becoming quickly mainstream in the commercial academic world. Research databases such as Scopus and Web of Science have added OA journals to their title lists, giving researchers an opportunity to discover relevant OA research to build upon, regardless of whether or not they notice a source they have discovered is an “open” one. As of late 2017, even green and hybrid OA are discoverable in Web of Science (Clarivate, 2017).

However, despite their awareness of OA, researchers may not know about library services that can answer their questions on or provide support for the OA models of research dissemination.

Despite many opportunities to encounter OA publishing, authors remain uncertain about their future with OA (Gold) journals (Rowley, Johnson, Sbaffi, Frass, & Devine, 2017). Additionally, faculty authors generally do not voluntarily make their work OA by participating in institutional repositories, although mandated and mediated deposits tend to garner more uptake than does simply inviting faculty to self-submit on their own (Hazzard & Towery, 2017; Zhang, Boock & Wirth, 2015). Publishing in high quality journals (defined primarily by rigorous peer review) takes precedent over nearly anything else in author considerations about dissemination of their work and seemingly, if OA (in either gold or green form), does not help with prestige and reputation then the time required and minimal benefits are not worth the effort or even risk. Even Library and Information Science faculty continue to have much skepticism about OA, particularly concerning reputation (Peekhaus, & Proferes, 2015).

UNLV is no different in this regard. As a new medical school starts and interest in achieving top research rankings moves forward, UNLV authors are asked to report and highlight their research efforts. As with peers at other institutions, they may grapple with choosing the best venues for their publications, seek guidance to avoid fraudulent journals, worry about funding to pay expensive article processing charges, or otherwise seek advice about how best to share their work once published in a traditional journal (ResearchGate, repository, personal website). The library is situated to be an integral source for faculty on their research processes including navigating the complex world of OA.

Methods

The project reviewed UNLV author participation in three OA venues: 1) open access (Gold) publishing, 2) select preprint repositories, and 3) the institutional repository.

Both Web of Science (WoS) and Scopus databases include OA sources. Clarivate's WoS makes it easy to extract OA search results using the open access filter. Extracting Gold OA publications from Scopus required matching search results with the Scopus source list OA field (see journal title list at <https://www.elsevier.com/solutions/scopus/content>). Both databases were searched by organization, with the date of publication limited to 2012-2016. The search excluded conference proceedings, meeting abstracts, books and book chapters leaving only article type records. Records from both databases were then combined and deduplicated to form as complete a picture as possible of Gold OA publishing at UNLV. The "Analyze Results" feature in WoS allowed some further exploration of author participation in Gold OA publishing.

Searches of arXiv, biorXiv, and the Social Sciences Research Network (SSRN) were used to identify participation in preprint repositories. These three repositories were picked to capture a broad range of disciplines, although only two provided useful UNLV results. Each of the three interfaces include different search options, but none offers an affiliation search. For that reason, a full-text search on "University of Nevada, Las Vegas" worked best. arXiv and SSRN produced enough results to analyze further. bioRxiv searches found only three publications and it was therefore excluded from further review. The results from arXiv and SSRN were copied into a text document and manually reviewed to ensure a UNLV author was on the paper, as well as finding publications that matched the 2012-2016 timeframe.

The UNLV University Libraries are customers of bepress and use Digital Commons for Digital Scholarship@UNLV, the IR. A "custom report" (service of bepress/Digital Commons) was used to identify all faculty article content, by academic unit, and identify which records contain attached documents. This allowed for the distinction between metadata only records, and those that have full-text. The importance of this distinction is expanded on below.

Results & Discussion

Gold Open Access Publishing

There were 349 OA UNLV publications in open access journals ("Gold" OA) identified in Scopus and WoS. This accounts for approximately nine percent of all UNLV articles published during 2012-2016. UNLV authors occurred 660 times on the OA papers, averaging out to just under two UNLV authors per OA article. An author occurrence is counted every

time a UNLV author occurs on paper. Many UNLV authors have multiple OA papers and each occurrence is counted.

Of those 660 author occurrences, there were 45 different UNLV affiliations (primarily department or school). By broad disciplinary groupings, nearly one-half of the author occurrences (314) were from life, biomedical, and health sciences. These include the School of Life Sciences, School of Medicine, Kinesiology and Nutrition Sciences, Dental Medicine, and Healthcare Administration and Policy. Additionally, Physics & Astronomy authors and their High Pressure Science and Engineering Center (HiPSEC) colleagues, as well as psychology, and mechanical engineering authors appear at the top of the departmental list. Table 1 includes the top 20 affiliations by author occurrence.

Table 1: Gold OA Publishing by UNLV Author Affiliation

Department, School, or Other Affiliation	Author Occurrences
Life Sciences (School of)	217
Physics and Astronomy (HiPSEC)	45
Medicine (School of)*	41
Psychology	31
Mechanical Engineering	29
No department/school affiliation (UNLV only)	28
Kinesiology and Nutrition Sciences	27
Chemistry	24
Dental Medicine	23
Geosciences	22
Civil and Environmental Engineering and Construction	21
Electrical and Computer Engineering	16
Environmental and Occupational Health	16
Community Health Sciences (School of)	16
Health Physics and Diagnostic Sciences	15
Anthropology	13
Computer Science	7
Health Care Administration and Policy	6
University Libraries	6

*represents faculty likely to have transitioned to UNLV from the University of Nevada, Reno medical school in July 2017.

The same search results in WoS viewed with the “Analyze Results” feature revealed individual authors that publish in Gold OA journals. Of the three that had authored more than ten papers, two are from the life and health sciences, and one from mechanical engineering.

The data from OA publishing confirms that UNLV authors are using OA journals to communicate their work and that life and health sciences authors are embracing open more often than other disciplines. This project did not look at funding agencies supporting the research behind the publications, but it is likely that the longstanding push to make federally funded peer reviewed medical literature in the United States publicly available has impacted and influenced UNLV authors familiar with the National Institutes of Health Public Access Policy (<https://publicaccess.nih.gov/policy.htm>).

While physicists were expected and found to participate in arXiv (described below), their activity with Gold OA publishing provides an additional reason for outreach to this group, in part to find OA advocates and champions, but also to learn about how they view OA in their disciplines and any benefits or challenges they've experienced with OA publishing. Additionally, the HiPSEC lab includes a subset of the Physics and Astronomy department and faculty from other departments. As part of a multidisciplinary research group, HiPSEC authors may have unique insights or needs in relation to scholarly publishing.

One limitation of tracking Gold OA publishing comes from the sources (Scopus and WoS) used in this project. Neither source includes all Gold OA journals, which is understandable, but means some missed UNLV authors who have published in journals not indexed within. Additionally, searching by affiliation means that authors who are new to UNLV were missed (affiliation on publications from a previous institution) and former UNLV affiliates may have been included.

Another limitation is the inclusion of UNLV School of Medicine (SOM) faculty. Until July 2017, UNLV did not have a School of Medicine. However, some University of Nevada, Reno (UNR) medical faculty transitioned to the new UNLV SOM at that time. SOM faculty with Las Vegas offices were included in the results – however those results may not be a perfect match for staff that did join UNLV, rather than staying with UNR.

Disciplinary Repositories

Results from searching arXiv and SSRN confirmed UNLV authors are participating in established disciplinary repositories. As noted above, bioRxiv, did not produce enough results to be used for this project.

arXiv included 83 papers with modest growth nearly every year (Fig. 1), and with 108 author occurrences (Fig. 2). As expected, participation in arXiv is from UNLV authors affiliated with physics and astronomy primarily, and with other science, computer science, and engineering fields occurring much less frequently. Viewing the search results made it apparent that a single author in the Physics and Astronomy department was affiliated with many of the papers. Looking more closely at the data to determine the extent of this author's contributions to the repository revealed that they are an author on 30 of the UNLV papers.

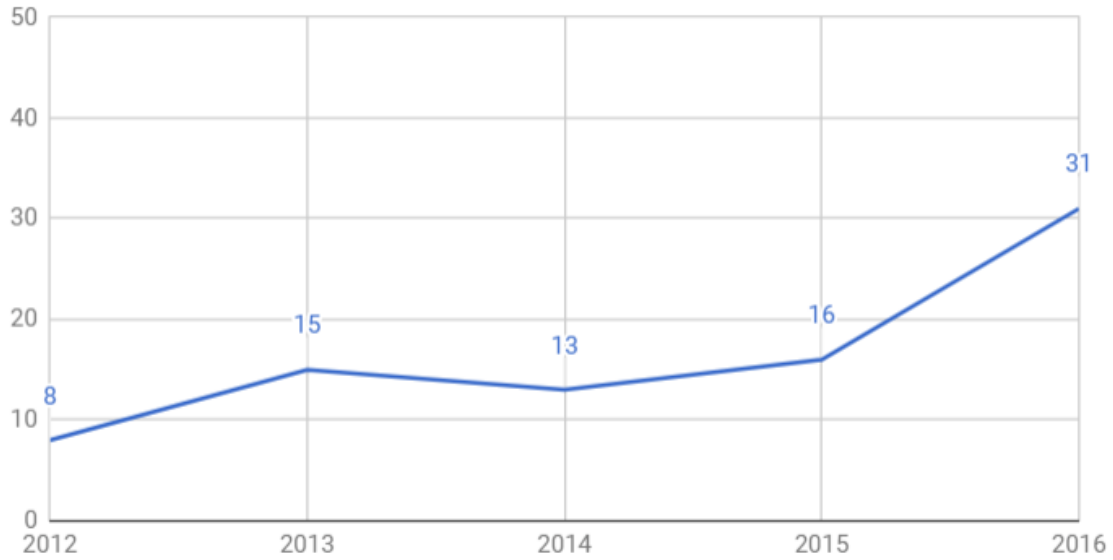


Figure 1: Number of UNLV Publications in arXiv (2012-2016)

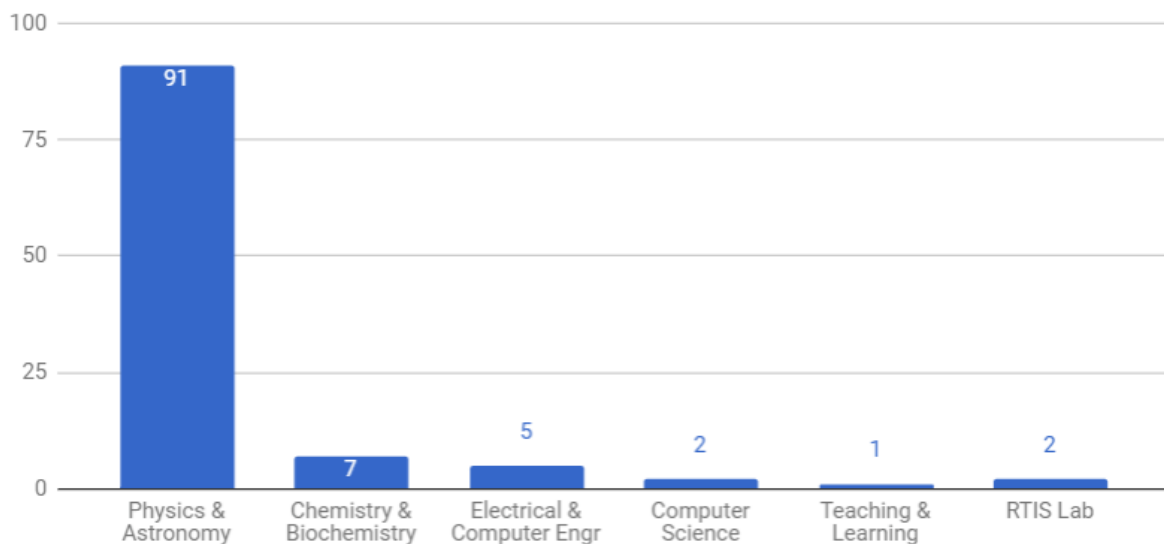


Figure 2: Author Occurrences in arXiv by Department (2012-2016)

SSRN included 493 UNLV papers. However, many of these were papers by law school faculty. The UNLV Boyd School of Law is not part of the University Libraries and therefore those papers were removed from the total. This left 110 UNLV papers, with 122 author occurrences that were not solely associated with law school authors (although a few included law faculty as co-authors). These data were not reviewed further for individual author count. Faculty from departments in the College of Business had the most papers in SSRN, and quite a few lacked obvious affiliation information in the data displayed on the search results page (Fig. 3).

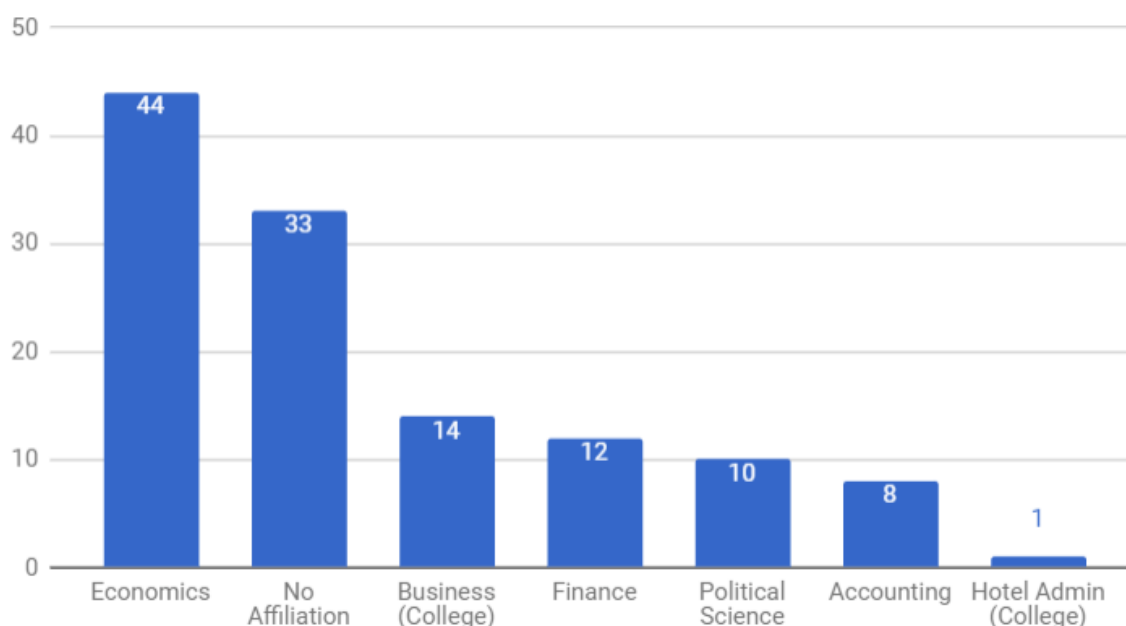


Figure 3: Author Occurrences in SSRN by Department (2012-2016)

Both arXiv and SSRN provide individual and department leads for OA outreach. In both cases, there are opportunities to (re)introduce the *institutional* repository as a complement to the disciplinary repositories already in use for “green” OA. Talking with these authors may provide insights about the role of preprints and postprints in their disciplines, how the repositories help them demonstrate impact of their work including whether or not repository posts factor into promotion and tenure documents and/or annual achievement reports. In particular, this could help reach the College of Business, which has had a minimal OA participation in the IR so far, but clearly places value on sharing published works in venues beyond the versions of record.

Due to time constraints, it was not possible to review all the SSRN papers closely (as with arXiv) to determine author affiliation for the 33 papers where this information was not readily apparent in the search results page.

While searching the disciplinary repositories for UNLV affiliated articles was the most interesting aspect of the project, it was difficult to accomplish. Likely, some articles were missed due to the nature of the full-text searching and variations of the UNLV organizational name used on the papers. Also, the search results did not lend themselves to easy review. Use of a citation manager to capture the metadata may have led to more efficient analysis.

Additionally, for both the Gold OA journals and the disciplinary repositories, it is possible UNLV authors may not have been responsible for the decision to make their work OA, and instead a paper’s OA status may have depended on the action of a co-author at another institution.

Institutional Repository (Digital Scholarship@UNLV)

Each article record in the IR, whether OA or not, is included in a unit-based series. This structure allows for easy quantification of records by department or school; however, it

complicates efforts to gauge *participation* by faculty. Distinguishing OA copies from metadata only records is important because OA records with full-text indicate action by the faculty member in support of OA. The same is not true for bibliographic records. While both indicate interest in sharing a record of publication, only those with available full-text address the question of *open access* involvement.

Figure 4 shows the departments with the most records in the repository, including the records that are OA. When only looking at the proportion of full-text items in a faculty article series, a different set of top departments is revealed (Fig. 5).

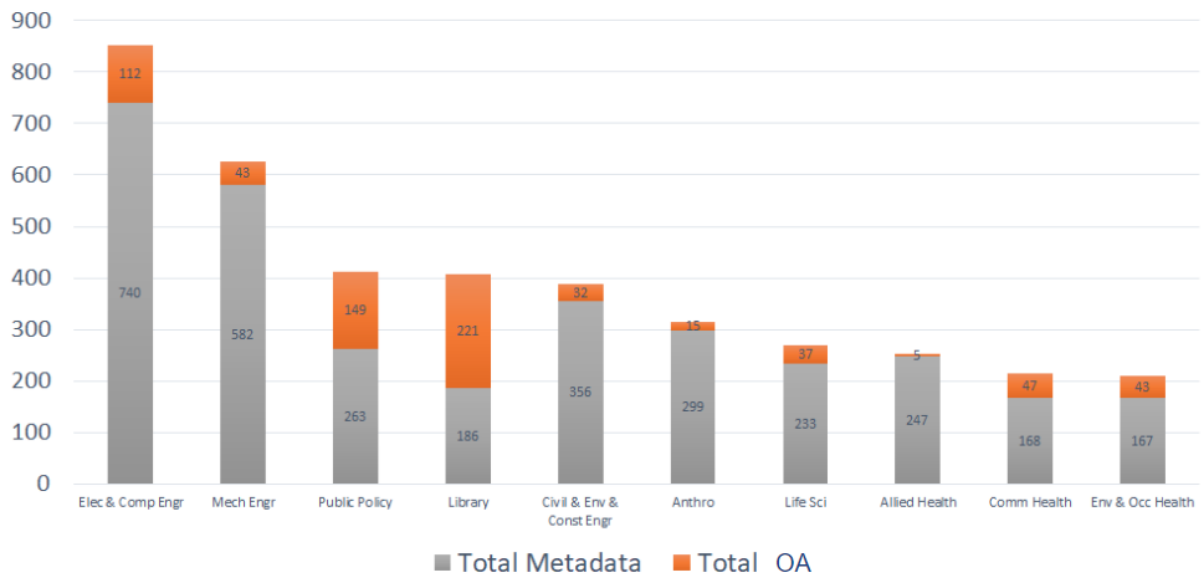


Figure 4: IR Participation by Number of Records (Top Ten, All Time)

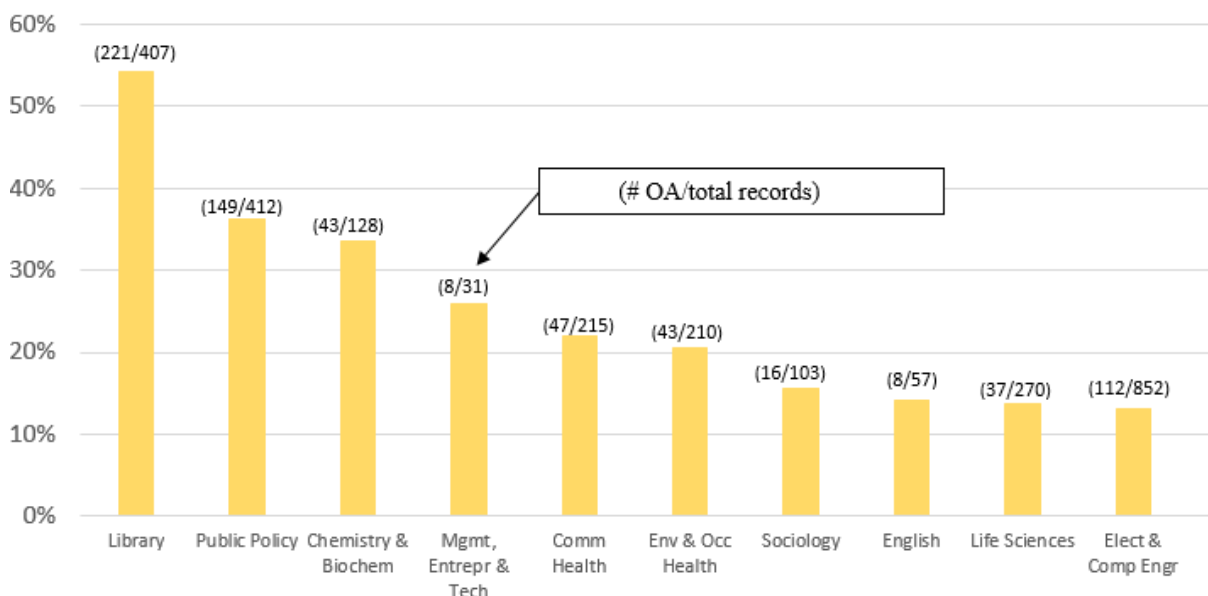


Figure 5: IR Participation by Percentage of OA Contributions (Top Ten, All Time)*

* Excludes Harry Reid Center and two series with one item each that is full-text or “100%”

There have been many staff changes in IR management since Digital Scholarship@UNLV started in 2009. These changes have meant outreach to different groups, changes in focus, and new connections made and some old connections lost. A higher-level view calls out disciplinary areas that have contributed but may no longer be active, but could be revisited. It also shows the departments with the most promise (high proportion of OA compared to bibliographic records) and those with the most room to grow (many records, but little OA participation) – either scenario could be considered a lead depending on the priorities set for outreach (more content or additional departments participating?).

Not surprisingly, the library faculty figure prominently in the relative percentage of OA contributions to records in the IR. This emphasizes that there are many opportunities for ongoing internal outreach to new librarians as well as gentle reminders to those that have written but not contributed to the IR for some time.

Table 2 summarizes examples of the outreach leads found through this project and across the three venues covered in the project.

Table 2: Example Outreach Leads from OA Activity Review at UNLV

OA activity	Individual leads	Departmental leads
OA Publishing	Highest individual activity in life sciences, allied health, environmental and occupational health, and mechanical engineering	Life sciences Physics & Astronomy Medical School* Psychology Mechanical Engineering (*new to UNLV in 2017)
Disciplinary Repositories	Physics & Astronomy – single author has 30+ papers in arXiv Economics – single author has 20+ papers in SSRN	Physics & Astronomy (arXiv - confirmation of UNLV participation) Economics (SSRN)
IR (Digital Scholarship@UNLV)	New library colleagues CV review follow-ups Support for implementing alerting/invitations to participate	Life Sciences Public Policy

Conclusion and Future Efforts

This project was designed to locate new leads for open access outreach, based on researcher practices with OA at UNLV. The venues selected for review were chosen due to the likelihood of finding those leads, rather than to represent a complete spectrum of disciplines or avenues for participation in OA activity.

The results of the review of Gold OA publishing, sampling of participation in disciplinary repositories, and a review of IR participation helped identify new leads for OA outreach efforts at UNLV. At the department level, some leads were predictable: medical and health sciences authors appear to participate readily in OA publishing and, not surprisingly, UNLV authors are participating in disciplinary repositories that support their subject areas. However, individual authors previously unknown to be participating in disciplinary repositories and a research lab whose work appears in OA journals were identified. Additionally, indications that our new medical school colleagues are likely to participate in OA publishing was noted, among other leads discussed previously.

In addition to the improved outreach leads discovered in this project, the data gathered may have additional uses and the library may benefit from periodic updates. For example, the data has been queried to identify which OA publishers UNLV authors publish with most often. Despite its potential ongoing usefulness, data gathering, cleaning, and analysis was extremely time consuming, particularly for the disciplinary repositories. It is unlikely that the method described above for investigation of disciplinary repositories will be repeated. However, with the continued improvement to discovery of OA works in databases like Web of Science, the process for tracking local open access practices may improve quickly.

This paper captures this project up through the identification of the new leads. However, the best is yet to come. Prioritizing and acting on the leads to make the new connections is key. Future actions include connecting with authors and academic units about their OA practices, the role (if any) of OA publishing in such topics as promotion and tenure, discussing services and resources that facilitate confidence and acceptance in open access on campus, and ultimately, through improved engagement, help lead to the desired organizational shift articulated in the SCI department's goals.

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