How green is our valley?: five-year study of selected LIS journals from Taylor & Francis for green deposit of articles

This study reviews content from five different library and information science journals: Behavioral & Social Sciences Librarian, Collection Management, College & Undergraduate Libraries, Journal of Electronic Resources Librarianship and Journal of Library Administration over a five-year period from 2012–2016 to investigate the green deposit rate. Starting in 2011, Taylor & Francis, the publisher of these journals, waived the green deposit embargo for library and information science, heritage and archival content, which allows for immediate deposit of articles in these fields. The review looks at research articles and standing columns over the five years from these five journals to see if any articles were retrieved using the OA Button or through institutional repositories. Results indicate that less than a quarter of writers have chosen to make a green deposit of their articles in local or subject repositories. The discussion outlines some best practices to be undertaken by librarians, editors and Taylor & Francis to make this program more successful.

Keywords
LIS scholarly literature; green deposit rates; scholarly communication

Introduction
As with many library and information science research endeavors, this one began with a conversation. At an American Library Association conference, the author spoke with Ashleigh Lee, the Journal Sales Director of Taylor & Francis Group, and during the course of our conversation a concern arose. There was a feeling, but not a clear indication, by personnel at Taylor & Francis that the ongoing pilot project to allow for immediate green deposit of library and information science content was not very successful. The author, intrigued by this statement, then offered to perform a limited research project to explore the findings and chose a definition of success to be a deposit rate of 50% or more for this initiative.

Green deposit is the ability of any author to deposit the final version (either preprint [prior to peer review] or postprint [after peer review]) of their manuscript in a scholarly repository. For this article, open access (OA) gold articles, or authors paying for immediate OA publishing of their article, were not included as part of the study. While this may not be the final formatted, fully published version of the paper, this version is the next best opportunity to share readily their scholarship with their scholarly community. The majority of publishers allow for some form of green deposit according to the SHERPA/RoMEO statistics. However, many publishers place embargo periods on the depositing of preprints and postprints in repositories. An embargo is a period of time during which an article cannot appear in a scholarly repository, and the duration of an embargo is set by the publisher. Commonly, embargo periods are six months, 12 months, or 18 months. Publishers use embargoes on green manuscripts as a way to encourage ongoing subscription to scholarly journals.
Taylor & Francis has a 12-month embargo in place for the deposit of science, technology and medicine articles and an 18-month embargo in place for the deposit of social science and humanities articles. Starting in 2011, they agreed to not apply the 18-month embargo to library and information science (LIS), archives and heritage journals. A promotional campaign was undertaken in late 2011/early 2012, advertising this waiver through numerous, significant LIS online discussion lists and listservs. In 2014, after surveying these communities, Taylor & Francis made the decision to extend the program through 2014, and since then extended the program through 2017. As noted in their press release from 2014, author/survey respondents indicated that the ability to deposit manuscripts immediately was extremely important to them. Green deposit also meant a higher likelihood of publishing in these journals. However, other than noting the embargo on author submission pages for the journals in this subject area, there has been no concerted advertising campaign undertaken since 2014.

The author chose five journals to review for this research study: Behavioral & Social Sciences Librarian, Collection Management, College & Undergraduate Libraries, Journal of Electronic Resources Librarianship and Journal of Library Administration. All five journals were published by Taylor & Francis for the period of the study and all have an online publishing history for the last decade. The journals also represent content cited and used in academic libraries. In addition, the journals represent various areas of scholarship within academic libraries of all sizes. The study focuses on academic libraries and librarians where publication is part of their ongoing promotion and tenure review and where authors are most likely to have access to scholarly repositories to make green deposits.

**Literature review**

In reviewing the current literature for similar studies, the author reviewed works that provide a broad base of information on green OA deposits. Van Noorden’s research from 2012 indicates for professional fields in the UK (defined by Web of Science indexing as those fields not represented as Arts & Humanities, Biomedical Research, Chemistry, Clinical Medicine, Earth & Space, Engineering & Technology, Health, Mathematics, Physics, Psychology or Social Sciences) the green deposit rate was around 29%. A study a year later and published by Bjork et al. notes that green deposit appeared to grow but was still at around 12% in the fields they investigated. In 2015 Stevan Harnad notes ‘70% of subscription journals … agree formally to green OA self archiving by their authors …’ Many of the recent studies focus on different scientific communities, such as ‘Measuring the Impact of Gold and Green Open Access’ by Zhang and Watson, which indicates that for physical science researchers funded by the Canadian Institutes of Health Research, there is a green deposit rate of 13%. All in all, green deposit rates in most scholarly and professional fields appear to fall between 10% to 29% of all published articles in a given year, and there has not been an indication of any significant change in the percentage rate for the professional fields since 2012. Publishers will perform green deposit into recognized repositories such as PubMed Central for disciplines like the Biomedical Sciences. However, this is not standard practice for the field of LIS scholarly literature. Furthermore, it is not a service offered by Taylor & Francis under this initiative.

From 2010, scholars began investigating what the factors were that aided or impeded green deposit rates. Jihyun Kim found, ‘The main motivations for faculty self-archiving primarily relate to perceived benefits of OA from users’ perspectives, perceived self-archiving culture in their disciplines, and at least no harmful effect on tenure and promotion. In addition, professors with more proficient technical skills and younger professors are more involved in self-archiving practices.’

Most recently, Ruth Kitchin Tillman performed a survey looking at the rates of faculty self-deposit in academic repositories. In her study, she discovered that self-deposit is not a trend that has really taken off with faculty. In the conclusion, she notes, ‘Although most
repositories grow in size, most are being filled by persons at the institution explicitly tasked with doing so rather than eager faculty.\textsuperscript{9}

In 2011 Holly Mercer published a study in \textit{College & Research Libraries} that indicated that for the publication year of 2008, about 49% of authors indexed in Library Information Science Abstracts (LISA) had made their articles openly available. Taylor & Francis, which had an embargo period of 18 months in 2008 for LIS articles, made up 37% of the journals in Mercer’s study. However, Mercer did not clearly identify how many of the articles were OA at the point of publication or how many had been deposited into repositories, but did note that there was the potential for 94% of the given articles used in the study to be made OA through self-archiving and other means by 2011.\textsuperscript{10} In 2014 Micah Vandergrift and Chealsey Bowley published ‘Librarian Heal Thyself: a scholarly communication analysis of LIS journals’. Their study looked at 74 LIS journals and first reviewed how open each journal could be, giving each a journal openness index factor. In their published article, the authors indicate an embargo period of 18 months being in place for Taylor & Francis LIS journal titles, with no mention of the waiver that began in 2011.\textsuperscript{11} From reviewing their data sets, there is a recorded difference in the embargo periods of Taylor & Francis titles but this discovery was not highlighted in the article they published.\textsuperscript{12}

In regards to librarians’ behavior, both practicing academic librarians and LIS faculty, the overall openness of scholarship is low. In another study, there was little to no difference between the two communities where it is expected advocacy is less needed due to ready awareness of OA publishing opportunities and/or local mandates. Xia, Wilhoite and Myers observed in their study, ‘Furthermore, librarians are not more likely to self-archive than LIS faculty’.\textsuperscript{13} Where these authors did find a difference was in the citation trend of OA content: on this aspect of openness, they say, ‘If citation analysis can serve as a reliable measure of an OA effect, librarian authors have shown a different practice in their citing of OA articles than faculty authors’. This is likely to be because few higher education institutions can afford to maintain subscriptions to LIS scholarly literature if there is not an educational component that also has that need on campus.

As discussed in length below, one reason why librarians may be less likely to deposit their work is due to the imposter syndrome lens. Imposter syndrome is the feeling that the faculty status held by practicing librarians in academic institutions is not on a par with or at the same level as the teaching and research faculty at a given institution. This feeling arises from librarianship being a professional terminal degree at the master level of education and not doctorate level; the degrees achieved and their roles are not at full faculty status for many institutions in the United States. Clark, Vardeman, and Barba discuss the imposter phenomenon in their 2014 article, ‘Perceived Inadequacy: A Study of the Imposter Phenomenon among College and Research Librarians’.\textsuperscript{14} One of their recommendations suggests, ‘Support from supervisors can be beneficial in counteracting the IP [imposter phenomenon].’ This is also true when it comes to OA deposit. If a supervisor or administrator in a given library is indicating to their library faculty that their institutional repository is utilized primarily by faculty creating scholarship in other disciplines, there is less incentive for practicing academic librarians to deposit their scholarship. There are probably multiple factors that affect the level of deposit of green OA content by practicing academic librarians, but it is worthwhile to explore the part that imposter phenomenon plays in this.

There are also ongoing concerns among librarians responsible for digital asset management and repository regarding the undervaluation of these endeavors. Dorothea Salo articulates these feelings best in her 2008 article ‘Innkeeper at the Roach Motel’.\textsuperscript{15} Written a decade ago, the article succinctly indicates a need to make repository work as high a priority as all other work undertaken in an academic research library. At the January 2018 ALCTS Technical Services Directors of Large Research Libraries Interest Group virtual phone call, much of the conversation centered on how to best incorporate digital asset and library repository work within the areas known to manage traditional technical services duties.\textsuperscript{16} A
decade later, some US academic research librarians are attempting to mainstream this work. However, how much of the focus will be on the incorporation of the scholarship produced by their own employees is yet to be seen.

The study

A total of 671 articles and columns were reviewed from five LIS journals published by Taylor & Francis from 2012–2016 (see Table 1). The specific five-year timescale chosen represents the significant period when immediate green deposit was available to authors.

<table>
<thead>
<tr>
<th>Journal title</th>
<th>Articles/columns reviewed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavioral and Social Sciences Librarian</td>
<td>87</td>
</tr>
<tr>
<td>Collection Management</td>
<td>78</td>
</tr>
<tr>
<td>College &amp; Undergraduate Libraries</td>
<td>134</td>
</tr>
<tr>
<td>Journal of Electronic Resources Librarianship</td>
<td>108</td>
</tr>
<tr>
<td>Journal of Library Administration</td>
<td>264</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>671</strong></td>
</tr>
</tbody>
</table>

Table 1. Overview of content to review

The review began by looking up each article/column title using the DOI (digital object identifier) provided on the article/column homepage through the Open Access Button (OA Button) as shown in Figure 1. The OA Button mechanism became available in 2014 as a way for discovering OA content across multiple platforms. The main sources searched by this resource are Share, CORE, OpenAIRE, Dissem.in, Europe PMC, BASE and oaDOI. For this study, if there was an immediate pass through from the OA Button to the full text of the article, either into a repository page or directly to the article, then the recorded notation was ‘Yes’ in the Found via OA Button column of the data sheet. If not, then a ‘No’ notation was entered in this column.

If the notation was a ‘No’ for the OA Button, the next step was to search directly in each author’s institutional repository using the DOI to try to find the article/column. If searching by DOI did not turn up a result, then the next step was to search by author name and then, if needed, also by article title to retrieve access in the local repository. A search was made for each article/column on all the authors listed for a given article. When there were multiple authors, a search was made for each author’s institutional repository in an attempt to find the full-text content. Data on what repository platform was in place for any given author were not collected. In hindsight, noting the repository platform may have shown whether one platform performs better than another. However, the author found that data collection to be auxiliary to the intent of the study.

Content found directly in an institutional repository was given a ‘Yes’ notation in this column of the data sheet. The basic workflow employed for repositories is shown in Figure 2. If no content was found at any author’s repository, then a ‘No’ was entered in this column. In order to rule out other preprint services, such as SocArXiv and LIS Scholarship Archive (LISSA), a last search was performed in Google Scholar to try to find the full-text content. Any variants in access to content, or lack of content, were recorded in the note fields on the data sheet. Variations discovered during this process include: citations added to institutional
repositories that did not lead to full-text access; other versions of scholarly content such as PowerPoint presentations or other papers that held the same title; the repository is only available to the local research community as an intranet; the discovery within a repository by DOI of the full-text content but the result from the OA Button search was not available.

The process was undertaken for all five journal titles on separate data sheets and the attributes recorded on the master data sheet page for reference.

**Results of the study**

On average, 22% of the 671 articles/columns searched resulted in full-text access. This varies across the different journal titles with the *Journal of Electronic Resources Librarianship* having the least amount of content available at 18% to *Behavioral & Social Sciences Librarian* having 26% of content available as full text (see Table 2).

![Workflow employed for repositories](image)

<table>
<thead>
<tr>
<th>Journal Title</th>
<th>% of full-text availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavioral and Social Sciences Librarian</td>
<td>26%</td>
</tr>
<tr>
<td>Collection Management</td>
<td>20%</td>
</tr>
<tr>
<td>College &amp; Undergraduate Libraries</td>
<td>22%</td>
</tr>
<tr>
<td>Journal of Electronic Resources Librarianship</td>
<td>18%</td>
</tr>
<tr>
<td>Journal of Library Administration</td>
<td>22%</td>
</tr>
</tbody>
</table>

Table 2. Overall full-text availability

Of the 671 articles/columns searched, there are 117 cases where no repository is identifiable. In many cases, these articles/columns are written by consortia personnel, librarians at small, teaching-focused institutions, or members of the LIS professional community not affiliated directly with a given academic institution or place of higher education.

The OA Button results are lower than anticipated. In six cases, the DOI resolved to the wrong article or to content that is similar to the article/column in question but not quite the same. In 38 cases, the article could be found using the DOI in the local repositories but not using the OA Button. This could be due to a lack of indexing of these repositories by the OA Button or it could be due to how the DOI passes through from the local repository to other online search mechanisms. Another problem encountered reveals that in 11 situations, the result from the local institutional repository gave only a citation and not the full text of the content. These results arise from citation information added into the local institutional repository that references the version of record DOI.
Reviewing the articles by year of publication shows the variance of deposit from year to year. These results indicate that there was an uptake in green deposit by the LIS community through 2015 but then a drop-off in 2016 (see Table 3).

<table>
<thead>
<tr>
<th>Year</th>
<th>No of articles</th>
<th>Institutional repository deposit</th>
<th>Overall %</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>128</td>
<td>30</td>
<td>23%</td>
</tr>
<tr>
<td>2013</td>
<td>122</td>
<td>24</td>
<td>20%</td>
</tr>
<tr>
<td>2014</td>
<td>135</td>
<td>28</td>
<td>21%</td>
</tr>
<tr>
<td>2015</td>
<td>127</td>
<td>39</td>
<td>31%</td>
</tr>
<tr>
<td>2016</td>
<td>159</td>
<td>38</td>
<td>24%</td>
</tr>
</tbody>
</table>

Table 3. Overall deposit by year

The results by year show the citation-only entries in institutional repositories are greater for older content than for more current content. There are five citation-only results for 2012 and 2013, whereas 2014 has only one citation-only result and in 2015 and 2016 there are three citation-only results. The increase in the DOI not being retrievable using the OA Button was low for 2012 and 2013, with three and four articles respectively. In 2014 there are 11 articles with DOI retrieval from the repository but not the OA Button and in 2015 and 2016, ten articles were retrievable from the local repositories by DOI but did not show up as retrievable with the OA Button.

On average for all five years, there are one to two articles where the DOI retrieved different content from the article searched, or where the article was behind a local access mechanism such as an intranet so that the general public cannot access the content.

**Discussion**

It is striking that less than a quarter of the total content has been deposited into a repository. The academic LIS community tends to be well informed and members of the community are generally the advocates for green deposit on their local campuses. The question then arises: what is holding back librarians from making deposits of their own scholarship? As noted in the literature review section, one argument is that library administrations undervalue institutional repositories and do not impress upon their own faculty the necessity to deposit articles. It is also worth positing that imposter syndrome and imposter phenomenon plays a role for many librarians, regardless of their professional standing at their given institution. Farrell et al. note, ‘Those who have impostor tendencies are typically people who have attained high levels of success in their chosen field and are objectively considered competent and intelligent.’ In one recent anecdotal story, the leadership of the Academic Research Libraries chose not to perform a self-study of LIS literature in library repositories because it would not hold the same impact as another disciplinary study of deposit rates. Our profession does appear to have an endemic imposter phenomenon complex and because of this, our promotion of practices for openness does not mirror our actual habits of scholarship. Until professional organizations and local library faculty, especially faculty in leadership roles within our organizations, adopt the practice and consistent acceptance of ‘practicing what we preach’, it is unlikely that the green deposit rate will change much for the majority of LIS scholarly literature.

During the development of this study and throughout it, when describing it to colleagues, a constant response indicated that librarians are unaware of the embargo waiver in place by Taylor & Francis. With the initial waiver in 2012 and then with a follow-up study Taylor & Francis performed in 2014 with a survey, the initial years of this waiver were more widely distributed through promotional campaigns. In the years since 2014, the lack of consistent publicity
regarding the waiver has resulted in the lack of knowledge concerning this opportunity by LIS authors. A follow-up study could interview/survey the editors, editorial board members and column editors of the LIS journals to see how pervasive the recognition of the policy is by them and how often they promote/promoted this opportunity to prospective authors. The survey could also ask if editors/editorial board members encouraged the promotion on a broader scale by Taylor & Francis personnel. There is obvious confusion over the fact that the fields of library and information science, archives and heritage journals have an embargo waiver and other disciplines do not. At what point will Taylor & Francis decide the waiver is not successful and decide to rescind this policy?

The LIS Scholarship Archive is a recent addition to the scholarly academic literature. The platform is still in soft launch phase and was not available for the published articles used in the study. However, for librarians who work where a local institutional repository does not exist, they do now have a platform outside their institution where they can deposit their preprint. Deposit into a subject repository is a permitted repository according to the authors’ rights web pages provided by Taylor & Francis. It will be interesting to see if the editors, editorial boards and column editors will promote the fact that their authors can now readily deposit accepted manuscripts to this platform. It is of interest to note that 17% of the articles reviewed fall into the category of no repository available and it will be interesting to see if any authors choose to go back retrospectively and deposit their content now that a subject repository is readily available to them.

The use of local institutional repositories as citation tracking services for campus is a relatively new development in academic libraries. The best article explaining the development is a study showing interoperability between current research information systems and institutional repositories from 2014. However, the cited paper tends to focus on European academic libraries and not American ones. The prime reason for adding ‘citation only’ literature to the repository appears to be an attempt at using the institutional repository as the sole research information management system for the entire campus. Circular access issues arise with the addition of citations with DOIs to the local institutional repository but the provision of full text availability does not exist. It appears, at first, that achieving access to an article is available but then the reader retrieves just a citation entry. Librarians should consider this ‘false hit’ situation with the new OA discovery tools like OA Button carefully when choosing to add citations to their repository environment and try to find a way to avoid such a false hit.

As noted, in the results there are six instances where a DOI leads to content other than the article. While it is understandable to want to point to the published article as the version of record, this adds another level of complexity to a reader trying to gain access to the content. A PowerPoint and/or earlier version of the research may be helpful in understanding the concepts and scholarship. However, this practice could lead to some interesting citation errors by the reader. Again, librarians should make sure that there is clarity presented in the metadata used for secondary or derivative works.

Lastly, I purposely chose not to look at the sharing of articles via social networks such as academia.edu and ResearchGate. While it is likely there is sharing of LIS content on these platforms, it is not an aspect that has been central to this particular study (and there is also a question of legality as to whether it is truly ‘green’). When searching for access in Google Scholar, I did find a few instances where a paper appeared to be available in ResearchGate, but these instances were rare.

**Conclusion**

In the introduction, the definition of success is stated as a green deposit rate of 50% or more. The study results show that the deposit rate is closer to 22%. The pilot project undertaken by Taylor & Francis has not been successful according to this author. However, this deposit rate is on a par with many disciplinary studies as noted in the literature review section. The high number of articles published by authors who did not have access
to institutional repositories is also a consideration in this conclusion. If there had been a subject repository available and if each author in this category deposited their article/column there, the results would have been closer to the 50% mark.

This study also indicates that we can and should find ways to be more consistent with metadata application within our repositories. There is still work needed to make all repository content more available to a wider audience and the reliance on the discovery mechanisms built into repositories by the platform providers is not sufficient. LIS content should be readily discoverable to the members of the profession who sit outside academia and who are just beginning their LIS studies.

The sharing of scholarship is an important factor for us professionally. Librarians need to encourage one another to overcome their feelings of imposter syndrome and deposit more readily into repositories where possible. Library administrators in particular should encourage the sharing of scholarship by the librarians at their institutions and by their colleagues. The ready availability of LIS scholarship helps those currently studying to become librarians and helps those in the profession who work in environments outside academia to understand and know the research occurring throughout the profession. The hope is for Taylor & Francis to continue to waive the embargo period on green deposit for LIS scholarly literature and that this article will help both to promote this opportunity and encourage colleagues to self-deposit when possible. Quite simply, we can and should do better than a 22% green deposit rate.

Author’s note: Taylor & Francis personnel had the opportunity to review the article prior to submission for accuracy of statements made about them. They did request clarification on embargo periods and these corrections are included. Taylor & Francis did not otherwise influence the article.

The data set from this study may be found on figshare: https://figshare.com/articles/How_Green_is_Our_Valley_Data_Set/6199922.

Abbreviations and Acronyms
A list of the abbreviations and acronyms used in this and other Insights articles can be accessed here – click on the URL below and then select the ‘Abbreviations and Acronyms’ link at the top of the page it directs you to: http://www.uksg.org/publications#aa

Competing interests
The author has declared no competing interests.

References


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