Tools and Techniques for the Effective and Responsible Management of Print Journal Back-runs in an Academic Library: Lessons from a Case Study

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Abstract

With shifting use patterns and user preferences, competing demands on finite library spaces, and reliable electronic journal backfile platforms, the withdrawal of print journal back-runs from academic library shelves is now commonplace. Yet the related procedures covered in the literature are manual and time-consuming. In a recent print journal management project at an academic library, using current tools and techniques enabled the efficient application of evidence-informed criteria, automated overlap and collection comparison, and responsive implementation. Participation in a shared print archive as part of the project prompted reflections about the associated costs and benefits.

Keywords: overlap; shared print; deselection; weeding; JSTOR

Introduction

The twenty-fifth annual meeting of the American Library Association (ALA), held in Niagara Falls in June 1903, included a Thursday afternoon session on the subject of the "treatment of books according to the amount of their use" (ALA 1903, 5). The conference program lists the

promised speakers, expected to engage with a shared print proposal, “President Elliot’s suggestion for the joint storage of books little used” (ALA 1903, 5). In his Thursday afternoon address, William Coolidge Lane, librarian of Harvard University, discussed the responsibilities of libraries of various sizes, and considered different groupings of books by their use and perceived relative importance. Lane noted that among the books that a library “would gladly be spared the pains of collecting and preserving” are “certain bulky items” which “occupy much space, and are troublesome to maintain complete” (Lane 1903, 10). The bulky items Lane had in mind were “files of directories and registers, statistical reports of many kinds, newspapers, legislative documents, catalogs of schools and colleges, annual reports of states, cities, and towns” (10).

A century later, librarians turned their attention to another variety of certain bulky items occupying much space in the library stacks: long runs of print periodical backfiles increasingly available and used online with the added benefits of remote, simultaneous multi-user access and full-text searching. By the 2010s, withdrawing back-runs of print periodicals reliably available in online platforms from libraries’ physical collections became a standard practice. This article describes a recent effort to manage print periodical back-runs covered in JSTOR at the University of Ottawa—the first step in a large-scale print collection management project in the main campus library.

Though the approach is by now well-established in the literature, this article covers current tools and methods, such as a web-based decision-support tool; lessons from working with a centralized shared print partner; and observations about JSTOR’s content coverage, based on comparisons of the print and digitized versions of articles. Following a review of the literature, we outline the overall project at University of Ottawa library, including the process of

quantifying the stacks' current and target states and the development of data-informed criteria for the assessment of print journals. We then describe some of the practical techniques, methods, and tools used, the workflows developed, and project communication and coordination practices. Developing assessment criteria and implementing workflows in similar projects described in the literature—including by Thomas and Shouse (2012), Gallagher and Rathemacher (2012), Dietsch, Heet, and Thibodeau (2015), and those outlined in Miller and Ward (2021)—involve significant manual effort, much of which can be automated using the widely-available tools and techniques we cover. We end the paper with reflections on the value and costs of participating in a centralized shared print initiative and observations on content coverage gaps in JSTOR.

Literature review

Ferguson and Belvadi (2019) observe that collection managers have come to regard print journal back-runs as "space hogs – collections that are largely duplicated online and can be gotten rid of with little notice or regret" (239). "The literature," they note, "is full of examples of libraries…that have completed projects to clear out older runs of periodicals to make space either for monographic collections or other initiatives in the physical space" (239). Sorensen (2009) points to "evidence of a shift from a very cautious approach to store or discard online-available print journal backruns to informed decision-making that is helping libraries clear their shelves" (228). A cautious approach in the early 2000s, followed by "improvements to the quality, reliability, and long-term access provisions of online journals" later in the decade, made it "possible for academic libraries to consider storing or discarding print backruns" (229). Thomas (2011) and Gallagher and Rathemacher (2012) describe a similar shift.

This shift in approach was supported by changing use patterns and changing faculty attitudes. In their assessment of journal use at American University Library in Washington, DC,

Reeves and Schmidt (2011) reported a 75 percent decline in the use of bound periodicals between 2004 and 2008 and an increase in accessing e-journals between 2006 and 2009, corresponding with an "aggressive shift to electronic-only collecting" (416). A use study of print and e-journals (the sample included current and retrospective content) at University of California Libraries in 2001-2002 found that "removal of…journal issues from the library shelves generated very little comment from library users" (Schottlaender et al. 2004, vi). Ithaka S+R faculty surveys from 2009, 2012, and 2015 showed faculty growing more comfortable with completely discarding print journals "assuming that electronic collections of journals are proven to work well" (Wolff, Rod and Schonfeld 2016, 18).

Thomas (2011) notes that "of the libraries that have withdrawn journal volumes or moved them to storage, many more have done so because of access via JSTOR than any other provider" (24). Schonfeld and Housewright (2009a) summarize JSTOR's practices and the library community's perspective: "JSTOR has been a leader in digital preservation, uses high-quality digitization practices, corrects digitization errors as soon as they are discovered, and is seen as a reliable digital provider. It was created to allow libraries to rely on it for access and preservation purposes and thereby to free up shelf space, and it has become trusted by the community for its standards and sustainability" (18). Beyond studies by, or affiliated with, Ithaka (of which JSTOR is a part), systematic examinations of the faithfulness of JSTOR-digitized journals as compared to the print versions are scant. The sole exception located in the literature is Ladd's 2010 article (and follow-up 2018 article), which compares the digitized version of issues from a total of 35 journals provided through seven electronic archival collections, including JSTOR's Arts and Science I collection. Ladd (2010) found that the failure rate ("any time the print equivalent needed to be consulted to access all the information in the item") in the five JSTOR journals

stood out as “at least an order of magnitude lower than any other collection,” and commented that these results “logically can be ascribed to excellent quality control practices” (10, 12).

Project background, data gathering & planning an approach

The local context

The catalyst for the print collection management project at the University of Ottawa main campus library was the observation of overcrowding in the open stacks, due to long-deferred collection management and maintenance. While the long-term goal of the project is to develop an ongoing print collection lifecycle management plan, the immediate challenge was to develop and implement a strategy for relieving pressures in the open stacks.

The main library is a 6-floor building; the general collection of monographs is distributed among floors 3, 4, and 5, in descending LC call number order from floor 5 to floor 3. Periodicals and other series are housed on floor 6. A government publications collection on floor 3 is organized using the CODOC classification system. Much of the general collection showed signs of overcrowding and stop-gap measures such as the placement of books on their fore-edge (spines facing up) in order to accommodate additional shelves (see Figure 1). Almost all the monograph stacks appeared to be filled to, or beyond, their capacity and some areas were notably under acute pressure, offering a poor browsing experience.

Figure 1: Example of over-crowding in the stacks

Initial data gathering

While visual and anecdotal observations were the impetus for the project, they are inadequate for developing a coherent collection management plan. Project planning requires a quantifiable understanding of the current and target states. A description of the print collection in its current

state can take different forms, from a detailed physical inventory through shelf-reading to a virtual inventory using data extracted from the Library Services Platform (LSP). As Kelly (2021) notes, different methods have their trade-offs: "a physical shelf-scan inventory is more accurate than one based solely on ILS data; however, the trade-off in time may not be worthwhile in the context of your assessment project" (70).

We decided to describe the current and target states using the low-tech method of walking through the stacks, counting and recording the number of shelves in each bay (single facing unit), and comparing the observed capacity to standard shelving as defined in Leighton and Weber (1999). We used an Excel template to record the current state, with the rows representing single-sided rows of shelving, and individual cells representing bays (see Figure 2). The number entered in each cell represents the number of shelves observed in each bay. We also recorded the LC call number ranges of each row. Recording these data in Excel simplified compiling the total counts of shelves, bays, and shelves-per-bay throughout the stacks, and facilitated various analyses, such as capacity by subject area.

					From	To	Bays	Actual shelves
6	7	7	6	7	PER AE25	PER AP2	8	52
7	8	6	6	7	PER AP2	PER AP20	11	76
7	7	8	7	7	PER AP20	PER AP22	11	78
8	7	7	7	7	PER AP22	PER AS30	14	99
7	7	7	7	7	PER AS30	PER B 1	14	99
					LC RANGE	**TOTALS**	**58**	**404**

Figure 2: Excel template excerpt, with each cell noting the number of shelves per bay (template adapted from the Library of Parliament)

Settling on an approach

The results of the stacks capacity analysis were concrete, shelf-level data describing the current state and a specific, quantifiable objective of the target state—i.e., the number of shelves by which the stacks must be reduced in order for the general collection to fit the available shelving in a standard and browsable way. The low-tech data gathering procedure also facilitated an opportunity to observe the collection more closely. We noted that the collection on floor 6 included many back-runs of print journals and other series. We also learned, through the analysis, that the most overcrowded areas of the general collection comprised print-reliant disciplines. Managing those areas of the collection would require careful consideration and extensive consultation. We therefore decided to begin the implementation with a focus on floor 6, comprising print journals and other series. Given the widespread acceptance of e-journals, we expected communication to be straightforward. In addition, working with long journal back-runs would result in more shelves being cleared more quickly. One disadvantage of this approach is the substantial shifting and transfer from the overcrowded areas that would eventually be required.

Tools, methods, decision criteria, and list management

Collection profile and initial overlap analysis

Following the initial data gathering and analysis, and the decision to focus on the 6th floor collection, we produced a profile of that collection at the title level using an Alma Analytics report (Alma Analytics is a feature of the University of Ottawa library LSP, Alma). This profile remained the foundational description and master file where decisions about specific titles were recorded. We were intentionally expansive in the fields we included when creating this report, as it is simpler to remove unneeded fields than re-run a report later, having realized that a given

field would have been useful. Among the fields we included were the titles, ISSNs, OCLC numbers, unique record IDs (MMS IDs in Alma), summary holdings, subject, publication year, and active subscription status. We also included a field for circulation data, though these were quite limited for this collection (the library does not track in-house use).

Once we completed this report, we used Alma Analytics' Overlap and Collection Analysis tool to identify online platforms with coverage of the print journals. The process of creating the overlap report includes inputting a list of ISSNs, which we obtained from the collection profile and cleaned up using Gustafson-Sundell's (2023) method. The overlap analysis output report consists of four tabs, in an Excel format. Titles with a single e-platform match are listed in the first tab; titles with multiple platform matches are listed in the second. The first two tabs list the matching ISSNs, the electronic interfaces and collections overlapping with the print titles, as well as the period of coverage. The third tab lists the ISSNs which did not produce a match. The final tab provides analysis information, including the matching percentage. We summarized the results of the overlap report by noting the number of journal title matches in each e-journal interface and collection. In most cases, we found the interfaces field easier to work with as it lists the vendor (e.g., JSTOR) while collections field lists the platform (e.g., JSTOR Arts & Sciences X).

At the University of Ottawa Library, a dedicated Collection Strategy librarian team is responsible for developing and managing the collection. Members of the team reviewed the summary of collection platforms from the overlap report and assigned platforms the tags 'reliable' or 'discoverable.' This distinction was intended to differentiate between stable, perpetual access content (reliable) and full-text database subscriptions (discoverable). Among all

platforms tagged as reliable, JSTOR had the largest coverage of print journals in the 6th floor collection, and was selected as the first test case for the project.

Developing decision criteria for JSTOR titles: 'What to Withdraw?'

The overlap analysis identified 600 print journals from the 6th floor with coverage in JSTOR. The journals spanned all disciplines though, as expected from coverage in JSTOR, the majority of titles (approximately 70%) were in the arts and humanities and a minority (approximately 5%) were in the sciences, with the rest in the social sciences. Our decision to use JSTOR as a test case was in line with Miller and Ward (2021) who suggest, in *Rightsizing the Academic Library Collection*, 2nd edition, that "starting with JSTOR titles is a low-risk way to begin print journal withdrawals and test procedures" (103). Noting that JSTOR has "one of the best-prepared vendor lists available" (104), Miller and Ward (2021) cover several resources for a print journal withdrawal project based on JSTOR coverage, including the Ithaka S+R 'What to Withdraw' web-based decision-support tool; the Center for Research Libraries' (CRL) JSTOR print archive "consisting of complete runs of many JSTOR titles that have been validated" (104); the Print Archives Preservation Registry (PAPR), also managed by CRL; and a detailed, twenty-step procedure for preparing and reviewing title lists based on overlap in JSTOR.

The timing of print withdrawal projects will depend on individual libraries' space pressures (Schonfeld and Housewright 2009a). While we were aware that academic libraries have done similar projects over the past two decades, we developed an in-house evidence-informed approach using current tools and resources. Ithaka S+R published 'What to Withdraw,' a practical Microsoft Excel-based decision-support tool covering JSTOR-digitized journals and accompanied by an instructional guide, to help libraries manage their print journal back-runs.

The decision support tool proposes the criteria of set completeness, number of copies, and image density, an image-to-page ratio expressed as a percentage. As the instructional guide for the tool notes, the majority of JSTOR-digitized journals have an image-density of 5% or less, "(meaning that the journal averages less than one image per twenty pages)" (Ithaka S+R 2012, 3). Using this image density percentage as a cut-off would exclude "many art history, architecture, and certain scientific journals in which images are especially important" (Ithaka S+R 2012, 3).

Image density proved to be fruitful for evaluating a sample of the print journals from our collection with coverage in JSTOR. Ithaka S+R's hope to release future versions of the decision-support tool, to include "a far larger number of journals from a variety of sources beyond JSTOR," did not come to pass: the tool is no longer being updated by Ithaka S+R (Ithaka S+R 2012, 1; Schonfeld and Housewright 2009b). CRL's PAPR platform, however, provides a quarterly-updated web version of the same tool covering journals in JSTOR (Center for Research Libraries n.d.-a.). We used this updated version to extract an Excel spreadsheet with the image density percentages for journals in the JSTOR collections our library owns. Using the 'xlookup' function in Microsoft 365, we matched the titles on ISSN, and exported the image density percentages column from the spreadsheet extracted from PAPR to the collection profile we had developed earlier. Once we had these data, we identified a sample of 16 journal titles ranging in image density from 5% to 126% (an image density of more than 100% indicates that there are, on average, multiple images per page). The five members of the library's Collection Strategy team (three discipline-based librarians, the section head, and the project manager) were each assigned between three and four titles each to review. Each member received two volumes of each title, randomly chosen from the 6 floor collection (members were also free to look at

additional volumes in the collection) and was asked to respond to the following questions, with an additional field for open-ended notes:

- Is the image density percentage a good representation of the sample volumes considered?
- Would you consider retaining or preserving the print due to image quality, as compared to the digital version?
- Would you consider retaining or preserving the print for other reasons?

The results of the review, which prompted rich group discussions, demonstrated the value of using image density as a 'first-cut.' Of the sample of 16 journal titles, group members selected 12 titles, ranging in image density from 5% to 26%, for deaccession in print. The four titles that group members selected for retention in print ranged in image density from 33% to 126%. Based on these preliminary results, we conservatively set a 9% image density threshold for a likely deaccession decision based on image considerations. Collection Strategy librarians continued to review individual titles in their disciplines and record their decisions for each title, but reserved a more thorough review for titles with image density of 10% or higher.

CRL JSTOR print archive & PAPR

The goal of the CRL JSTOR archive is "to assemble a collection of JSTOR archive journal volumes in print form" using donations from CRL member libraries (Center for Research Libraries n.d.-b.). The archive, located in Chicago, is intended both to preserve print volumes and to provide CRL member libraries with access to the volumes, as needed (Center for Research Libraries n.d.-b.). University of Ottawa Library is a CRL member. We envisaged our participation in the CRL JSTOR archive both as an opportunity to contribute to a shared print

project by filling gaps with volumes that we would otherwise discard and as a potential communication tool, as recommended by the Rosemont Shared Print Alliance and the Partnership for Shared Book Collections (n-d).

Prior to contacting the CRL with our offer to donate volumes, we explored the holdings of the archive using the Print Archives Preservation Registry (PAPR). A CRL service, PAPR contains a directory and searchable database of print archiving programs and other tools "designed to support archiving and management of serials collections" and includes, as already noted, an updated version of the decision-support tool 'What to Withdraw' (Center for Research Libraries n.d.-c.). Although PAPR includes a dedicated webpage for the CRL JSTOR archive where reports of the archived holdings and collection gaps and conditions are available, we found that the output of the broader PAPR collection comparison tool served us well in identifying gaps at the CRL archive (PAPR n.d.-a; PAPR n.d.-b). The collection comparison tool requires uploading a file of OCLC numbers and ISSNs. The output can include two files: a committed matches file and a not-yet-committed file. The not-yet-committed file notes the non-matching records (useful for identifying serials which may be scarcely held). The committed matches file lists the archiving program or programs that have committed to preserve the serials associated with the matching records, and includes columns listing the archived holdings range, completeness validation notes, and condition validation notes.

Using xlookup—the same data-matching function in Excel 365—and matching on ISSNs, we imported the completeness and condition validation notes columns of the JSTOR-covered titles from the output report to our collection profile. Once we matched the data from PAPR, we contacted CRL with our offer to donate titles. The archive manager at CRL provided a custom list of wanted titles and volume range accompanied by ISSNs. We kept the two columns

already imported (completeness validation notes and condition validation notes) and, using the same method, imported an additional column to our collection profile with the volumes from the CRL list.

The tools and methods presented so far capture some of the ways that allowed us to reduce some of the manual work in the analysis. The overlap analysis tool is specific to Alma Analytics. However, even libraries that do not have access to Alma Analytics should be able to generate a list of local periodical holdings, including their ISSNs, and will generally have access to standard Microsoft 365 tools, including Excel. With the output list of print periodicals serving as the collection profile, an overlap of local holdings with JSTOR journals can also done by cross-matching the local titles (using ISSNs as the data point) with JSTOR's publicly available complete title history list (JSTOR n-d.). For our project, we used the JSTOR title list as an additional data point to verify the dates of coverage which were indicated in the Alma Analytics overlap analysis. In either case—whether the library uses Alma and has access to Alma Analytics' overlap report as a starting point, or the matching for JSTOR journals is done directly by comparing against JSTOR's own title list—much of the time-consuming effort of manual verification can be avoided.

List management & preparation for actioning

Planning and implementing a print management project means that Excel lists will proliferate. Being able to efficiently generate lists with the required data and keeping track of the various lists are both essential. We found that having a hierarchical folder structure and standardized file naming conventions that accommodate versioning are good practices. We used the collection profile as a master file where we kept track of overlap analysis results (such as e-platforms

coverage) as well as recorded decisions for titles. We also used data in the master file as the source for creating sub-lists for reviews, decisions, and implementation. Once decisions were recorded in the sub-lists, we used data matching to import them back to the master list, where we could keep track of them, as the project progressed.

Once we recorded the decisions for each title—withdraw or retain off-site, we used an Alma Analytics report template to create and prepare barcode-level lists for implementation. We used unique record IDs (the Metadata Management System Identifier, or MMS ID) as the report prompt. Each barcode-level report, exported and saved as an Excel file, included fields for call number, location, title, description, summary holdings, physical item ID, and barcode. Using the same matching technique as above, we imported fields for JSTOR coverage and volumes needed by the CRL from our collection profile to each of the barcode-level lists. We added a binary (Y/N) column for staff to indicate whether the recorded item was withdrawn and should subsequently be deaccessioned from the LSP. Working with these data, we colour-coded the barcode and description fields of each item to indicate whether, based on JSTOR coverage and the CRL archive gaps and conditions reports, the item should be deaccessioned (green highlight), set aside for the CRL archive (yellow highlight), or retained (red highlight). Highlighting individual items fields was the most time-consuming element of list preparation.

Implementation and results

Elements of implementation: coordination among teams and project communication

A concurrent retrospective barcoding project on the 6th floor, where serials have previously been described and catalogued at the title level, presented complications for the implementation of this project. The retrospective project involved a team of library technicians barcoding volumes in call-number order. On the implementation lists we prepared, journals whose volumes had not yet

been barcoded appeared as single lines with no data for the description or barcode fields. In those cases, the print volume coverage or number of volumes on site were not indicated. No colour-coding was done in those cases; members of the implementation team had to make determinations on site, based on the volumes they found and the coverage and CRL data provided. The two teams concurrently working on the two projects (implementation and barcoding) had to coordinate their efforts. To enable this coordination, we shared the lists and JSTOR coverage with the barcoding project team. Based on these lists, members of the barcoding project team would know which titles and volumes they could skip (i.e., the volumes that would be withdrawn). The two teams coordinated on the floor using color-coded cardboard flags.

Further coordination between the project implementation team and the metadata team ensured that the appropriate records were deaccessioned from the LSP. The head of the metadata team indicated that bibliographic data, such as physical item IDs, would be sufficient for the purpose of deaccessioning records, thereby reducing the shuttling of physical items. The technician coordinating the implementation project shared the completed deaccession lists with the head of the metadata team, who then ran deaccessioning jobs using the bibliographic data. In the case of non-barcoded items, members of the implementation team indicated whether deaccessioning was complete (all volumes were to be withdrawn, in which case the record could be deaccessioned from the LSP), or partial (due to coverage, some volumes were to be retained, in which case the title record was retained in the LSP). As members of the implementation staff put aside volumes for the CRL JSTOR archive, they also populated a spreadsheet tab with the titles and volumes—these files formed the basis of the lists subsequently sent to CRL for review.

To manage the work and communicate the progress of the various teams, we created an Excel-based tracker of project activities. Each row of the tracker summarized the progress for a list of project titles; fields noted the number of titles and LC call-number range. Each section tracked a distinct project activity, ranging from collection analysis to deaccessioning items from the LSP. Sections included fields for activity status ('not started,' 'in progress,' 'complete') and fields for activity start and end-date. Members from the different teams involved in the project had editing access to the tracker and populated the data pertaining to their work. We found the tracking tool, which we have continued to use for subsequent elements of the project, to be useful both for the regular management of the project and as a resource for compiling project statistics and communicating progress.

Results

As noted above, our initial comparison of a sample of print and digitized journals led to the decision to reserve a more thorough review for journals having an image density threshold of 10% or higher. We followed the first sample review with a second one, in which the three Collection Strategy librarians reviewed between 10 and 11 additional titles, with varying (or unknown) image density percentages of between 0% and 94% in their respective discipline—humanities, social sciences, and science. Of the 31 titles reviewed, only one title was selected for retention at the library's remote storage facility due to illegibility of some of the scans. We used the results from both sample reviews to create the first deaccession implementation list—a pilot list of 38 titles. This list was an opportunity to develop and test the workflows for the remainder of the project. It included titles drawn from various subject areas, represented by various call-number ranges, and a mix of titles whose volumes were barcoded and those which were not.

Out of the 600 journals with coverage in JSTOR, we identified 40 for retention in print in offsite storage. We chose to retain titles based on local subject area and image quality considerations. Of the 40 titles selected for retention, only six titles had an image density that was either unknown or under 10 percent. The subject areas of journals selected for retention were dominated by archaeology, antiquities, and the visual arts. Approximately 80% of the titles we identified for deaccessioning were in the image density range of 9% and under.

The implementation team lead indicated that sequential lists of approximately 100 journal titles were manageable. Following the pilot list, low image density journals were divided into four lists in call number order, with a fifth list comprising high image density titles selected for deaccessioning in all LC call number ranges. The implementation was completed between April and July of 2023, an opportune period for the activity, while minimizing disruption to on-site library users. Because many titles were not described at the volume level, figures for estimating the impact of the work on shelf space were not immediately available, though we can calculate the impact by comparing the results on the floor with the initial baseline shelf count collected in the data gathering stage.

CRL JSTOR archive donations

Identifying and verifying volumes for the CRL JSTOR archive involved several steps. Though we relied on data from CRL and PAPR to identify volumes that would fill gaps in the archive, we took the additional step of sharing lists of the identified titles with CRL for their review and confirmation of volumes needed and not needed for the archive. The secondary verification continued well beyond the deaccessioning of volumes: we sent the first list to CRL in May 2023 and the final one in February 2024. After receiving each list, a library staff member assigned to

the project would box the volumes CRL requested and discard the rest. In total, CRL requested volumes for the JSTOR print archives from 170 print titles. Some of the titles were not described at the volume level and we did not compile a count of the total number of volumes boxed for shipping.

Discussion & lessons learned

Project Workflows

Project workflows, documentation, and communication took form through iteration, testing, and input from colleagues. The project benefited from a dedicated librarian project manager; the implementation team also assigned a detail-oriented technician to coordinate the work of multiple technicians involved in actioning decisions, and to communicate regularly with the project manager as issues and questions arose. Given journal title changes and questions related to coverage in JSTOR, this ongoing communication proved to be fruitful for ensuring accuracy in physical deaccessioning and metadata work. In describing a different collection assessment project, Kelly (2014, 587) observed the value in "placing the core of [an effort's] responsibility" with a single collections staff member; we similarly found value in having a dedicated resource responsible for managing the project.

Shared print

Schonfeld and Housewright (2009a) enumerate the benefits of preserving print copies of journals covered in reliable electronic platforms. As a CRL member, our library elected to participate in the JSTOR print archive and ensure that the print versions of the journals that we donate to the archive would continue to be available to our users (and other users in the network) for consultation, should the need arise. Our participation was also a potential communication

strategy, in response to user concerns about the loss of the print versions of the journals selected for deaccessioning. Yet beyond the value of contributing to a preservation effort, the benefits of participation remained, for us, theoretical. In their research on journal preservation, based on JSTOR journal data, Yano, Shen, and Chan (2013) suggest that "the availability of the material in electronic form will lead to very low (physical) usage rates" (7460). And indeed, Waltz and Wood (2018) and Schonfeld and Housewright (2009a) report that, in practice, requests for the physical material residing in two of the shared print repositories mirroring JSTOR are rare. Further, we found that there was no need to allay users' concerns about the loss of the print versions of journals, as such concerns were not raised.

If the benefits of participating in the CRL JSTOR archive were abstract, the costs were concrete and significant. The additional workflow steps meant that staff spent additional time identifying volumes listed as needed by CRL and physically separating and boxing volumes in the secondary CRL-verified lists. The library technician coordinating the implementation efforts noted that the task of verifying the volumes needed by CRL, based on the lists available, added significant time to the work—particularly for journals whose volumes were not barcoded. Given the limited resources available for this project and the effort required to action the large volume of work, we learned that adding a shared print component to the project, though a responsible approach for long-term preservation, meant absorbing opportunity costs.

Platform Reliability

During the process of tagging e-journal platforms, we had thoughtful discussions about what it means for a platform to be considered reliable. There are two broad tests of e-journal backfile platform reliability to consider: the presentation of content equivalent to the original; and

confidence in enjoying ongoing, perpetual access to the platform. There are two ways in which platforms might fail the first test: either by intentionally omitting part of the content (for example, content not considered to be part of scholarly record, such as advertisements); or by unintentionally providing an inadequate equivalent to the original format due to errors in the scanning process resulting in, for example, missing pages or illegibly scanned images.

As Schonfeld (2003) notes in *JSTOR: A History*, the platform was originally conceived with a "mission of saving space for libraries," necessitating a "rock-solid guarantee…that the intellectual content of the journal would be safe-guarded and accessible in perpetuity" (99, 135). For the same reason, JSTOR intentionally digitized the "complete backfile of each journal" (Schonfeld 2003, 140). Indeed, JSTOR had processes for verifying the print copies used in the digitization process, as a result of which "JSTOR's backfile of any given journal was more complete than probably any set of hard-copies on a library shelf" (Schonfeld 2003, 157).

In our comparisons of local print journals with the JSTOR-digitized versions, we found the digitized versions to be generally satisfactory. However, two categories of print journal content that were not systematically digitized in JSTOR emerged: journal indexes and supplements. In these cases, as in a few others, we contacted JSTOR support through the responsive chat service. JSTOR support representatives explained that the platform excludes journal indexes and journal supplements unless the publisher specifically requests their inclusion (as a provider of journal backfiles, JSTOR licenses the content from publishers, digitizes it, and subsequently re-licenses the platform collections to libraries).

Excluding print indexes and supplements from reliable e-platforms introduces the risk of scarcity. The print indexes we identified were the product of intense intellectual labour and were intended to serve as search aids, covering decades' worth of articles. In addition, they include

brief summaries of the journals' histories and, in one case, photographs. One of the many benefits of JSTOR and other electronic platforms is full-text searching, a capability which rendered indexes all but functionally obsolete, to users' considerable benefit. This improvement in searching also means that, for library collections relying on electronic platforms, retaining print indexes of any kind—including print journal indexes—is a low priority. Shared print initiatives, especially those specifically intended to mirror JSTOR collections, may also overlook print indexes. Yet print indexes may be useful in researching both the history of journals and contemporary indexing methods and decisions. Van Beuren (2018) presents historical examples of specialized indexes that offer glimpses into the contemporary print culture and notes that "periodical indexes can be valuable as source material in their own right." A study of the scarcity of print indexes in library and repository collections may be an avenue for further research.

Journal supplements include a variety of content, including—in the supplements we identified—substantial scholarly articles. vanDuinkerken and Valdes (2022) cover the role of journal supplements dating back to "many early periodicals' formative years, and which continues today across virtually all subject matters in both print and electronic formats" (205). Their study explores inconsistent practices in the cataloguing of journal supplements which, in the context of shared print repositories, make supplements "susceptible to inadvertent attrition" or, put plainly, loss (210). The expectation that reliable e-journal platforms include content equivalent to the print should extend to journal supplements, especially as they constitute a special problem for long-term print preservation.

Conclusion

Miller and Ward's (2021) advice of beginning a print journal management project with titles covered in JSTOR is well considered. In addition to creating a platform which enables searching

and access to journal backfiles, JSTOR and Ithaka have also demonstrated a commitment to journal preservation through archiving and verifying the original print versions, supporting research about the optimal number of copies required for preservation, and producing thoughtful analyses and a practical decision support tool to aid libraries in managing print journal back-runs. This is considerably more than can be said about any other aggregator, platform, or publisher (Yano, Shen, and Chan 2013). CRL's efforts in facilitating serial preservation, including PAPR, made more tools widely available for managing print serials locally, with due consideration for broader preservation initiatives. These tools, and a suite of other widely-available ones, enabled us to formulate and apply practical, evidence-informed criteria for decision-making and create efficient project workflows. This experience has proved to be valuable as we continue to assess print journals digitized in other platforms. Libraries embarking on similar projects may benefit from the processes, tools, workflows, and methods we describe when seeking to manage their print journal back-run collections both efficiently and responsibly.

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