Practices and Reflections on Effective Discovery and Preservation of Electronic Journal Postprints

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Abstract

[Purpose/Significance] This paper presents the specific methods and practical considerations for the effective discovery and maintenance of electronic journals at Tsinghua University Library, providing reference for peer libraries to improve the quality of electronic journal discovery and services.

[Method/Process] Based on an analysis of the necessity for discovering and maintaining electronic journals, this paper elaborates in detail on the practices of Tsinghua University Library in discovering and maintaining electronic journals based on SFX and ALMA from six aspects: adjusting position settings and establishing organizational workflows for electronic journal discovery, standardizing methods for electronic journal discovery, standardizing methods for electronic journal maintenance, establishing smooth feedback channels, participating in knowledge base construction, and conducting promotional training for electronic journals, and explores how to effectively utilize and analyze electronic journals.

[Result/Conclusion] Although effective discovery and maintenance of electronic journals is challenging, there are systematic approaches to follow. Libraries should actively explore and practice to improve the comprehensiveness and accuracy of resource discovery, thereby better serving faculty and students.

Full Text

Preamble

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Effective Reveal and Maintenance of Electronic Journals: Practices and Reflections

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Abstract

[**Purpose/Significance**] This paper introduces the specific methods and practical considerations for effectively revealing and maintaining electronic journals at Tsinghua University Library, providing a reference for peer libraries to improve the quality of electronic journal discovery and services. [**Method/Process**] Based on an analysis of the necessity for electronic journal reveal and maintenance, this study elaborates on Tsinghua University Library's practices using SFX and ALMA from six aspects: adjusting post settings and establishing electronic journal reveal/maintenance workflows, standardizing electronic journal reveal methods, standardizing electronic journal maintenance methods, establishing smooth feedback channels, participating in knowledge base construction, and conducting electronic journal publicity and training. The paper also discusses how to effectively utilize and analyze electronic journals. [**Result/Conclusion**] Although the effective reveal and maintenance of electronic journals is challenging, there are established practices to follow. Libraries should actively explore and implement improvements to enhance the comprehensiveness and accuracy of resource discovery, thereby better serving users.

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1. Necessity of Electronic Journal Reveal and Maintenance

With the development of libraries and increasing user demands, the variety and quantity of electronic journals subscribed to by academic libraries have shown a gradual upward trend. At Tsinghua University Library, for example, the annual electronic resources budget accounts for approximately 70% of the total library materials budget. By the end of 2016, the number of full-text electronic journals had reached 89,000; the electronic journal navigation system recorded over 5.2 million visits annually. The Shuimu Discovery platform, another important access point for electronic journal articles, has shown a year-over-year increase in visits from 2012 to 2016, with visits reaching over 2.01 million in 2016 alone [1].

Electronic journal navigation and discovery platforms serve as critical entry points for readers to access electronic journals. SFX (OpenURL link resolver) and ALMA (next-generation library services platform) integrate the library's electronic journal collections into a unified system, enabling effective control and local management of electronic journal holdings. The reveal and maintenance of electronic journals based on SFX and ALMA directly impact user experience and effective resource utilization, making this area worthy of attention from libraries.

2. Related Progress in Electronic Journal Reveal and Maintenance

Currently, academic libraries primarily employ two methods for organizing and revealing electronic journals: electronic journal cataloging and electronic journal navigation. According to surveys, only a few libraries such as Tsinghua University Library and Xi'an Jiaotong University Library perform cataloging and data maintenance for electronic journals [3]. In recent years, many libraries have introduced electronic journal navigation systems, but maintenance levels vary across institutions, and no unified maintenance standards currently exist. Electronic journals feature diverse sources, large quantities, frequent changes, and high user demand, requiring robust access and utilization support. Gao Li and Wang Xirong's investigation of electronic journal usage from the perspective of user information behavior found that users' biggest challenges when accessing electronic journals are slow access speeds and connection failures, suggesting that libraries should provide users with reliable connection experiences [4]. Tan Hongying and Liu Qinghua proposed in-depth reporting for electronic journal databases from three aspects: bibliographic control systems, navigation systems, and retrieval systems [5]. C. A. Borchert introduced the University of South Florida Library's practices in electronic journal management processes and quality control, including using electronic journal processing forms to record license agreements, subscriptions, login information, SFX activation, and batch downloading of bibliographic records, as well as using a ticketing system for electronic journal error reporting and resolution [6]. X. T. Chen analyzed over 400 SFX-related broken link reports from library users, identifying issues related to volume/issue numbers, supplements, rolling coverage, book reviews, and DOIs in OpenURL linking; the study also examined how publishers, database vendors, and OpenURL providers could improve product quality and how librarians could better serve users [7]. These studies demonstrate that theoretical research on accurate electronic journal access has received widespread attention in the library community, yet specific practices for effective electronic journal reveal and maintenance remain underreported.

3. Electronic Journal Reveal and Maintenance at Tsinghua University Library

Tsinghua University Library has consistently prioritized electronic journal reveal and maintenance, continuously exploring and improving its systems, post settings, and workflows. In 2001, the library established an electronic journal navigation system; in 2006, it introduced the SFX system for journal linking services; in 2010, it built a multi-level, three-dimensional journal navigation system based on SFX-managed journal data [8]. In October 2017, the library's management system migrated to ALMA, with SFX-managed electronic journal data synchronously transferred to the ALMA platform. While ALMA enables full-process management of electronic journals, the reveal and maintenance principles for electronic journals in SFX and ALMA are fundamentally similar.

Therefore, experience gained from SFX-based electronic journal reveal is equally applicable in the ALMA environment.

3.1 Establishing Electronic Journal Reveal and Maintenance Workflows

From resource procurement to discovery, and then to reader utilization and feedback, electronic resources management requires participation from multiple departments and positions, prompting libraries to consider how to establish rational electronic resource management models from the perspectives of workflow and organizational structure [9]. The promotion of next-generation management systems and workflow changes has made adjustments to electronic resource service-related organizations and positions inevitable. P. Fu and M. Fitzgerald conducted comparative studies on system architecture, workflows, and functions between traditional and next-generation library systems, arguing that libraries should adjust staffing models to address opportunities and challenges brought by new management systems [10]. In 2016, during Tsinghua Library's latest post appointment process, a dedicated electronic resource management and reveal position was established, responsible for electronic resource maintenance and database cataloging, requiring staff with extensive electronic journal cataloging experience. Based on this, a more standardized electronic journal reveal and maintenance workflow was established based on SFX and ALMA (see Figure 1 [Figure 1: see original paper]), creating an integrated process from resource procurement to organization and discovery, to consultation and fault response, and finally to statistical evaluation.

3.2 Standardizing Electronic Journal Reveal Methods

Electronic journal reveal involves activation in SFX and ALMA, MARC cataloging of journals, and ensuring searchability and accessibility for users through the electronic journal navigation and discovery platform interfaces. This section focuses on journal-level reveal methods, which include two approaches: whole-database activation/auto-update and selective activation using journal lists provided by database vendors.

3.2.1 Revealing Whole-Database Purchased Electronic Journals

For aggregated databases such as ProQuest, EBSCO, and Gale, due to their large data volume, frequent changes, and limited feasibility of manual maintenance, we adopt whole-database activation with automatic synchronization and updates between the database and SFX/ALMA knowledge base data.

3.2.2 Revealing Non-Whole-Database Purchased Electronic Journals

For databases such as Wiley and Taylor that are not purchased as complete packages, we request subscription lists from database vendors and perform selective activation based on SFX/ALMA knowledge base data. This process involves three steps: (1) acquisition librarians request journal data lists from database vendors according to cataloging librarians' requirements; (2) cataloging librar-

ians process the journal lists into system-supported upload formats, activate corresponding databases and services, and upload the lists; (3) verify data upload reports and revise erroneous data. The first two steps are most critical. For the first step, since data accuracy and completeness form the foundation for processing, we have established specific requirements for journal data lists, including at minimum: journal ID, eISSN, ISSN, journal title, URL, and Tsinghua Library's full-text access coverage dates. The second step requires cataloging librarians to understand the journal databases and master Excel data processing operations, such as utilizing Excel functions (e.g., VLOOKUP, text splitting, filtering) and formulas for data merging.

3.2.3 Revealing OA and Free Resources

The library community has increasingly focused on revealing and promoting OA resources, with studies suggesting that libraries should strengthen the organization and discovery of free resources [11-12]. Tsinghua University Library has established an independent site for revealing free network academic resources [13]. In recent years, more publishers such as Wiley, Taylor, and Oxford have published OA journals, while some publishers like Nature and Wiley also provide free journals. User feedback indicates that high-quality journals exist among OA publications, and readers have demonstrated demand for them. Therefore, the library reveals OA journals from well-known publishers and promotes them to subject librarians. For large free databases such as HathiTrust and DOAJ where journal data is difficult to obtain, we adopt whole-database activation with automatic updates.

3.3 Standardizing Electronic Journal Maintenance Methods

While electronic journal reveal ensures resources are presented to readers, electronic journal information changes frequently due to publisher changes, ceased publications, title changes, transfers to OA publishing, etc. Therefore, libraries must strengthen electronic journal maintenance to provide timely and accurate data to faculty and students. This study identifies several key focus areas:

3.3.1 Database-Based Maintenance

(1) **Newly Subscribed Databases**: Monitor whether subscribed resources involve journals, obtain and reveal journal data promptly to ensure readers can access newly subscribed resources in a timely manner.

(2) **Cancelled Databases or Ceased Publications**: When cancelling a database, promptly deactivate related journals, though some databases remain accessible after cancellation and do not require deactivation. For individual journals that have ceased or transferred but remain accessible, these should not be overlooked in discovery.

(3) **Chinese Databases**: Due to non-standard issues in Chinese databases (such as CNKI, VIP, Wanfang) including multiple journals sharing one number, journals without numbers, and data lag, cataloging librarians must invest more effort in processing raw data and urge Chinese database platform vendors to continuously standardize their data.

(4) **Foreign Databases**: Most foreign databases still require manual list uploads based on subscription inventories. Some foreign databases like Elsevier and OVID can be configured for automatic updates in SFX or ALMA, with the system matching subscription content for automatic updates. For aggregated foreign databases like ProQuest, maintenance is generally performed twice annually, focusing on deactivating non-full-text journals in the knowledge base and supplementing full-text journal information with interrupted coverage.
(5) **Open Access and Free Journal Databases**: SFX and ALMA knowledge bases provide rich OA and free journal data for discovery. In practice, for databases where OA and free journal lists are obtainable, we use list uploads to provide users with the most timely and accurate resource information. For databases where lists are difficult to obtain, we rely on knowledge base data for discovery.

3.3.2 Subscription-Based Maintenance

For new subscriptions containing journal data, we reveal them promptly. For databases with regular year-end renewals, we request lists after renewal and perform maintenance annually. For aggregated databases like ProQuest, we generally conduct troubleshooting and maintenance twice yearly.

3.3.3 User Feedback-Based Maintenance

Practice shows that user feedback constitutes an indispensable component of journal maintenance. For example, interlibrary loan staff are more likely to identify issues in electronic journal discovery, and readers encounter difficulties accessing full-text and provide feedback to the library. Feedback from both staff and readers prompts the library to re-verify and revise data, thereby identifying various issues in data lists, database platforms, and knowledge base data.

3.4 Establishing Smooth Feedback Channels for Timely User Response

Although electronic journal reveal and maintenance represent "behind-the-scenes" library work, maintenance accuracy is constantly under user scrutiny. Inaccurate or incomplete lists from database vendors, errors or delayed updates in knowledge base data, and processing mistakes by cataloging librarians can all lead to inaccurate retrieval results for users on electronic journal navigation and discovery platforms, creating poor search experiences. Therefore, establishing effective feedback channels is essential. Many peer institutions offer valuable practices in this regard. For example, the Karolinska Institute Library [14], the Royal Danish Library [15], and the University of Toronto Libraries [16] have all set up feedback form entry points on their search result interfaces, with forms containing ISSN and TITLE information to provide clear channels for user feedback. Tsinghua University Library employs an electronic resources maintenance email group as its feedback mechanism. When encountering full-text access issues with electronic journals, readers can submit problems via email to the electronic resources maintenance group, whose members include the deputy director in charge of acquisitions and electronic resources, cataloging librarians,

technical maintenance librarians, and reference librarians, enabling timely responses. Sometimes, user feedback helps librarians identify changes across an entire database's journals from a single title, or even technical issues with discovery platforms. Establishing smooth feedback channels engages readers in electronic journal maintenance work, creating a four-party collaborative maintenance model involving readers, librarians, system vendors, and database vendors.

3.5 Participating in Knowledge Base Construction Through Customer Portals

Since the data foundation for electronic journal reveal and maintenance is the SFX/ALMA knowledge base, we have identified issues in practice such as data lag, missing data, and inaccurate information display. Through collaboration with SFX/ALMA system vendors, we now primarily submit and track issues through customer portals [17] they have established. In communicating with system vendors, the library helps identify problems in SFX/ALMA knowledge base maintenance and updates, urging vendors to perform updates and maintenance, thereby participating in knowledge base construction. As SFX/ALMA are used by numerous universities, this work benefits many institutions.

3.6 Conducting Electronic Journal Publicity and Training to Enhance Information Literacy

In addition to organizing and revealing electronic journals, libraries should strengthen publicity and training for electronic journal usage. Research on electronic journal marketing strategies has gradually gained attention in the library community. M. Wanjiku argues that librarians must recognize the need to market resources, though many libraries have not invested sufficient funds in resource marketing [18]. H. A. H. Richardson notes that libraries face challenges in effectively connecting resources with users and proposes nine steps in the marketing process along with specific marketing strategies [19]. In practical implementation, Chang Dingyi investigated and analyzed the current state of WeChat-based electronic resources promotion in "985 Project" university libraries, suggesting that broadening promotion scope, expanding content depth, focusing on hot topics of interest to university students, and creating brand activities can improve promotion effectiveness [20]. Tsinghua Library has also conducted a series of electronic resources usage training sessions covering Chinese and foreign electronic journals and discovery systems [21]. This study argues that to ensure effective utilization of subscribed electronic journals, libraries should establish marketing concepts and teams, and systematically conduct electronic journal usage training and promotional activities leveraging database vendors, subject librarians, faculty advisors, student advisors, and student organizations.

4. Conclusion

Electronic journal reveal and maintenance is a long-term undertaking. With the gradual promotion and application of the ALMA library management system, the importance of effective electronic journal reveal and maintenance has become increasingly prominent. As the ALMA resource management system goes online, SFX-based electronic journal management will gradually migrate to the ALMA management platform. Tsinghua Library's experience with SFX-based electronic journal reveal and maintenance has been well applied in the ALMA environment and can provide valuable lessons for peer institutions.

Based on the above work, this study suggests that libraries should undertake further efforts in several areas: strengthen comparative research between discovery system knowledge bases and ALMA knowledge bases to analyze the indexing scope (full-text, abstracts, etc.) of subscribed journal resources, enabling clearer understanding of overall resource reveal levels and providing more professional guidance for resource access. Cataloging librarians can revise MARC data for electronic journals in the ALMA knowledge base or import more standardized local MARC data, increasing library flexibility in electronic journal information reveal. Practice shows that MARC data standards and specifications from different database vendors are not entirely consistent—for example, Chinese journal MARC data is often incomplete, some foreign journals frequently change titles and numbers while knowledge base MARC data fails to reflect these relationships, and journal electronic or print numbers in MARC data are placed in non-searchable fields. These situations require cataloging librarians to perform necessary supplementation, verification, and revision of MARC data to ensure accurate front-end retrieval for users. Following user needs, libraries should continuously improve discovery system platform interfaces to enhance usability and accessibility, maximizing resource utilization [22].

Effective electronic journal reveal and maintenance depends not only on libraries but also on cooperation from database vendors and system vendors, as well as user supervision. Libraries, database vendors, and system vendors should be user-demand-oriented, with user needs driving tripartite cooperation and service improvement. In this process, libraries should not only focus on specific tasks of electronic journal data reveal and maintenance but also play a greater role in urging database vendors and system vendors to improve data quality and services.

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Note: Figure translations are in progress. See original paper for figures.