Survey and Analysis of the Current Status of Open Access Academic Resources from University Presses Based on Discovery Systems: Post-Print

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Abstract

[Purpose/Significance] To investigate and comprehend the current state of openness and development trends of academic resources from university presses within discovery systems.

[Method/Process] This study tested the indexing depth of academic resources from 15 university presses within two mainstream discovery systems, PRIMO and SUMMON. Statistics were compiled on the indexing depth and scale of these resources, as well as trends in the number of university presses and resources covered. Using Tsinghua University Press as a case study, the imperative for domestic university presses to accelerate open sharing of their academic resources was examined.

[Results/Conclusion] The results indicate an upward trend in the number of foreign university presses and their academic resources covered by discovery systems; however, the indexing depth for subscription-based and OA resources has not universally achieved full-text level. The open sharing of Chinese-language resources warrants increased attention.

Full Text

Investigation and Analysis of Open Scholarly Resources of University Presses Based on Discovery Systems

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Abstract

[**Purpose/Significance**] This study investigates the current status and development trends of open scholarly resources from university presses within discovery systems. [**Method/Process**] Focusing on scholarly resources from 15 university presses covered by two mainstream discovery systems, PRIMO and SUMMON, we tested the indexing depth of these resources. We examined the indexing depth and scale of university press resources in discovery systems, as well as the changing trends in the number of university presses and their resources covered by these systems. Using Tsinghua University Press as a case study, we discuss the need to accelerate the open sharing of scholarly resources from domestic university presses. [**Result/Conclusion**] The findings indicate an upward trend in the number of foreign university presses and their scholarly resources in discovery systems. However, the indexing depth for both subscription-based and open access resources has not universally reached the full-text level. The open sharing of Chinese-language resources warrants attention.

Keywords: university press, scholarly resources, indexing depth
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Universities are centers of knowledge production, and university presses serve the teaching and research missions of universities, acting as bridges for cultural exchange between universities and society [1]. As the "Chinese Culture Going Global" strategy is deployed and implemented, disseminating Chinese knowledge and cultural achievements to the international community and enhancing their global influence has become a shared responsibility of universities, their affiliated presses, and libraries. Openness is the best means of knowledge dissemination. The maturity and application of metadata exchange and open linking technologies are core forces driving knowledge openness in the digital network era.

Resource discovery systems collaborate with content providers such as presses to collect massive amounts of metadata from heterogeneous resources through metadata exchange technology, provide resource search services to end users through pre-indexing, and ultimately enable resource access through open linking technology. To date, over 7,000 publishers [2-3] worldwide have partnered with mainstream resource discovery systems to enhance resource visibility by opening up metadata and even object data. Among them, university presses are also actively integrating into the open scholarly communication ecosystem, exploring various channels to enhance their dissemination impact.

Serials Solutions launched the first web-scale resource discovery system, Sum-

mon. Ex Libris, an Israeli company, released the unified resource discovery system, Primo. As two mainstream discovery systems (the two companies merged in 2015, but the systems continue to operate independently), they have also incorporated substantial resources from university presses. For example, HighWire, operated by Stanford University Press and established in 1995, collaborates with 708 institutions including academic presses, societies, and university presses, hosting over 3,000 electronic journals, books, conference proceedings, and other resources, with a total of 7,659,003 articles, of which 2,434,604 are freely accessible [4]. In 2010, Oxford University Press in the UK moved 1.2 million online journal articles to the HighWire 2.0 platform; in 2013, Duke University Press in the US chose to partner with HighWire to build a new e-book platform. HighWire has become the world's largest academic literature publisher providing free full-text access, posing strong competition to traditional commercial publishers driven by profit motives [5]. Cambridge University Press, founded in 1534, publishes over 360 full-text electronic journals, with nearly 72% of its journals indexed in SCI/SSCI/A&HCI, and more than 30 ranked in the top 10 within their disciplines [6]. Oxford University Press currently publishes over 220 peer-reviewed electronic journals, 60% of which are published in collaboration with societies and international organizations, covering a broad range of academic fields and including many of the world's most highly cited academic journals and articles [7]. Moreover, both Oxford University Press and Cambridge University Press launched open access initiatives in 2004 and 2006, respectively [8]. This demonstrates that university presses are gradually adopting a more open stance, promoting the dissemination of scientific achievements through collaboration and open access.

Unified resource discovery systems have been adopted by most universities and research institutions to help users search for and access resources through a one-stop interface. Current research in the library community on discovery systems has focused on comparisons of different platforms and metadata evaluation [9-10], with no reported studies on the openness of scholarly resources within these systems. This paper attempts to investigate two aspects: the indexing depth of scholarly resources from university presses in discovery systems and the number of university presses covered by these systems. Combined with a case study of open access journals from Tsinghua University Press, we aim to infer trends in the openness of scholarly resources from university presses within discovery systems.

1.1 Selection of Prestigious University Presses

The Summon discovery system from ProQuest covers 84 university presses [3]. Tsinghua University Library has employed the Ex Libris discovery system Primo since 2011, with its backend resources covering over 20 university presses including Cambridge University Press, Duke University Press, Edinburgh University Press, Oxford University Press, University of Chicago Press, and MIT Press. Based on world university rankings [11], we selected 15 prestigious university

presses ranked within the top 30 that primarily publish journals and are indexed by both discovery systems. Through website testing, we analyzed the current status of metadata openness for resources from these presses in both PRIMO and SUMMON.

These 15 university presses include Cambridge University Press [12], Coimbra University Press [13], Cornell University Press [14], Duke University Press [15], Edinburgh University Press [16], Johns Hopkins University Press [17], MIT Press [18], Michigan State University Press [19], Oxford University Press [20], Purdue University Press [21], RMIT Publishing [22], University of California Press [23], University of Chicago Press [24], University of Toronto Press [25], and University of Massachusetts Press [26]. All are prestigious university presses with high academic reputations. The disciplinary scope and resource types of these presses vary. For instance, Cambridge University Press publishes both journals and books, with its journals covering humanities and social sciences, science and technology, and medicine. Some presses, such as Princeton University Press and Stanford University Press, publish only books. This study focuses primarily on the journal resources of these presses.

1.2 Indexing Depth of University Press Scholarly Resources in Discovery Systems: Investigation and Implications

Discovery system metadata content can be relatively categorized as "thin" or "thick." So-called "thin metadata" refers to metadata with very few fields, including basic information such as title, author, collaborators, source, and identifiers. If a record contains not only this basic information but also subjects, abstracts, and other details, it is typical "thick metadata." While thick metadata offers no particular advantage in basic searches by title, source, or author, it demonstrates clear benefits in data analysis, reorganization, reuse, and data mining [27].

This study primarily uses journal article data as its research foundation, with indexing depth as the test object, to determine indexing scale (the proportion of full text, abstracts, and bibliographic records). The specific methodology is as follows: on each press's official website, we randomly selected three different journals, and from each journal, we randomly selected one article. We then extracted the title, abstract, and partial text fields, and conducted retrieval tests on Tsinghua University's "Shui Mu Search" platform (using the Primo discovery system) and Peking University's "Wei Ming Search" platform (using the Summon discovery system). If an article could be retrieved by its title, abstract, and partial text fields, the indexing depth for the journal in the discovery system was classified as "full text." If it could be retrieved by title and abstract fields but not by text fields, the indexing depth was "abstract." If it could only be retrieved by title, the indexing depth was "bibliographic." The test results for these 15 presses are shown in Table 1 .

In Table 1, the "Indexing Depth" column lists several scenarios encountered dur-

ing testing. Table 2 summarizes the indexing depth survey results for university press journal resources in PRIMO and SUMMON.

Based on the survey results, we draw the following conclusions:

(1) According to the indexing depth survey results, we calculated the indexing scale of these presses' journals in the discovery systems (indexing scale = (number of presses exhibiting a given indexing depth / total number of presses) × 100%). The full-text indexing scale for these presses' journal resources reached 62.5% in PRIMO, with abstract indexing scale reaching 75%; in SUMMON, the full-text indexing scale reached 56%, with abstract indexing scale reaching 69%.

(2) The indexing depth of journals from the same press is inconsistent across discovery system platforms. Testing revealed that the same journal from the same press exhibited different indexing depths on the two different discovery platforms, or that different journals from the same press showed inconsistent indexing depths on the same platform. These differences in indexing depth arise because these articles are simultaneously indexed in multiple databases, and these data sources provide metadata of varying thickness to PRIMO or SUMMON. If a data source provides complete fields to PRIMO and PRIMO indexes all fields, the indexing depth can reach the full-field level, and so on, resulting in varying indexing depths.

(3) The indexing depth of subscription-based journals has not universally reached the full-text level. Testing found that the indexing depth of journal resources in subscription databases did not all achieve full-text access. For example, our library subscribes to journal resources from Cambridge University Press, Oxford University Press, and Johns Hopkins University Press, yet these three presses have not opened metadata for all journal full texts. For instance, the indexing depth for Oxford University Press journals only reaches the abstract or bibliographic level. Testing also revealed that although journals from some university presses are indexed in other commercial databases, their indexing depth is constrained by the open access policies of those databases.

(4) The growing development of open access is prompting academic journal publishing institutions to join the open access publishing movement and expand rapidly. Currently, many renowned international academic journal publishers, including university presses, have implemented open access [28]. This survey found that Oxford University Press, MIT Press, Purdue University Press, and others have independent OA journal platforms. We specifically tested the OA and free journals from these university presses and found that their indexing depth varies—some at the abstract level, others at full-text—falling short of the ideal state where all would be at full-text level.

(5) All university presses independently indexed by discovery systems are foreign presses; no well-known domestic university presses are included. This

is partly because the platform developers are foreign companies, so the indexed presses are primarily foreign institutions, and partly because the digitization progress of domestic university presses lags slightly behind their foreign counterparts.

(6) Metadata accuracy needs improvement. Testing revealed that some extracted test fields could not retrieve results, while other test fields could. This may be due to inaccurate metadata, which similarly affects retrieval quality.

1.3 Trends in the Number of University Presses and Scholarly Resources in Discovery Systems

We investigated the journal resources from university presses independently indexed by the Primo discovery system in September 2015, September 2016, and April 2017. The number of independently indexed presses grew from 10 in 2015 to 12 in September 2016, and to 21 by April 2017 (see Figure 1 [Figure 1: see original paper]). The resources opened by these presses are not limited to journals but also include other resource types. For example, resources opened by Oxford University Press include journals, books, reports, encyclopedias, reference materials, and more. Moreover, the metadata opened to the Primo discovery system continues to increase, with new resource collections added annually. Oxford University Press and Purdue University Press have also opened their OA resources to discovery systems. The upward trend in the number of journal resources from university presses in discovery systems indicates that more academic publishing institutions are willing to open metadata and even full-text information through agreements or open access, aiming to drive more users back to their publishing platforms through broader discoverability.

2 Current Status of Journal Openness at Tsinghua University Press

The Tsinghua University Press Journal Center was established in March 2011 and currently publishes 22 journals. The number of English journals indexed in core databases has continued to rise, and the academic influence of social science journals has significantly improved, forming the beginnings of an academic journal cluster encompassing both English and Chinese, as well as science/technology and social sciences. Among these, 14 are independent OA journals and 6 are collaborative OA journals, all with reliable publishing platforms.

Currently, most journals at the Tsinghua University Press Journal Center have their own websites and submission/peer review platforms, and collaborate with major domestic and international literature databases for journal promotion. Building on this foundation, the Journal Center has established its own portal website (www.tsinghuajournals.com) that integrates promotional and service functions, managed and maintained by dedicated staff. Simultaneously, it actively leverages new media advantages by operating a WeChat public account

(TUP_{Journals}) to timely release updates about the Journal Center and individual journals. The website and WeChat account complement each other, emphasizing the overall promotional effect of the Journal Center and building the brand of Tsinghua University academic journals [28].

Tsinghua University Press leverages Tsinghua University's disciplinary strengths, fully utilizes the cluster advantages of journal publishing, continuously enhances the academic influence of its journals, promotes the internationalization of Chinese resources, and utilizes both domestic and international markets and resources to increase copyright exports. It strengthens cooperation with various copyright organizations, actively collaborates with internationally renowned digital copyright operators, and expands the breadth and depth of digital copyright exports.

In terms of digital platform construction, Tsinghua University Press has established a digital publishing portal—Wenquan Bookstore—and four other digital resource service platforms and new technology service companies. It simultaneously strengthens the planning and management of official websites and WeChat platforms, actively exploring the transformation from traditional publishing to new media publishing. In the future, Tsinghua University Press will actively build an open access publishing and distribution platform to promote content aggregation and brand building. It will also establish "Tsinghua Academic Online" to create a unified digital platform for academic books and journals. The press will simultaneously advance content development and digital construction, using digitalization to drive content resource development and achieve full-process, comprehensive online publishing of academic journals [30].

Based on the sampling tests of indexing depth for journal resources from 15 university presses covered by two mainstream discovery systems and the analysis of trends in the number of university presses in these systems, we can conclude that the number of foreign university presses and their scholarly resources in discovery systems shows an upward trend. However, it is noteworthy that the indexing depth for both subscription-based and OA journals has not universally reached the full-text level. The open sharing of scholarly resources from university presses is an inevitable trend driven by press development, user demand, and discovery systems' need to attract users, which facilitates the dissemination and discovery of knowledge [31]. We believe that as resource owners, university presses should play a more active and leading role in promoting the openness and dissemination of scholarly resources.

The investigation also reveals the absence of domestic university presses. As university presses, they should recognize the tremendous driving force of digital publishing on scholarly communication, focus on exploring profit models and developing products and services for digital publishing, and better adapt to the academic communication and publishing market environment under new media and new technologies [32]. Meanwhile, university presses should also work from within to enhance the academic influence of their publications, promote the internationalization of Chinese scholarly resources, actively "go global" to par-

ticipate in international cooperation, and strive to increase their attractiveness, capacity, and cohesion to promote digital copyright exports in both domestic and international markets, driving greater development through win-win cooperation.

Based on the investigation of the openness of scholarly resources from university presses in discovery systems, we offer several insights:

(1) Persist in taking the improvement of journal academic influence as the starting point and ultimate goal, continuously deepening brand building for university presses, expanding brand extension, enhancing brand value, and ultimately improving core competitiveness.

(2) From the current perspective, digitalization will ultimately become the mainstream trend in future academic publishing. University presses can seize the opportunity of "Internet Plus" to explore suitable transformation and integration paths in a three-dimensional, multi-faceted manner. Meanwhile, in practice, they should simultaneously advance content development and digital construction, using digitalization to drive content resource development. They should position themselves as integrators, suppliers, and service providers of educational, academic, and professional content, forming an independent digital product development and operation platform [33].

(3) University presses should actively utilize both domestic and international markets, explore cooperation with internationally renowned digital copyright operators, promote the internationalization of Chinese scholarly resources, enhance their own attractiveness, capacity, and cohesion, and expand the breadth and depth of digital copyright exports.

Openness and reuse facilitate a research environment conducive to knowledge sharing, mass innovation, and economic development, thereby driving scientific and technological innovation [34].

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Author Contributions

Wu Lina: Content investigation and analysis, paper writing and revision;
Zuo Yang: Assisted with content investigation and analysis, paper writing;
Dou Tianfang: Responsible for proposing research ideas and thesis, paper review and revision.

English Abstract

Study on the Open Scholarly Resources of University Presses Based on the Discovery System

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Abstract: [Purpose/significance] Exploring the quantity, the opening level and the tendency of scholarly resources of 15 university presses using PRIMO and SUMMON discovery systems. [Method/process] Examining the indexing depth and scale of journals of these university presses by the sampling test method. Tsinghua University Press was introduced as a case of opening and sharing scholarly resources. [Result/conclusion] The quantity of scholarly resources of university presses is increasing and their open tendency is evident. However, the indexing depth of the subscription and OA resources are not all at a full-text level. The opening of Chinese resources should be focused on.

Keywords: university press, scholarly resources, indexing depth

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