

Analysis of the Current Status of Open Access in Canadian University Libraries: Postprint

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Abstract

[Purpose/Significance] Open access initiatives in university libraries abroad, particularly in developed countries, have advanced rapidly. Although Canadian university libraries commenced their open access endeavors somewhat later, they have achieved notable success to date. Furthermore, domestic research on open access in Canadian university libraries remains relatively limited, thereby offering numerous valuable references for domestic university libraries in promoting their own open access agendas. [Method/Process] This study utilizes web-based surveys and literature analysis to investigate the current state of open access across 30 Canadian university libraries, examining their developmental status to provide references for advancing open access in Chinese universities. [Results/Conclusion] Analysis of the current state of open access in Canadian university libraries yields the following implications for China: refine and implement national open access policies, accelerate the digital transformation of university academic journals, strengthen the development and openness of university institutional repositories, establish collaborative partnerships, and organize Open Access Week events to disseminate awareness.

Full Text

Preamble

Analysis of the Current Status of Open Access in Canadian University Libraries

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Abstract

[Purpose/Significance] Open access in university libraries abroad, particularly in developed countries, has developed rapidly. Although Canadian university libraries started slightly later, they have achieved commendable results, and domestic research on this topic remains limited, offering valuable lessons for Chinese university libraries seeking to advance open access initiatives. **[Method/Process]** This study employs web-based surveys and literature analysis to investigate the current state of open access across 30 Canadian university libraries, analyzing their development status to provide reference for Chinese universities. **[Result/Conclusion]** Findings reveal several key implications for China: improve and implement national open access policies, promote the digital transformation of university academic journals, increase institutional repository construction and openness, establish partnerships, and organize Open Access Week events to popularize the concept.

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Open access (OA) emerged in the 1990s, enabling free public internet access that allows readers to read, download, copy, distribute, print, search, or link to full-text articles, create indexes, use them as software databases, or utilize them for other legitimate purposes without financial, legal, or technical barriers. The only constraints on copying and dissemination are ensuring authors' rights to control the integrity of their work and to receive proper recognition and citation [1]. OA primarily addresses issues such as commercialization of traditional academic publishing, soaring journal prices, and difficulties in accessing academic resources, promoting effective dissemination of research findings and resource sharing while respecting copyright and legal regulations. Since its introduction, the concept has received enthusiastic international response, with OA journals developing most successfully in developed countries including the United States, Germany, Australia, Japan, and Canada. This study examines Canadian university libraries as a case study, selecting the top 10 institutions from each of Maclean's magazine's three university categories (Medical Doctoral, Comprehensive, and Primarily Undergraduate) as research subjects. Using web-based surveys and literature analysis, we analyze the current state of OA in Canadian university libraries.

1. Current Status of Open Access in Canadian University Libraries

We analyze the current state of OA in Canadian university libraries from two perspectives: institutional repository construction and library support and promotion.

1.1 Institutional Repository Construction

An institutional repository (IR) aggregates knowledge products (including textual and non-textual resources, published and unpublished materials) from some or all members of an institution for various academic exchange activities [2]. IRs represent “green” open access, where works are first published traditionally and then self-archived in the institution’s open access repository for free public browsing and downloading.

Canadian universities are primarily categorized into three types: Medical Doctoral universities, Comprehensive universities, and Primarily Undergraduate universities. Medical Doctoral universities have long histories, extensive research programs, independent medical schools, substantial doctoral programs, and can award bachelor’s, master’s, and doctoral degrees. Comprehensive universities have slightly shorter histories and smaller scales, offer broad curricula including professional degree programs, have comprehensive undergraduate and graduate education, and some doctoral programs. Primarily Undergraduate universities focus on undergraduate education with fewer research projects; only a few can award master’s and doctoral degrees. Based on Maclean’s Canadian university rankings [3], we selected the top 10 universities from each category (30 total) and collected information about their IRs through web surveys (see Table 1). Data were sourced from official university library IR websites and the OpenDOAR website on June 24, 2018.

As shown in Table 1, all 30 surveyed Canadian university libraries have established institutional repositories. Six universities maintain more than one IR: University of British Columbia, Dalhousie University, Carleton University, Memorial University of Newfoundland, York University, and University of Prince Edward Island, accounting for 20% of the sample. In addition to repositories for their members’ research outputs, these six institutions have also built digital archives (e.g., Memorial University of Newfoundland and University of Prince Edward Island) or faculty-level repositories (e.g., University of British Columbia, Dalhousie University, Carleton University, and York University). Overall, most Canadian universities maintain a single IR, which offers the advantage of consolidating resources on a unified platform, eliminating cross-platform searching, saving users’ time, improving retrieval efficiency, and facilitating library maintenance.

In terms of repository holdings, the 30 university libraries collectively store 1,002,776 items. Medical Doctoral universities lead in OA resource accumulation with 359,590 items (35.86% of the total), followed by Comprehensive universities with 351,646 items (35.07%), and Primarily Undergraduate universities with 291,540 items (29.07%). While the total holdings across the three categories do not differ dramatically, approximately 25,000 items in Primarily Undergraduate universities consist of digitized archives, with only about 30,000 being research outputs. Institutions like Mount Allison University and Bishop’s University have holdings significantly below the survey average, indicating a clear gap

between Primarily Undergraduate universities and the other two categories in IR development.

Regarding access and downloading, among the 40 IRs surveyed, 36 can be accessed and downloaded without IP address restrictions as free visitors, while only four repository pages show “page not found” errors, demonstrating a relatively high rate of open access to research outputs.

1.2 Library Support and Promotion

The development of OA relies heavily on active library practices. This study analyzes the role of Canadian university libraries in promoting OA from six aspects.

1.2.1 Journal Submission Recommendations Journal submission recommendations refer to guidance provided by Canadian university libraries to authors when selecting journals, encouraging them to choose OA journals for academic publishing to facilitate knowledge exchange and dissemination. Figure 1 [Figure 1: see original paper] summarizes these recommendations based on survey data.

As shown in Figure 1, Canadian university libraries provide two main types of submission advice: (1) selecting high-impact journals, and (2) interpreting journal publishing policies, including self-archiving policies and authors’ copyright permissions. Authors choosing OA journals can apply for institutional OA funds to cover article processing charges. Since OA funds typically require funded works to be made openly accessible within 12 months of traditional publication, authors prioritize whether journals allow this timeline. If a journal requires a 12-month embargo, authors can use author copyright transfer tools to secure rights for OA within 12 months or select alternative journals.

1.2.2 Implementation of Open Access Policies Canadian university libraries primarily implement the Tri-Agency Open Access Policy on Publications, formulated by three federal research funding agencies: the Canadian Institutes of Health Research (CIHR), the Natural Sciences and Engineering Research Council of Canada (NSERC), and the Social Sciences and Humanities Research Council of Canada (SSHRC). These agencies are committed to promoting Canadian academic research and, as public funding organizations, believe in facilitating access to research outcomes (including publications and data) to reduce acquisition costs and advance academic resource construction and sharing. The policy’s core is encouraging OA through funding, with the ultimate goal of ensuring that sponsored research is freely available online within 12 months of publication. Effective May 1, 2015, applicants for funding from these agencies must comply with the 12-month OA requirement. Research funded by CIHR after January 1, 2008, and by NSERC or SSHRC after May 1, 2015, must be freely accessible within 12 months. Non-compliance results in penalties includ-

ing fund repayment, apologies, and recorded violations that negatively impact researchers' careers, effectively creating mandatory OA.

Canadian university libraries generally do not formulate separate OA policies but instead promote the Tri-Agency policy to advance institutional OA through: (1) prominent placement—positioning the policy at the top of the “Open Access” section for easy discovery; and (2) multi-format policy interpretation through lectures, workshops, online librarian Q&A, and videos. For example, University of Waterloo and University of New Brunswick held Tri-Agency policy workshops during OA Week, while University of Alberta and McMaster University produced explanatory videos. These efforts effectively advance institutional OA.

1.2.3 Inter-Alliance Information Sharing and Openness OA requires multi-party collaboration. Joining alliances enables broader information resource sharing, cost savings, and avoidance of resource waste through mutual exchange. Among the 30 surveyed universities, 19 have joined the Canadian Association of Research Libraries, granting members access to each other's resources. The British Columbia Electronic Health Library Consortium saved over 3.9 million CAD for its members through database purchases in 2015. Additionally, group purchasing enables more economical resource acquisition, fostering win-win cooperation.

1.2.4 OA Funds and Discounted Publishing To encourage researchers to choose OA journals, research institutions and university libraries have established dedicated OA funds to cover article processing charges and alleviate authors' financial burdens. All surveyed university libraries provide information about the three agencies' preferential policies and fund application procedures with effective links. Ten of the 30 libraries (33.3%) have established dedicated library funds: University of Toronto, University of Ottawa, University of Calgary, Simon Fraser University, University of Waterloo, University of Guelph, Carleton University, Memorial University of Newfoundland, York University, and Concordia University. The remaining 20 provide information about OA funds from other organizations.

Traditional journal publishers are also transitioning to OA publishing. On October 22, 2014, NPG joined the Open Access Scholarly Publishers Association, expanding OA operations [40]. Springer Nature is now the world's largest OA journal platform, with nearly 2 million daily visits in 2017 [41]. While traditional publishing fees range from \$3,500-\$4,000 per article, OA journal fees are approximately \$1,350-\$2,250 [42]. Canadian university libraries collaborate with publishers like Springer Nature, NPG, and SAGE to secure 20%-50% publishing discounts for authors, reducing economic pressure while increasing OA journal attractiveness and competitiveness.

1.2.5 Auxiliary Tools Canadian university library websites provide various OA auxiliary tools, categorized as conventional and specialized.

Conventional tools commonly provided by libraries include DOAJ, Sherpa/Juliet, Sherpa/Romeo, and Scholarly Open Access. DOAJ (Directory of Open Access Journals) indexes 11,946 journals from 128 countries across all fields as of 2018, with all articles freely downloadable. Sherpa/Juliet and Sherpa/Romeo, hosted by the University of Nottingham, are databases of funder policies and publisher copyright policies, respectively, promoting OA development. Scholarly Open Access is a blacklist site for predatory publishers—journals with high fees but low academic value—helping authors select quality journals.

Specialized tools are developed by individual institutions. For example, McMaster University Library’s “OA Interactive Tool” plugin guides users through a series of questions to determine whether OA journals are suitable for their work.

1.2.6 Open Access Week Originating as Open Access Day in the United States in 2008, OA Week has evolved into an annual October event featuring lectures and seminars to promote OA concepts. Canadian university libraries organize OA Week activities around yearly themes; the 2017 theme was “Open In Order To.” As shown in Table 2, 18 of the 30 surveyed universities publish OA Week information on their library websites, though four (Western University, University of Victoria, University of Guelph, and Memorial University of Newfoundland) only announce dates without detailed activities.

Canadian university OA Week activities primarily feature seminars and lectures supplemented by online discussions and video presentations. Universities invite OA experts to discuss policy interpretation, development trends, and current topics through lectures and workshops, deepening participants’ understanding. For instance, Simon Fraser University’s 2016 OA Week panel discussion focused on “supporting open textbooks, investigating user preferences for OA resources, and meeting community information needs,” while another workshop addressed “OA authorship and dissemination: introducing author rights and publishing choices.” University of Ottawa’s 2016 OA Week explored new OA publishing models and their advantages over traditional publishing.

OA Week themes can be categorized into seven areas: OA interpretation, policy development and discussion, publishing models, OA publishers, institutional repositories, copyright and intellectual property, and other topics. OA interpretation appears most frequently (7 times) as it provides foundational knowledge and “literacy” for subsequent promotion. Other themes appear 2-3 times each, covering specific OA aspects. Overall, Canadian university OA Week activities balance foundational and practical content with cutting-edge topics, achieving effective promotion.

2. Implications for Open Access Development in Chinese Universities

Chinese universities face challenges in advancing OA, including incomplete policies, barriers in traditional academic journal systems, insufficient institutional repository construction and openness, and inadequate OA promotion. This study proposes the following measures to address these issues.

2.1 Improve and Implement China's Open Access Policies

China's OA movement lacks legal and policy frameworks, leaving most academic resources closed and severely restricting scholarly communication and sharing [43]. Canada's OA policies are government-led, research institution-driven, and actively implemented by university libraries. At the government and institutional level, Canada's three research agencies formulated mandatory OA policies under government guidance, requiring funded authors to make research outputs OA within specified timeframes. The government published these policies on Canada's official open government portal, enhancing authority and credibility. At the university level, the 30 surveyed libraries actively promoted these mandatory policies to guide institutional OA.

In contrast, mainland China has only four institutions registered in the ROARMAP mandatory deposit policy registry: Chinese Academy of Sciences (CAS), National Science Library of CAS, National Natural Science Foundation of China (NSFC), and Ministry of Science and Technology [44]. CAS and NSFC issued OA policy statements in 2014 requiring funded researchers to deposit papers within 12 months, but neither specified penalties for non-compliance, weakening enforcement [45, 46]. At the university level, over 50 library directors issued the Wuhan Declaration on Library Cooperation and Information Resource Sharing in 2005 [47], and some libraries subsequently added OA resources to their websites [48]. However, most university libraries have not thoroughly analyzed or implemented OA policies, merely providing brief introductions to OA resources.

To address these gaps, we recommend: (1) Government should strengthen policy guidance for research institutions and universities to formulate and improve relevant policies. (2) Research institutions with existing OA policies, such as CAS and NSFC, should enhance them with penalty measures (fund revocation, academic reputation impact) while providing appeal channels for exceptional circumstances, demonstrating policy flexibility. CAS's website includes an OA policy Q&A addressing specific regulations, funded project scopes, deposit requirements, and versions, serving as an exemplary model [50]. (3) Universities, particularly "Double First-Class" institutions, should actively implement OA policies by establishing institutional repositories, encouraging self-archiving of research papers and theses, and creating OA sections on library websites to aggregate open resources. They should also promote policies through lectures and multimedia to deepen understanding.

2.2 Promote Digital Transformation of University Academic Journals

Canada's rapid OA development is inseparable from academic journal transformation. Key measures include: (1) transitioning university presses to create OA journals for gold OA; (2) building institutional repositories for green OA through self-archiving; and (3) collaborating with large OA journal publishers to encourage submissions. Both OA journals and institutional repositories aim to eliminate academic barriers and promote knowledge dissemination, granting authors greater control and enabling Canadian universities to accumulate substantial OA resources and foster a healthy OA ecosystem.

Zhu Jian, editor-in-chief of Nanjing University Journal, identifies problems in China's academic journals: (1) lack of scientific system and disciplinary character, preventing formation of clear, open, and equal academic exchange platforms and communities; (2) severe institutional barriers centered on sponsoring units that hinder academic communication; and (3) insufficient academic competence among some editors, failing to cultivate author and reader communities. These issues result in overly "independent" journals that impede resource aggregation and OA development. Even digitized journals remain merely electronic versions without deep-level resource integration.

We agree with Zhu's proposal to create a specialized, intensive, and digitally developed university journal system [51] and build an OA ecosystem. Specifically: follow the model of "China University Journal Series" by first uniting core journals across disciplines to discuss digital journal system frameworks and build an OA platform. Engage academia and journals to develop frameworks aligned with professional development logic, then negotiate with database providers like CNKI to co-construct university journal OA platforms. Academia must retain dominant control and usage rights to ensure barrier-free OA. This approach would rebuild systems, highlight disciplinary characteristics, break institutional barriers, aggregate journal resources, compensate for traditional publishing deficiencies, and cultivate OA author communities.

2.3 Increase Institutional Repository Construction and Openness

A December 2015 survey of 39 "985 Project" universities' IRs found that only 13 had functional repositories, with an average of 15,711 items. The top three (Zhejiang University, Peking University, and Shandong University) accounted for 59.35% of total holdings [52], revealing problems: (1) insufficient investment, low openness, and user account restrictions that contradict green OA principles; (2) severe imbalance and polarization among universities. While Canadian IRs also vary, the gap is less pronounced, with 100% construction rate among the 30 universities and 36 of 40 repositories allowing unrestricted downloading (except for four inaccessible pages). This indicates significant gaps between Chinese and Canadian universities in resource accumulation and openness.

We recommend: (1) Increase investment in Chinese university IRs and include IR construction in library evaluation systems. (2) Build IRs regionally and

hierarchically. Construction should consider institutional realities. “Double First-Class” universities should each establish at least one IR; other institutions with limited capacity could jointly build repositories by region or discipline, sharing construction and maintenance responsibilities. (3) Increase openness to truly achieve OA. CAS leads domestically in OA with 101 institute repositories storing over 847,000 papers and 19.344 million cumulative downloads by 2018 [53], making it one of the world’s largest public OA resources. However, most Chinese university IRs restrict access to institutional users, contradicting OA principles. Universities should learn from CAS’s experience to break institutional barriers and achieve genuine knowledge sharing. (4) Participate actively in the China Academic Library & Information System (CALIS) Institutional Repository Alliance to learn from successful cases and increase exchanges. The alliance, initiated by CALIS and several university libraries, promotes IR guidelines, policy statements, and interoperability mechanisms, with 50 current members.

2.4 Actively Develop Partnerships

Canadian universities actively collaborate with organizations and alliances to advance OA. As a pioneer in library consortium strategic planning [54], Canada values library cooperation and sharing. Canadian library consortia include university, regional, and national alliances, with university libraries joining to expand sharing scope, eliminate barriers, and promote resource sharing. Canadian universities also partner with OA publishers to secure APC discounts, reducing author costs and increasing OA journal competitiveness.

China has various library consortia such as the China Academic Digital Library & Information System, Yunnan Academic Library Consortium, and National Normal University Library Consortium. Chinese university libraries should engage in deep exchanges to learn resource-sharing experiences and deepen cooperation. Similar institutions can develop partnerships, and mature models can incorporate lower-tier institutions, exemplified by the CALIS IR Alliance’s “prosperous-first” approach to achieve common development.

2.5 Hold Open Access Week to Popularize Concepts

Among the 30 surveyed Canadian universities, 18 organize OA Week activities covering not only basic knowledge but also practical issues and future directions, effectively popularizing OA concepts among faculty and students. China’s OA Week began in 2012, hosted by the National Science Library of CAS, introducing OA IR development status, trends, best practices, and challenges. From 2012-2017, six OA promotion weeks were successfully held with themes following international OA hotspots, gaining increasing recognition among scholars. However, universities, as primary beneficiaries and drivers of OA, need stronger promotion.

Currently, few Chinese universities hold OA Week events. Leading universities,

particularly “Double First-Class” institutions, should organize their own OA Week “branch events” under the guidance of the CAS library “main event” to advance OA development. Through lectures, seminars, and exhibitions, they can popularize OA knowledge and strengthen OA awareness among faculty and students.

Canada’s OA movement truly began in 2010 with Concordia University’s initial practice, followed by University of Calgary, University of Ottawa, and Simon Fraser University, eventually forming a system with sound policy support, well-functioning OA platforms, active partnerships, and annual OA Week promotion. Compared to other developed countries, Canada started later but achieved effective promotion, demonstrating that strategy matters more than timing. For China, we should first improve and implement OA policies at government, research institution, and university levels to provide policy support. Simultaneously, we should accelerate academic journal digital transformation, increase institutional repository construction and openness to provide platform support, and collaborate with alliances and database providers to accumulate strength for OA advancement while leveraging OA Week promotion to create a favorable atmosphere.

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Author Contributions

Liu Dan: Responsible for outline development, paper writing and revision;
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The Research on the Open Access of The Canada University Libraries

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Abstract: [Purpose/significance] The open access of university libraries in foreign countries, especially in developed countries, has developed rapidly. Although the open access of Canadian university libraries started slightly late, the development has achieved good results so far, and domestic research on Canadian university library open access is less. There are many lessons for

domestic libraries to promote the open access process. [Method/process] The current situation of open access in 30 university libraries in Canada was investigated by using network survey methods and literature analysis methods, and their development status was analyzed in order to obtain reference for the development of open access in Chinese universities. [Result/conclusion] From the status quo of open access of Canadian university libraries, we can draw inspiration for our country: improve and implement the open access policy, promote the digital transformation of university academic journals in China, increase the construction and opening of university institutional knowledge base, establish partnerships, and hold open access promotion week to popularize concept.

Keywords: Canada university libraries open access

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

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