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A BIBLIOMETRIC ANALYSIS OF RESEARCH BY CANADIAN LIBRARY AND INFORMATION SCIENCE ACADEMICS AND PRACTITIONERS

Abstract
Using data from the *Canadian Publications in Library and Information Science Database*, this study maps the scholarly contributions of Canadian LIS scholars and academic librarians to the field of LIS and examines whether Canadian LIS research is characterized by silos. This paper examines the similarities and differences in publications, impact, topics, and publication venues between academic librarians and scholars in Canada, as well as the extent to which academics and practitioners engage in research collaborations or reference each other's work. While there is some overlap in research topics and publication venues between LIS academics and academic librarians, the two groups appear to act as distinct research communities with distinct topical foci and publishing habits. The two groups also do not appear to engage with each other strongly, either through collaboration or citing each other's work.

Introduction

While LIS academics and librarian practitioners share topical interests (White & Cossham, 2017), research produced by each group sometimes evolves in parallel. This has resulted in an observable topical distinction between practitioners, generally focused on pragmatic issues (Hall & McBain, 2014), and theorists, who are less involved in field practice (Clayton, 1992; Genoni et al., 2006). Evidence of a lack of collaboration suggests that silos in LIS research exist. Global bibliometric studies in the field of information science underline the low number of research collaborations between faculty members and librarians (Hildreth & Aytac, 2007; Finlay et al., 2013; Babb, 2017). Borrego et al. (2018) observed that instances of library-affiliated authorship in non-LIS journals were increasing and found evidence of collaboration between librarians and faculty, though noted

that further investigation into their role in the research process and inter-institutional collaborative behaviours is needed.

Few studies have addressed the scope of LIS research in Canada and the collaboration behaviours of LIS academics and practitioners. Paul-Hus and Mongeon (2016) examined the scientific production of faculty members from the eight LIS schools in Canada. Mongeon et al. (2023) further mapped the research conducted by faculty members, doctoral students, and postdoctoral fellows from various Canadian LIS schools. However, both studies were unable to include academic librarians in the analysis.

Research objectives

The objectives of this study are to 1) to map the scholarly contributions of Canadian faculty and academic librarians in the field of LIS and 2) subsequently examine whether Canadian LIS research is characterized by silos.

Specifically, this paper aims to answer the following research questions:

> **RQ1** What are the similarities and differences in publications, publication venues, and topics between Canadian LIS faculty members and academic librarians?
>
> **RQ2** To what extent do Canadian LIS faculty members and academic librarians engage in research collaborations or reference the other group's work?

Data and methods

We used the open dataset of Canadian LIS publications by Sauvé et al. (2024) for our analysis. This dataset contains publications authored by researchers affiliated with one of the eight ALA-accredited degree-granting academic units in Canada (academics) and by librarians working in Canadian universities. We limited our analysis to articles, notes, reviews, books, book chapters, conference papers, letters, book reviews, and editorial materials indexed in OpenAlex, for a total of 9,261 publications out of the 13,775 total publications included in the Sauvé et al. (2024) dataset.

We assigned each paper to one of three groups (academic, collaboration, practitioner) based on the status of the authors indicated in Sauvé et al. (2024) dataset. A paper is assigned to the academic group if at least one author is a Canadian LIS academic and none of the authors are Canadian LIS practitioners. A paper is assigned to the practitioner group if at least one Canadian LIS practitioner and no Canadian LIS academics are listed as authors. A paper is assigned to the collaboration category if it has at least one Canadian LIS academic and one Canadian LIS practitioner listed on the byline. Our dataset includes 6,178, 2,935 and 148 publications in the academic, practitioner, and collaboration groups, respectively.

We were interested in exploring similarities and differences in research topics across groups, so we used the topic classification of OpenAlex, retrieved from their API with the openalexR package (Aria et al., 2024). In OpenAlex, a paper can be assigned to multiple topics, each with a score

representing the strength of the association between the paper and the topic. Because some of the topics are similar and tend to co-occur, we only kept the topic with the highest score for our analysis (so each paper has a single topic). The resulting dataset, used to answer RQ1, contains the following information for each observation:

- Document type
- Venue
- Group (academic, practitioner, collaboration)
- Topic

The Sauvé et al. (2024) dataset includes a table of citation links between the papers in the dataset obtained from OpenAlex, which was used to create a matrix with the number and percentage of citations within and between each publication group (academic, practitioners, collaborations).

We used custom R scripts (R Core Team, 2023) to perform all data processing and analysis.

Results

Outputs

Table 1 reveals that of the 9,261 publications in our dataset, the majority are journal articles (71.3%), followed by reviews and book chapters. Academics tended to publish at higher rates, authoring 6,178 (66.7%) of total publications, while practitioners authored 2,935 (31.7%). Collaborations accounted for only 137 publications, or less than 2% of total output. Articles and conference papers were the most common formats in which collaboration manifested. One highlight of the results presented in Table 1 is the substantially higher proportion of reviews and book reviews performed by practitioners (23.3% and 6.4%, respectively) compared to academics (11% and 2.1%, respectively).

Table 1. Number of publications by group and document type.

	Total		**Academic**		**Practitioner**		**Collaboration**	
Document type	N	%	N	%	N	%	N	%
Article	6,601	71.3	4,600	74.5	1,898	64.7	103	69.6
Review	1,022	11.0	323	5.2	685	23.3	14	9.5
Book chapter	667	7.2	586	9.5	73	2.5	8	5.4
Conference paper	497	5.4	431	7.0	45	1.5	21	14.2
Book review	191	2.1	4	0.1	187	6.4	0	0.0
Editorial material	105	1.1	89	1.4	15	0.5	1	0.7
Note	78	0.8	57	0.9	20	0.7	1	0.7
Book	66	0.7	60	1.0	6	0.2	0	0.0
Letter	34	0.4	28	0.5	6	0.2	0	0.0
Total	9,261	100	6,178	100	2,935	100	148	100

Venues

The top venues of publications by academics (Table 2) show that the conference proceedings of two prominent LIS research organizations supporting both researchers and practitioners (CAIS and ASIST) are among the top five venues. The list includes several LIS-specific journals but also multidisciplinary venues, and venues from disciplines other than LIS.

Table 2. Top 20 venues of publications by academics

Venue	N. pubs	Pct. pubs
Proceedings of the Association for Information Science and Technology	289	4.7
Lecture notes in computer science	177	2.9
Proceedings of the Annual Conference of CAIS	168	2.7
Journal of the Association for Information Science and Technology	156	2.5
Routledge eBooks	92	1.5
Documentation et bibliothèques	74	1.2
Scientometrics	69	1.1
PLoS ONE	66	1.1
Library & Information Science Research	65	1.1
IGI Global eBooks	62	1.0
Journal of Documentation	58	0.9
Education for Information	54	0.9
Springer eBooks	52	0.8
Cataloging & Classification Quarterly	48	0.8
Elsevier eBooks	43	0.7
Information Communication & Society	41	0.7
Information Processing & Management	38	0.6
First Monday	33	0.5
Knowledge Organization	32	0.5
Lecture notes in business information processing	31	0.5

The top venues in which practitioners in our dataset publish (Table 3) are mostly distinct from those of academics. There is a high representation of venues focused on reviews. Venues are also more topically focused on librarianship as a professional practice, yet range across disciplines.

Table 3. Top 20 venues of publications by practitioners

Venue	N. pubs	Pct. pubs
Evidence Based Library and Information Practice	145	4.9
The Deakin Review of Children s Literature	130	4.4

Partnership: The Canadian Journal of Library and Information Practice and Research	68	2.3
BMJ Open	63	2.1
Journal of the Canadian Health Libraries Association	61	2.1
The Journal of Academic Librarianship	54	1.8
College & Research Libraries	43	1.5
Systematic Reviews	41	1.4
Journal of the Medical Library Association	38	1.3
PLoS ONE	33	1.1
Cochrane library	27	0.9
Reference Services Review	27	0.9
CAML Review	20	0.7
JBI Evidence Synthesis	20	0.7
The Serials Librarian	20	0.7
College & Research Libraries News	19	0.6
Library Hi Tech	19	0.6
College & Undergraduate Libraries	16	0.5
The American Economist	16	0.5
Proceedings of the Annual Conference of CAIS	15	0.5

Numerous venues affiliated with collaborative publications (Table 4) overlap with venues preferred by academics or practitioners, separately. However, more are common to practitioners (7) than academics (6) though this is relatively equal, with the addition of new venues not represented in the top venues of either respective group.

Table 4. Top 20 venues of publications co-authored by academics and practitioners.

Venue	N. pubs	Pct. pubs
Proceedings of the Annual Conference of CAIS	25	16.9
First Monday	6	4.1
Proceedings of the Association for Information Science and Technology	5	3.4
The Journal of Academic Librarianship	5	3.4
Archives	4	2.7
BMJ Open	4	2.7
Journal of Documentation	3	2.0
Journal of the Association for Information Science and Technology	3	2.0
Journal of the Medical Library Association	3	2.0
Lecture notes in computer science	3	2.0
Library & Information Science Research	3	2.0

Partnership: The Canadian Journal of Library and Information Practice and Research	3	2.0
Archivaria	2	1.4
BMC Medical Research Methodology	2	1.4
BMC Medicine	2	1.4
Cataloging & Classification Quarterly	2	1.4
College & Research Libraries	2	1.4
College & Research Libraries News	2	1.4
Études de communication/Études de communication	2	1.4
Implementation Science	2	1.4
Journal of Information Policy	2	1.4
Journal of the Canadian Health Libraries Association	2	1.4
Knowledge Organization	2	1.4
Online Information Review	2	1.4
Presses de l'Université du Québec eBooks	2	1.4
Serials Review	2	1.4
The International Journal of Information Diversity & Inclusion (IJIDI)	2	1.4

Figure 1 depicts the distribution of venues by share of articles authored by academics. The blue line is the theoretical distribution in which every venue has a proportional representation of academics and practitioners. It is apparent that approximately 37.5% of venues exclusively publish academics, and about 10% of venues exclusively publish practitioners (as indicated by the 0% of academics). This shows that about half of the journals in our dataset publish exclusively works by one of the two groups.

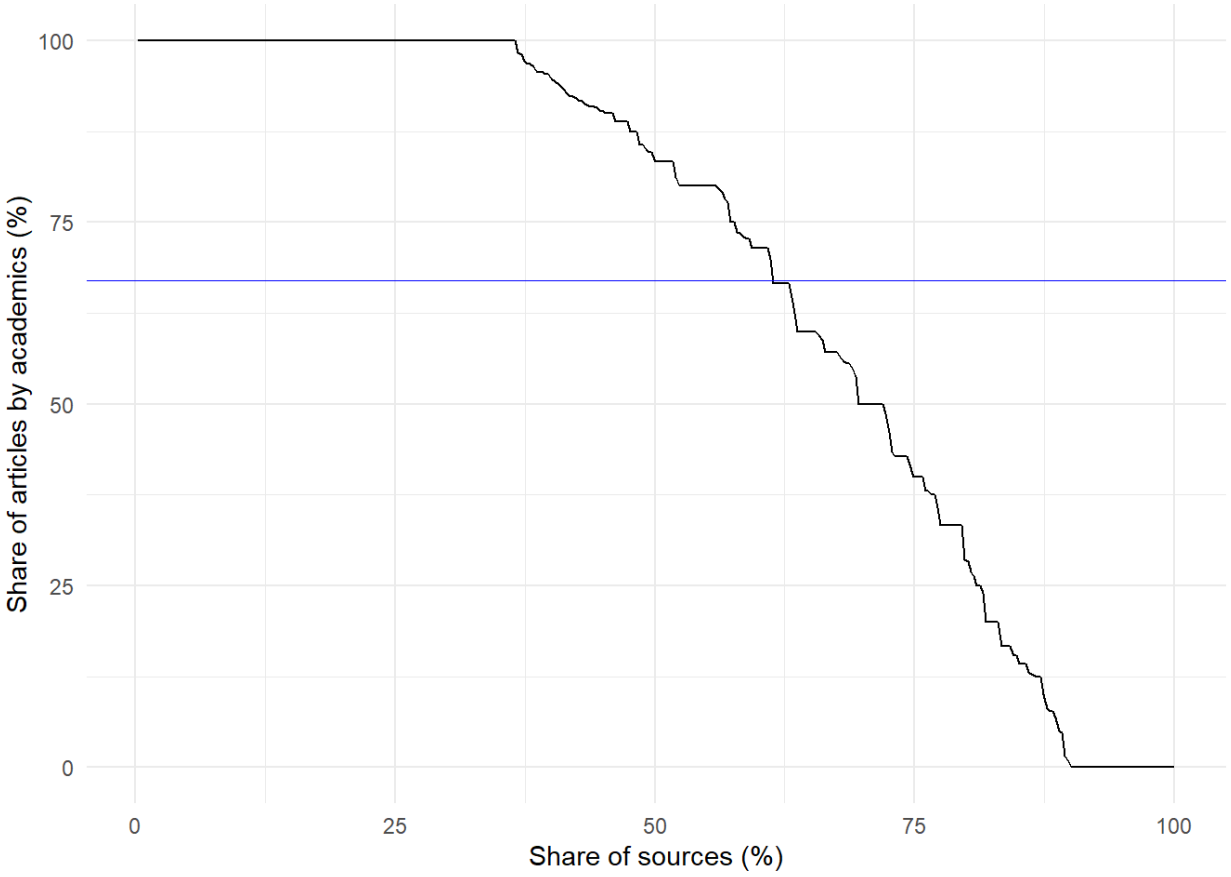

Figure 1. Distribution of venues by share of articles authored by academics.

Topics

The top topics of academic-authored publications are shown in Table 5. Topics relating to Scientometrics/Bibliometrics research and analysis comprise almost 4% of total publications. Topics relating to digital media, communications, and virtual knowledge sharing are frequent among the top topics, making up around 3.3% of publications. Core library science topics are unsurprisingly present, such as information retrieval, information behaviour, and information literacy.

Table 5. Top 20 topics of publications authored by academics

OpenAlex topic	N. pubs	Pct. Pubs
Scientometrics and bibliometrics research	123	2.0
Bibliometric Analysis and Research Evaluation	98	1.6
Social Inclusion in Library Services for Newcomers	85	1.4
Knowledge Management and Sharing	65	1.1
Information Literacy in Higher Education	58	1.0
The Impact of Digital Media on Public Discourse	61	1.0
Digital Communication and Information Studies	60	1.0

Archival Science and Digital Preservation	58	1.0
Semantic Web and Ontologies	55	0.9
Social Media and Politics	53	0.9
Library Science and Information Literacy	47	0.8
Library Science and Administration	50	0.8
Semantic Web and Ontology Development	50	0.8
Knowledge Sharing in Virtual Communities	44	0.7
Information Retrieval Techniques and Evaluation	43	0.7
Digital and Traditional Archives Management	41	0.7
Information Retrieval and Search Behavior	40	0.7
Innovative Human-Technology Interaction	40	0.7
Social and Psychological Aspects of Online Gaming	37	0.6
Digital Games and Media	35	0.6

Practitioners tend to focus on information literacy, comprising almost 6% of total publications. Health sciences related work makes up around 4.5% of topics. Archival science and preservation, bibliometrics, resources and collections, evidence synthesis and systematic reviews are also present.

Table 6. Top 20 topics of publications authored by practitioners

OpenAlex topic	N. pubs	Pct. pubs
Information Literacy in Higher Education	83	2.9
Library Science and Information Literacy	82	2.9
Usage and Impact of E-Books in Academic Settings	54	1.9
Implementation of Evidence-Based Practice in Healthcare	48	1.7
Social Inclusion in Library Services for Newcomers	45	1.6
Library Collection Development and Digital Resources	42	1.5
Health and Well-being of Arctic Indigenous Peoples	39	1.4
Health Sciences Research and Education	36	1.3
Impact of Web 2.0 on Academic Libraries	36	1.3
Library Science and Administration	33	1.2
Archival Science and Digital Preservation	31	1.1
Digital and Traditional Archives Management	28	1.0
Bibliometric Analysis and Research Evaluation	26	0.9
Data Sharing and Stewardship in Science	25	0.9
Methods for Evidence Synthesis in Research	23	0.8
Web and Library Services	22	0.8
Research Data Management Practices	22	0.8
Library Science and Information Systems	19	0.7
Meta-analysis and systematic reviews	21	0.7

Children's Literature and its Impact	19	0.7

The top topics academics and practitioners tend to collaborate on are also represented in the academic-exclusive top topics. Scientometrics/bibliometrics research and analysis account for 7.5% of all publications. The health sciences are also well-represented (7.5%). A new addition to the top 20 topics is Wikis in Education and Collaboration.

Table 7. Top 20 topics of publications co-authored by academics and practitioners

OpenAlex topic	N. pubs	Pct. pubs
Bibliometric Analysis and Research Evaluation	7	4.8
Research Data Management Practices	5	3.4
Scientometrics and bibliometrics research	4	2.7
Digital Communication and Information Studies	4	2.7
Semantic Web and Ontologies	4	2.7
Health and Well-being of Arctic Indigenous Peoples	4	2.7
Health Sciences Research and Education	4	2.7
Data Sharing and Stewardship in Science	4	2.7
Wikis in Education and Collaboration	4	2.7
Knowledge Management and Sharing	3	2.1
Knowledge Sharing in Virtual Communities	3	2.1
Library Collection Development and Digital Resources	3	2.1
Impact of Web 2.0 on Academic Libraries	3	2.1
Health Policy Implementation Science	3	2.1
Image Retrieval and Classification Techniques	3	2.1
Information Literacy in Higher Education	2	1.4
Library Science and Information Literacy	2	1.4
Archival Science and Digital Preservation	2	1.4
Library Science and Administration	2	1.4
Information Retrieval Techniques and Evaluation	2	1.4

Citations

Examining citation links within the dataset reveals that academics and practitioners more frequently cite works within their own groups. This is particularly true of academics.

Table 8. Number and percentage of intra-group and cross-group citations by academics and practitioners.

	Cited group		
Citing group	academic	collaboration	practitioner
academic	1,468 (89.5%)	18 (1.1%)	154 (9.4%)
collaboration	35 (63.6%)	1 (1.8%)	19 (34.5%)

practitioner	212 (36.5%)	23 (3.9%)	346 (59.3%)

One might hypothesize that the observed concentration of intra-group citations may be due to the different topics or venues in which each group is engaged. Using the venue as a proxy for the research area, we analyzed the 231 citations for which the citing venue and the cited venue were the same. This did not reduce the intra-group citation concentration but increased it, with 89.5% of citations by academics going to other academics and 59.3% of citations by practitioners going to other practitioners.

Discussion

Types of outputs

Our analysis of publications by academics and librarians shows that academics publish at higher rates than librarians. This is likely because research is a key component of their workload and vital to career advancement, whereas expectations of librarians to conduct research may still lack definition or codification in workload policies or collective agreements. Librarians also may not be provided the training, time, or institutional support to pursue research activities. We also find that academics publish more peer-reviewed articles, accounting for 70% of all publications. Librarians tend to favour articles, reviews, and book reviews but publish the latter two at higher rates than academics. The two groups collaborate the most on articles, reviews, and conference papers. Interestingly, academics publish conference papers more frequently, though this is an area where librarians have historically been most active (Hoffman et al., 2023; Sugimoto et al., 2014). This finding may be a false correlation because academics publish at higher rates or result from academics' higher rate of student supervision in which they may act as co-authors of supervisee's work.

Publication venues

Librarians tend to favour venues that are focused on librarianship as a profession, while academics publish in a range of venues not limited to LIS. It is apparent that academics are highly diversified topically, working in areas ranging from scientometrics to marine resources to computer science, as previously identified in the literature (Figuerola et al., 2017; Larivière et al., 2012; Vakkari, 2024).

Topical overlap indicated by top topics and topic sources

Librarians tend to focus more on the health sciences than academics: journals in which academics and practitioners publish together include several health sciences, evidence synthesis, and meta-analysis venues which comprise approximately 1.5% of total publications, with an additional 4.5% of publications relating to health sciences topics.

Collaboration was observed in a few different areas. Top venues for academics include the area of archives, which is absent from practitioners' top venues; however, several archives-focused venues are present in the top venues where the groups collaborate. Archival science is an area in which

practice tends to inform theory and vice-versa, which may explain why it is a topical interface at which the two groups engage.

Engagement and collaboration between groups

Table 8 shows that each respective group tends to cite others within the same group at high rates. Practitioners also tend to cite academics more often than the reverse, though librarians cite their group more often. Practitioners tend to cite collaborative research between the two groups more than academics do.

Collaboration between academics and librarians is low (1.8% of all publications). It can be posited that each group tends to collaborate more with their respective group (academics with academics and practitioners with practitioners).

Conclusion

This study found that librarians actively use academic work but not so much the reverse. This may be due to academics' higher volume of publications, making their work disproportionately cited. The output type could also be a factor since librarians publish reviews more frequently than academics, potentially citing academic work more as it is produced at higher rates (depending on the topic). While there is a noticeable distinction between the two groups regarding authorship, interactions occur perhaps more frequently than previous studies have found. While the topics academics and librarians collaborate on are generally distinct from each of their foci, venues in which they publish together tend to overlap with each group's top choices. It is notable that the top topics on which academics and practitioners most frequently collaborate necessarily wed both theory and practice; this perhaps confirms a recognition between the groups that research and practice act as bi-directional pipelines, where the improvement of each can be advanced more quickly by working together and harnessing the knowledge of the other.

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