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Are we practicing what we preach? Towards greater transborder inclusivity in Information Science systematic reviews

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Abstract. Inclusiveness has been investigated in different ways by Information Science (InfoSci) researchers, often as a line of social justice inquiry. Systematic reviews (SRs), which bridge the gap between research and practice, are a key example of research impacted by inclusiveness. “Transborder” inclusiveness—the ability of researchers from different institutions, regions, and countries to access information, and the inclusion of information from researchers in regions and countries where English is not an official language in major collections of InfoSci research—influences how researchers perform SRs. Although this topic has been identified in other disciplines involved in Evidence Based Practice (EBP) such as nursing, it has received less attention in InfoSci. We address this need through a reflective case study of an SR in InfoSci which brings this transborder issue of inclusiveness into focus, demonstrating problems of access and the value of international collaboration and asking an overarching question: how can we make writing SRs in InfoSci research more inclusive?

Keywords: transborder inclusion, academic libraries, evidence based practice (EBP), information science (InfoSci) research, systematic reviews, PRISMA, open access, reflective single-site case study, information inequality.

1 Introduction

1.1 Overview

Inclusiveness has been investigated in different ways by Information Science (InfoSci) researchers, often as a line of social justice inquiry (e.g., [1], [2], [3], [4], [5], [6], [7]). Systematic reviews (SRs), which bridge the gap between research and practice, are a key example of research impacted by inclusiveness. “Transborder” inclusiveness—the
ability of researchers from different institutions, regions, and countries to access information, and the inclusion of information from researchers in different regions and countries where English is not an official language in major collections of InfoSci research ([8], [9], [10])—influences how researchers perform SRs. Although this topic has been identified in other disciplines involved in Evidence Based Practice (EBP) such as nursing [11], it has received less attention in InfoSci. We address this need through a reflective case study of an SR, the first of its kind to the best of our knowledge in InfoSci, which brings this issue of transborder inclusiveness into focus, demonstrating problems of access and the value of international collaboration.

1.2 Issues in Transborder Research Inclusiveness

Issues of inclusiveness have been identified by notable InfoSci organizations such as the International Federation of Library Associations and Institution (IFLA) [12, p. 36] and the Association of College & Research Libraries (ACRL) in the United States (US) [13], as well as scholars from around the world (e.g., [12], [14], [15], [16]). One transborder issue is a dependence on English or “white-IST [white elitist] discourse” as the de facto language of international scholarly communications ([12], [17], [18], [19]), a topic specifically raised by Xu et al. [20] in relation to possible SR bias in InfoSci. Another transborder inclusiveness issue is “helicopter” or “parachute” research [12, p. 370], in which scholars from privileged regions conduct research in areas and/or places that are removed from their own lived experience [21]. A third is the disconnect between the promotion of Open Access (OA) initiatives and policies and the practices of scholars and publishers (e.g., [22], [23], [24], [25], [26]).

The current state of affairs has led to a mixture of open and subscription-based research in InfoSci [27]. Such a mixture of open/subscription-based content is common across the broader scholarly communications environment, recently characterized by Brembs et al. as reflecting three publishing crises: affordability, functionality, and replicability [28, p. 230206/2]. The resulting lack of access to the full range of InfoSci scholarship disadvantages scholars and practitioners at institutions that do not, or cannot, purchase costly subscriptions, as shown in the case study below.

While OA tools are available to everyone with the ability to access them, subscription-based abstracting and indexing (A&I) tools in InfoSci such as Clarivate’s Web of Science (WOS), Elsevier’s Scopus, ProQuest’s Library and Information Science Abstracts (LISA); and EBSCO’s Library and Information Science Source (LISS) remain closed and inaccessible to many. At time of writing, only Library, Information Science and Technology Abstracts (LISTA) was openly accessible—while still being hosted on the commercial EBSCO platform [29].

1.3 Aim

Using a recent SR effort on the topic of satellite/remote sensing data in InfoSci, we conducted a reflective single-site case study ([30], [31], [32]). In reflective case studies, researchers examine their own experiences in order to identify issues, problem solve, and/or enhance one’s own practice ([31], pp. 5-6). This method is particularly useful
when the researchers are working in a space that is relevant to their own professional practice, which is the case here.

Through this case study we examine our experience as researchers conducting an SR in order to explore how issues of access and availability of research publications in InfoSci reflect privilege and impede inclusiveness. We also highlight the disconnect between professed values and actions of the InfoSci research community with regard to perceptions of OA practices, attitudes, and policies that Scott et al. [24] identified.

In this paper, we ask the following research questions:

1. What issues or challenges regarding access to research publications arose for the research team during the process of conducting an SR?
   a. What adaptations were necessary to address those challenges?
   b. What impact did those adaptations have on the research team and/or their research project?

2. What are the implications of unequal access to research publications in InfoSci?

We briefly describe our research process using a modified Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) approach for an SR. We describe challenges accessing A&I databases and full-text publications, and the adaptations that addressed those challenges. We conclude with a discussion of the impacts these adaptations had on our work, and the implications of the unequal access we describe for InfoSci scholarship, using a levels of access framework based on Zhang et al. [11, pp. 105737/5-6]. This paper is part of a grant-funded research project whose aim is to understand data practices among people engaged in citizen-based monitoring for nuclear disarmament and nonproliferation. The project involves a transborder team of researchers whose institutional affiliations afford them different levels of access to scholarly resources and publications.

2 Case Study

In this study, we focus on two specific team members: Researcher A (RA, Rebecca D. Frank, co-author), is a faculty member at a very large US public research university (R1) with access to a second large US public research university library (R1). Researcher B (RB, Stephanie Krueger, corresponding author), is a contract consultant for the German institution managing the satellite data grant with no access to that institution’s library resources. She had library access at a well-funded library in the Czech Republic. However, because of the library’s focus on science and technology, it has few subscriptions to InfoSci content.
2.1 A Modified PRISMA Approach: Identifying, Obtaining, and Screening Titles for Analysis

We conducted a pilot scan of SR methods literature in InfoSci as well as broader SR guidelines ([33], [34], [35], [36], [37]). We selected a modified PRISMA approach, as recommended by Xu, et al. [20, p. 297]. While we followed many of the processes outlined in the PRISMA checklist, we characterize our work as a modified PRISMA approach because our review addresses research across a variety of InfoSci sub-domains and research methods. As such, it will not include statistical synthesis, one component of the PRISMA checklist intended for reviews of strictly quantitative research.

Fig. 1. Modified PRISMA flow diagram: Identification of studies in the SR.
For data collection, we used slight variations of the following full text keyword query:

\[((\text{satellite* OR "remote sensing") AND (\text{data OR image*}) AND ("data sharing" OR "data reuse" OR "open data"))\]

Full-text searching enabled us to keep our search broad, necessary because of the narrow results found in searches limited to abstracts/titles or relying on index or subject terms during our initial scans. Further search parameters included limiting our searches to InfoSci peer-reviewed research (journal articles, conference papers, data papers), 1990-present.

After running queries in WOS, Scopus, LISA, and LISS/LISTA, we exported our results (citations and abstracts) in RIS format to Zotero, then ran “Find PDF” in Zotero to find full-text versions of open and/or available titles. Full-text versions of remaining titles were located and downloaded individually by RA. She used interlibrary loan (ILL) services to locate full-text items not immediately available. Of the 381 titles identified for initial screening, there were seven duplicates.

For screening, we used two yes/no criteria (i.e., Is this title written in English?; Is this title a peer reviewed journal article, conference paper, and/or data paper?) and one inclusion question (i.e., Was the article primarily about satellite/remote sensing data?). Both researchers conducted independent inclusion/exclusion scans, taking notes and adding notes to a spreadsheet. A comparison of scanning efforts showed good agreement in decision-making, with less than 5.9% of articles needing to be discussed before a final inclusion/exclusion decision was made. 37 titles were included in the SR. Information about further analysis of this content is outside the scope of this paper.

2.2 Unequal Access

As described at the start of this section, RA and RB had differing levels of access to scholarly resources based on a number of factors. As a tenure-track faculty member at a large US research university, RA had extensive and relatively convenient access to the InfoSci resources needed for this SR. As noted in Section 2, RB did not have access to key resources.

We were able to overcome RB’s limited access to key InfoSci resources by relying on RA to query three of the four databases used in this SR, and to locate full-text versions of all subscription-based titles. The final SR will include all relevant sources of information that the research team set out to use, but the distribution of work was unequal. While it can be argued that this alone was a challenge for the team, the greater issue was that RB did not have the same opportunity as RA to develop a deep familiarity with the data early in the research process.
2.3  Scopus and the InfoSci Subject Limiter

An access issue that arose while searching Scopus was the inability to limit one’s search to InfoSci as a subject. Rather, InfoSci was included alongside several other topics under the umbrella of Social Science (SUBJAREA(SOCI)), without a clear way to query the individual subjects in this category. RA recruited the assistance of the InfoSci subject specialist librarian at her university, who suggested two solutions. First, a lengthy advanced query for limiting search to InfoSci content by journal title. Second, she was able to reach out to a representative at the publisher who provided the subject code (“SUBJTERMS (3309)”) that RA used for the Scopus query—information that was not available in the search interface.

2.4  Uniqueness of A&I Results

Of the 379 titles identified through our searches, there were only seven duplicates. Of those, one was a title that appeared in WoS and EBSCO, and nine were titles that appeared in Scopus and ProQuest. The uniqueness of content across the four sources included in this study suggests that research teams with institutional access like RA seeking to conduct comprehensive SRs will have a comparative advantage over research teams whose access more closely resembles RB.

In this section, we provided a single-site narrative case study analysis, describing challenges encountered during a recent SR and discussing the ways that these challenges were addressed. In Section 3, we discuss broader implications for the transnational SR research process.

3  Discussion

3.1  Discussion Overview

This reflective case study examined the process of data collection for an SR of InfoSci scholarship on the topic of satellite data, focusing on issues of data availability, data sharing, and open data. We found that our research team encountered two major obstacles: (1) unequal access to scholarly resources, and (2) the need for transborder library support in using those scholarly resources. The results of our SR data collection also highlighted the uniqueness of content across A&I databases in InfoSci, an issue that has the potential to magnify those obstacles.

We were able to address both obstacles by relying on RA’s institutional access. She was able to access the A&I databases necessary to identify titles for inclusion in this SR, and was able to find full-text versions of nearly every title identified via institutional subscriptions and ILL services. She also received help from her library’s InfoSci subject specialist librarian, who resolved the Scopus subject term issue by consulting with other librarians and reaching out directly to the publisher. The timely resolution of this issue depended on institutional access to a research library with staffing and
resources available for consultation. InfoSci researchers without access to skilled librarians who have expertise in our research area(s) would likely have a difficult time resolving this type of problem.

The work required to address these obstacles resulted in an unequal distribution of work across team members, which led to negative consequences for both members of the research team. For RA, it meant taking on a far greater share of the work for data collection. As a result, RA and RB went into data analysis with differing levels of familiarity and knowledge about the data set. This created an imbalance of power, with RA having the privilege of being part of a more robust academic knowledge system than RB [38, p. 968]. As a result, while RA would have been able to collect the data for this SR on her own, RB was dependent on RA to carry out the necessary data collection for a comprehensive SR of English-language InfoSci scholarship.

3.2 Barriers to Transborder Inclusivity for SRs

These findings have several implications for InfoSci researchers at institutions that are not part of robust academic knowledge systems. These implications align with the access issue levels identified by Zhang et al. [11]: (1) institutional/infrastructure, (2) individual, and (3) lack of locally appropriate evidence levels (i.e., language barriers) (pp. 105737/5-6). We discuss our findings below using this framework.

Institutional/Infrastructure (“Transborder” Access) Barriers. The privilege that researchers with top-tier access to scholarly resources have is difficult to overstate. In this study, RA was able to access all the resources necessary for an SR of InfoSci literature. Access to highly-skilled specialist librarians provided another advantage. Additionally, a substantial portion of InfoSci scholarship is behind a paywall, with Green OA versions of closed access publications often challenging to locate (e.g., [39], [40]). Researchers without access to scholarly literature, such as RB, must work much harder than those at privileged academic institutions to gain access to the tools they need for a comprehensive English-language SR in InfoSci.

Individual Barriers. Without access to subscription-based A&I tools, researchers conducting SRs need to reach out to more privileged colleagues, as was the case here with RB relying on RA. This indicates a possible incentive for “less privileged” researchers to participate in transborder collaborations. However, it also creates a power imbalance that disadvantages those same researchers (as with RB here), who must rely on the participation of a collaborator in order to carry out their research. On the other hand, lack of access may have a chilling effect on literature-based research. The difficulty in finding suitable and willing collaborators, coupled with conditions that create imbalanced relationships between members of research teams and unequal workloads for those team members, as was the case here with RA and RB, may make this type of transborder project an unattractive prospect for those with and without access.

Lack of Locally-Appropriate Evidence/Language Barriers. Third, our English search terms yielded overwhelmingly English results, reflecting a limitation of our case
study: potential bias against the InfoSci literature written in other languages. InfoSci research is dominated by English-language publications, with most highly ranked journals requiring English language submissions [27]. Tenure requirements for researchers (e.g., RA) often require publishing in those highly-ranked, English-language, journals. Therefore, SRs written in languages other than English are unlikely to find a wide audience or be published in those highly-ranked journals. Scholarship in languages other than English is also likely to be omitted from SRs.

3.3 Open Access

These findings illustrate a set of obstacles that exist in part due to the dominance of closed access publishing in InfoSci. The institutional/infrastructure (transborder) and individual level obstacles would be less significant if the majority of InfoSci publications were available OA, leveling the playing field in terms of access to scholarly outputs. Scholars such as Mercer [24] have noted the disconnect between values and practice in InfoSci publishing. In this paper, we provide a concrete example of the consequences of this disconnect on scholars with and without the institutional affiliation and/or resources required to access closed publications. A scholarly communications ecosystem in which InfoSci scholars practices align with our professed values would be one in which transborder collaborations (such as the one described in this case study) are carried out by colleagues who have the opportunity to contribute equally to the process of producing and publishing high quality literature-based research such as SRs.

While proposing a solution to the thorny problem of scholarly publishing is outside the scope of this short paper, our findings have led us to pose the following question as a prompt or call for future research: What can researchers and leaders in the iSchool community do to promote inclusiveness in literature-based research such as SRs?

3.4 Limitations

This paper reports on the results of a reflexive single-site case study describing our SR process. While this case study demonstrates internal validity, [31, p. 9], it presents only a brief examination of one case. These findings would be strengthened by an extended investigation against a broader theoretical backdrop and in additional settings. Finally, the SR described in the case study scanned English literature only, and thus is biased to that corpus.

4 Conclusion

In this paper, we used a reflective single site case study to describe a recent SR conducted by our transnational research team on the topic of satellite data. This case study highlighted inclusiveness issues faced by InfoSci researchers with differing levels of access to the tools needed to conduct a comprehensive English-language SR. There are steps we as a community might take to extend access to A&I tools and help the iSchool community to better “practice what we preach” in terms of bridging the digital divides
that persist in our scholarly knowledge systems, which reinforce both privilege and disadvantage for scholars in our own community. In our future research, including the aforementioned satellite data project, we hope to continue probing the impact of the inclusion issues that we have identified here on InfoSci research more broadly.

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