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The Role of Institutional Repositories in the Dissemination and Impact of Community-Based Research

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Article abstract

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Conclusion – The results of this study indicate that academic libraries and their IRs play an important role in the dissemination of CBR outputs to the broader public. The findings also confirm that there is more work to be done; academic librarians, CBRU staff, and researchers can work together to expand access to, and potentially increase the impact of, CBR. Ideally, this would result in all CBRU project outputs being widely available, as well as providing more consistent access points to these bodies of work.

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B Evidence Based Library and Information Practice

Research Article

The Role of Institutional Repositories in the Dissemination and Impact of Community-Based Research

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Abstract

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Conclusion – The results of this study indicate that academic libraries and their IRs play an important role in the dissemination of CBR outputs to the broader public. The findings also confirm that there is more work to be done; academic librarians, CBRU staff, and researchers can work together to expand access to, and potentially increase the impact of, CBR. Ideally, this would result in all CBRU project outputs being widely available, as well as providing more consistent access points to these bodies of work.

Introduction

Most Canadian universities, like similar institutions worldwide, have a tripartite mandate that includes teaching, research, and service. Some researchers and their institutions have devoted considerable time and resources to conducting CBR, an undertaking that combines research and service in an effort to investigate pressing community issues. CBR (with variations known by names like communitybased participatory research, communityengaged research, collaborative research, and others) is widely viewed as one way that universities can build relationships with and have an impact on their wider communities, and be "of and not just in their community" (Watson, 2003, as cited in Macpherson et al., 2017, p. 298).

CBR in its truest form is a partnership between academics and community members to investigate research topics of common concern. Ideally, CBR sees the involvement of community partners throughout the entire research process, from identifying the question or problem,

through designing the research study and collecting data, and on to sharing and disseminating the research findings widely (not only among other academics, but crucially among the community participants in the research and the wider population). By addressing real, local concerns, CBR has the potential to improve the lives of residents. Even a cursory look at the titles of CBR outputs reveals that many focus on important social justice issues and that a number of individuals and groups stand to benefit from broad sharing of these research findings. Access to these research results or "informational justice" (Mathiesen, 2015) is an important consideration in ensuring that CBR achieves its greatest possible impact.

Widespread dissemination has frequently been highlighted as an area where CBR falls short, but there have been few efforts to objectively assess what happens to CBR outputs upon completion, and no studies on how academic libraries (who routinely assist researchers with dissemination to academic audiences) contribute to CBR dissemination efforts. Thus, the goals of this study were to 1) characterize the quantity and nature of research outputs created by or in cooperation with CBRUs at Canadian universities; 2) assess dissemination practices and patterns with respect to these outputs; 3) understand the current and potential roles of IRs in disseminating CBR.

Literature Review

Several studies highlight both the importance and difficulty of communicating the results of CBR beyond academia. Most of these studies question key stakeholders in CBR to collect their assessments of the challenges and state of CBR communication. Bodison et al. (2015) provide an example of this type of work. They conducted a discussion forum with multiple stakeholders in CBR and found that "research findings are rarely meaningfully communicated back to those who participated, if communication about the findings occurs at all" (Bodison et al., 2015, p. 817). Such studies are useful and provide direction for improvements, but they do not provide objective assessments of current CBR dissemination practices. One exception is Chen et al. (2010), who conducted a systematic review of CBR publications to assess efforts in disseminating findings beyond scholarly journal articles, in order to find out what is *really* happening regarding wider dissemination. They found that despite the fact that widespread dissemination of findings is a key tenet of CBR, "substantial challenges to dissemination remain" (Chen et al., 2010, p. 377). To date, this is one of very few studies assessing what actually happens to CBR results once projects are concluded. Even less has been written about what role academic libraries might play in the dissemination of CBR. The most relevant literature investigates library contributions to increasing research impact within the academy. This is supplemented by more recent work that has started to consider the role of academic libraries in dissemination outside of the academy and contributions to public engagement and the common good.

Recent years have seen academic libraries expand from primarily supporting teaching and learning in their universities, to an increased emphasis on support for faculty and graduate student research. As recently as 2011, MacColl and Jubb noted that "it is hard to avoid the conclusion that libraries in recent years have been struggling to make a positive impact on the scholarly work of researchers, but having relatively little effect" (p. 5). This is gradually changing, driven in no small part by increasing requirements around national research impact assessment initiatives like the Research Excellence Framework requirements in the UK and the impact assessment requirement as a component to the Excellence in Research for Australia (ERA) national framework. Librarians are increasingly called upon to assist their organizations in demonstrating the impact of their research through using conventional and alternative ("alt") metrics. Corrall et al. (2013) surveyed academic librarians in four countries to better understand the scope and nature of their support for research activities in their institutions. The results confirmed that national research assessment exercises had breathed new life into bibliometric services in many libraries and that "the focus of bibliometric activity . . . has shifted from collection development to research evaluation and impact assessment for individual researchers, academic groups, organizational units and whole institutions" (Corrall et al., 2013, p. 666). They concluded, though, that there remain "significant opportunities for further engagement" in this type of work (Corrall et al., 2013, p. 666).

In 2014, Kennan et al. revisited their results to further analyze the skills required for librarians to succeed in supporting both research impact assessment and research data management. They found that many librarians reported needing additional training and skills development to undertake this work with confidence. Nicholson and Howard (2018), in their study of the gap between core competencies required for research support work (as evidenced in position postings) and the skills of library and information professionals, similarly found that "it would be beneficial to build upon the skillsets of current and new LIS professionals" regarding research engagement and impact topics (p. 144).

Given et al. (2015) looked more specifically at the need to disseminate scholarly research and expand its impact to those outside of the academy; they interviewed 10 Australian academics in an effort to better understand their conceptions of research impact in both academic and non-academic settings, to gain participants' insight into "existing or needed universitybased supports to foster societal engagement" (p. 4). They found that academics generally felt ill-equipped to disseminate their work beyond traditional channels (scholarly journals and conferences) and these academics "did not identify any existing library supports that could be applied to their work in the societal impact space" (Given et al., 2015, p. 6). The researchers encouraged further efforts, commenting that "academic librarians and information science researchers can be proactive . . . to ensure that researchers and institutions are well-informed and well-prepared to engage with their communities in appropriate and productive ways" (Given et al., 2015, p. 8).

One of the most common ways for researchers to extend the impact of their work beyond the academy is through the creation of research outputs that differ from traditional journal articles and scholarly books. More accessible outputs like whitepapers and policy documents are increasingly likely to reach and impact policy makers, just as videos, recordings, fact sheets, websites, and blog posts may be more easily accessed and readily understood by the general public. Many of these outputs fall under the broad category of grey literature and some researchers have started to investigate the role of IRs in collecting, providing access, and preserving these outputs. Searle notes that "librarians involved in scholarly communication must move quickly beyond a limited set of formal publication types towards a wide range

of more complex and arguably more at-risk research outputs" and that "grey literature struggles to find a place in library strategies despite the evidence of its high value to communities outside academia" (Agate et al., 2017, p. 2). The following year, Marsolek et al. (2018) conducted a study of the discoverability of grey literature in IRs and commercial databases; they found that 95% of the 115 IRs included in their study contained grey literature, but concluded that only 63% of IRs seemed to be actively working to collect it (p. 15). Theses and dissertations were the most commonly collected grey literature found in IRs, while others like technical reports, working papers, blogs, standards, and protocols were much less likely to be included. Marsolek et al. (2018) concluded that:

The marriage between IRs and grey literature could elevate the value of IRs to the research community. IRs could make a substantial difference in ensuring grey literature's preservation, increasing its reach, and, in many cases, providing a form of legitimacy to these items published outside traditional realms. (p. 17)

Moore et al. (2020) explored how use of IRs to provide access to grey literature can also help universities increase public engagement and achieve community service goals; they saw an important role for IRs in the "recognition, dissemination, and preservation of the outputs of community-based research", outputs which are often grey literature (p. 117). Moore et al. (2020) state how a repository containing grey literature produced during the course of CBR helps the university to "present a more holistic picture of its community partnerships and institutionalize public engagement into something much more integral and essential to campus (and local) culture" (p. 117). They describe how the repository at the University of Minnesota became a "conduit between campus units and community partners" (Moore et al., 2020, p. 117). In the process, the IR began to "play a strategic role in public engagement . . .

by acting as a common good to showcase, contextualize, disseminate, preserve, and institutionalize this content" and came to "support the research, teaching, and outreach mission of an engaged campus, provide a service as a public good, and contribute to an informed citizenry in society" (Moore et al., 2020, p. 126). This echoes Makula's (2019) description of the University of San Diego's repository as moving from its position as "primarily a platform, a system, or a service" to becoming "a bridge between the University of San Diego and the outside world, an instrument helping to build and nurture institutionalcommunity relationships, foster collaboration, and cultivate good will" (para. 12).

Heller and Gaede's (2016) work expands the notion of the IR as a common good by emphasizing that "libraries must move beyond pragmatic justification for institutional repositories . . . [and] understand their work in the context of social justice, lest they become complicit in unjust scholarly communication systems" (p. 3). They articulate a "social justice impact metric" based on search engine access to social justice-related repository content, as well as access to all repository content by developing countries, to express the social justice impact of IRs (Heller & Gaede, 2016, p. 3). They offer this metric as a way for other librarians to assess their own open access activities in terms of their level of success in contributing to the public good, by reaching members of the public who would not otherwise have access to this important content. Perhaps even more important than the metric they offer, though, is the insight that:

Open access to the scholarly and creative output of our institutions contributes a vital academic good insofar as prestige and reputation are concerned, but the social good is something extraordinary and should excite us more. In reclaiming our role as facilitators of democratic discourse, we demonstrate the change we believe in and live out our bibliography. (Heller & Gaede, 2016, p. 15)

Mathiesen (2015) offers the theory of "information justice" as a framework for better understanding the contributions of library work to social justice. She describes "informational justice" as a facet of social justice concerned with people as "seekers, sources, and subjects of information" (p. 199). She notes that:

What makes informational justice of central concern, and thus why libraries and other information services are particularly important, is the fact that informational injustice produces and reinforces other forms of social injustice, while information justice undermines systems of social injustice. Indeed, informational justice serves as a good proxy for social justice writ large, because opportunities to receive and share information are central means for enhancing all aspects of people's lives. (Mathiesen, 2015, pp. 204-5)

Mathiesen's (2015) elaboration of "iDistributive justice", which is terminology for "equitable distribution of access to information" is particularly relevant when thinking about the library's role in making CBR more widely available to those who may benefit from but lack access (p. 207). For librarians engaged in the many facets of research impact work for institutions, it is important to ask whether they are doing all they can to extend research impact to the broader community beyond academia and contribute to informational justice.

Methods

University involvement with CBR is difficult to quantify and track. Some is coordinated by units, either at the department, faculty, or institutional level, that facilitate partnerships between community organizations and researchers. Research associated with CBRUs was chosen as the subject of study for this paper because it provides a manageable starting point for exploring the nature and accessibility of CBR

outputs.

Even this approach is not without its challenges. The language for referring to this type of research varies and seems to be in transition, including names such as "research shop", "community-based research", "communityengaged research", and "community-based participatory research", among others. As well, there is no comprehensive list of department, faculty, or university CBRUs in Canadian universities. As such, the researcher consulted and consolidated online directories of Canadian universities to establish a list of 47 English language institutions. Universities or colleges that are smaller affiliates of larger institutions were excluded based on difficulties distinguishing their contributions from those of their larger partner or parent organizations.

Working from this list of universities, the researcher investigated each in an attempt to identify any CBRUs within the institution. This involved viewing lists of research centres and institutes on each university's webpage, searching these institutional webpages for variations of "community-based research", and conducting Google searches combining this concept with the name of each institution. Multiinstitution CBRUs (for example, Nova Scotia's CLARI) were excluded due to the anticipated difficulty of tracking outputs in the repositories of specific institutions at later stages in the research process. Ultimately, these efforts resulted in a list of 25 CBRUs. All but one of these were from universities that also have IRs, so 24 CBRUs were included for further analysis.

The researcher visited the websites for each CBRU in February 2021 and used the data on the websites to create a list of projects that the CBRUs had been involved in or facilitated over during the past 10 years (2010-2020). The researcher used an Excel spreadsheet to record variables relating to the nature and accessibility of outputs associated with each project. These variables included:

- Type of outputs (document, video, website, and others)
- Availability of output in its entirety (i.e., full-text, entire video, journal articles, and others) on:
 - CBRU websites
 - IRs (the names of projects and lead researchers were also searched in the IRs, even in instances where there was no link to the IR from the CBRU webpage)
 - o Third party websites
 - Dedicated project websites

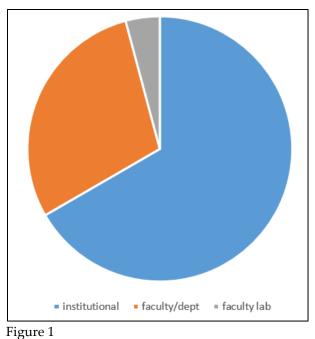
The researcher then analyzed the findings to learn more about the dissemination of CBR and, in particular, the role of the IR in disseminating the results of this research.

Results

As mentioned above, this methodology produced a list of 47 English-language Canadian universities, within which 24 CBRUs were identified in institutions that also have IRs. As shown in Figure 1, these CBRUs were housed in 19 institutions, with some having 2 distinct CBRUs. Sixteen of the CBRUs were at the institutional level (that is, not located within a specific faculty or department); 7 were housed within faculty or departments, and 1 was a faculty member's laboratory.

Between them, these 24 CBRUs listed 525 distinct projects completed during the past 10 years (2010-2020). Projects that were clearly still underway or in progress were excluded from the analysis, given they could not yet be expected to have produced outputs for analysis. The number of projects listed on the CBRU sites varied widely from 2 to 124, with a median of 13. Figure 2 shows a breakdown of outputs by type. The number of outputs exceeds the number of projects because some projects produced more than one output type.

As Figure 2 clearly shows, reports (which includes research reports, whitepapers, fact



Type of community-based research unit.

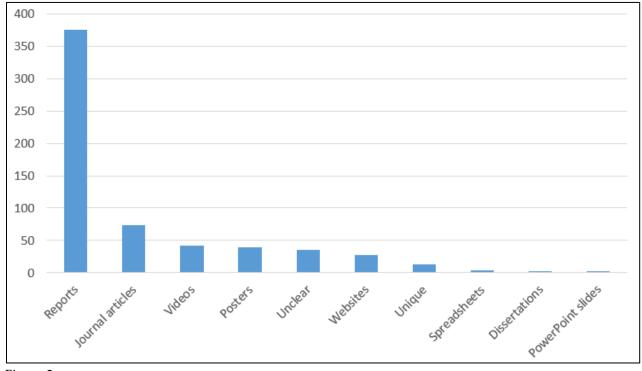


Figure 2 CBRU outputs by type.

sheets, and others) was the largest category of outputs (n=375). "Unique" (n=13) includes output types that only appeared once across all the data (e.g., electronic book, blog, storytelling event, among others), while "unclear" (n=36) includes projects whose description suggests that there was an output generated, but its nature is not specified nor is the work provided.

After characterizing the types of outputs emerging from CBRUs, the study sought to assess if and how research outputs were made accessible to interested readers. Some outputs were available in more than one place (e.g., IR and CBRU websites), so the total output locations in Figure 3 exceed the 525 projects included in the analysis. The "CBRU website" includes outputs (n=197) available in their entirety (full report, entire project video, and others) on the units' webpages. "Institutional

repository" similarly indicates that an entire output has been deposited in the IR (n=193). "Third-party website" describes instances where the CBRU websites link to a third-party website where the research output can be found (n=104). "Project website" indicates that the CBRU site links to a stand-alone website, created to share the results of that particular project (n=19). "Available for purchase" refers to instances where the CBRU websites either link to (n=22) or provide citations without links (n=9) to a journal article that requires an institutional subscription or personal purchase to access the research output. Sixty-five projects are categorized as "Not available" because the CBRU websites suggest that there have been outputs from the research, but there is no access information provided or the only method provided is a dead link.

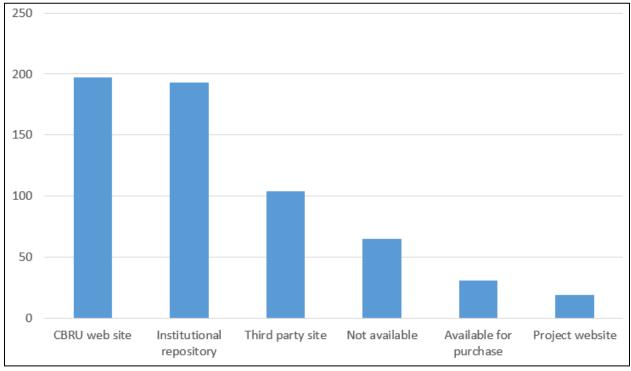


Figure 3

Dissemination of research outputs.

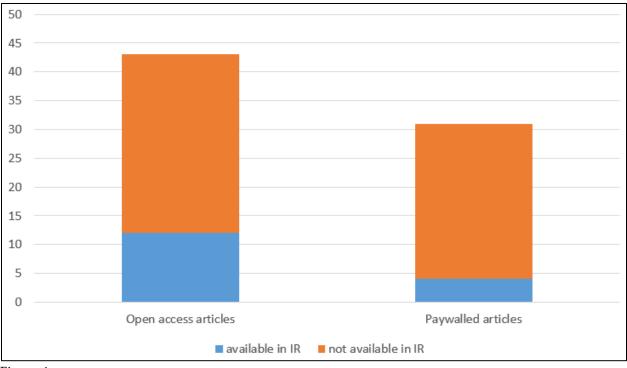


Figure 4

Journal articles by publication type and IR availability.

Third-party websites figure prominently in the dissemination of research outputs from the CBRUs, with 104 of the projects (19.8%) using this as a means of sharing results. These third-party sites can be divided into three broad categories: video sites like YouTube and Vimeo (37 videos), journal websites (74 articles), and websites of partner or funding organizations that contain the research outputs (n=24). Another 19 projects (3.6%) have separate project websites to share results. Importantly, in terms of access, there were 10 dead links from projects listed on CBRU websites to third-party or project websites.

Outputs were not freely available for 72 of the projects (13.7%). This included 65 projects that indicated reports or other outputs existed and either did not provide access or a link, or else provided a dead link, as well as 7 for which outputs could only be viewed by purchasing access to paywalled journal articles that were not available in the corresponding IRs. Overall, there were 31 paywalled articles identified as

sites for research output, but most supplemented other output methods and did not therefore impede access to the outcomes of the project, except for the 7 highlighted above. This compares to 43 open access articles listed as outputs of these research projects. Figure 4 shows the breakdown of journal articles by publication type, as well as the portion of each type that are also deposited in the IRs (4/31 or 12.9% of paywalled articles and 12/43 or 27.9% of open access articles).

Overall, a total of 193 (36.8%) of the projects resulted in research outputs than can be found in the institutions' repositories. Figure 5 shows that there are some notable differences in the rates of outputs deposited in IRs when the data were further broken down. The 7 faculty or department-based CBRUs had an IR deposit rate of 69.4% (154 of 222 projects), while the institutional-level CBRUs only had an IR deposit rate of 13% (39 of 299 projects). None of the projects emerging from the faculty member research laboratories were captured by their IRs.

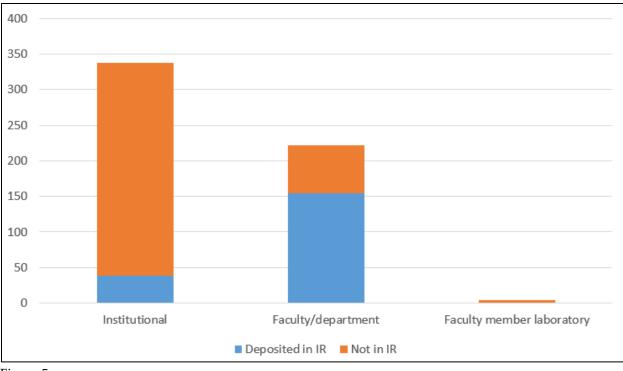


Figure 5 IR deposit for projects, by CBRU type.

Thus, although only 7 of the 24 CBRUs (29.2%) were faculty or department based, they accounted for 154 of the 193 (79.8%) projects for which research outputs were deposited in IRs.

Interestingly, only 177 of the 193 projects found in IRs contained a link from the CBRU websites to the relevant repository contents. Thus, the output of 16 projects (8.2%) are in fact held in IRs but would not be found by readers or researchers viewing the CBRU websites.

While 36.8% of research outputs from these CBRUs can be found in the corresponding IRs, Figure 6 shows that the frequency with which these outputs are deposited varies widely depending on the nature of the output. 48% of reports (n=180) have been deposited, while the same can be said of 21.6% of journal articles (n=16). Deposit rates are much lower for items that are not typical Word or PDF files; only 9.5% of videos (n=2) and 5% of posters (n=2) have been deposited.

Discussion

The dissemination avenues for these CBRU projects are roughly divided into thirds, with approximately one third of the project results housed on CBRU websites, another third in IRs, and a final third in "other" (third party websites, standalone project websites, or not available). This demonstrates a level of inconsistency among dissemination practices that would make it difficult for individuals interested in this type of research to know how to proceed in locating it. Although posting research outputs on CBRU, third-party, or standalone websites may aid findability in the short term, sole use of these sites generates problems over the long term. The problems of "content drift," where the contents of webpages change over time and "URL decay" (i.e., URLs no longer active) have been welldocumented (Jones et al., 2016; Oguz & Koehler, 2016). IRs, by contrast, provide "safe storage, persistent URLs, backup, and possibly migration if it is needed in the future" and reduce CBRU

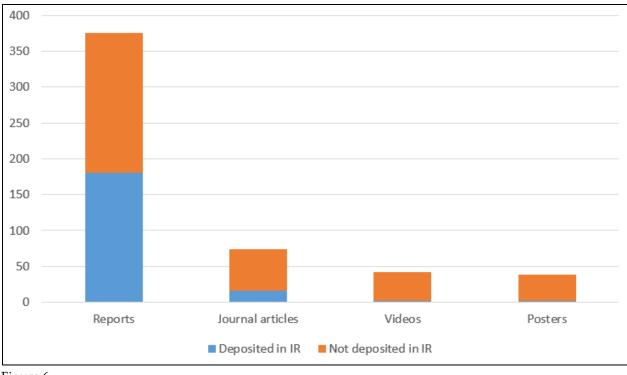


Figure 6 IR deposits by output type.

website and file hosting workloads (Marsolek et al., 2018, p. 5). Many CBRU-involved outputs remain relevant over the longer term, and continued access is important for faculty members seeking to include these materials in promotion and tenure applications.

There was also a marked difference in the deposit rate for different output formats. "Reports" which included Word and PDF text files, were deposited at a much greater rate than alternative formats like videos and posters, among others. The reason for this is unclear but warrants further investigation, since research has shown that some of these alternative formats have the greatest potential to impact the general public. Possible explanations include IR collection policies that align with traditional (print) collection policies, the failure of librarians to actively collect materials in these formats, or lack of awareness among the campus community (CBRU staff and researchers) that other formats are also welcome in IRs. It was

somewhat surprising that journal articles emerging from these CBRU projects were not more consistently included in the IRs (only 21.6% had been deposited), given that the collection of journal articles has long been a priority for many IRs and many libraries have developed policies, workflows, and advocacy tools to support journal article collection.

Cost was less of an access barrier to CBRUinvolved work than expected; while 31 paywalled journal articles emerged from the work of these CBRUs, there were only 7 cases where this prevented all access to the research findings. The other 24 paywalled articles were supplemented with freely available reports or summaries available elsewhere (IR, CBRU site, third-party site, standalone site). The lack of availability of any findings associated with a research project was, conversely, more of a problem that anticipated, with 65 (12.4%) projects providing no information about outputs or providing only a dead link. There were also instances where the output was available, but findability was an issue. In several instances, CBRU outputs could only be found in IRs, but there was no indication on the CBRU site that this was the case. This has implications for accessibility, as only those who thought to conduct a separate search of the IR would have access to the full research output. Also interesting was the discrepancy between the IR deposit practices of institutional vs. faculty or departmental CBRUs. Faculty or department CBRUs deposited at a far greater rate than institution-level CBRUs (69.4% vs. 13%). This large difference warrants further investigation, as it may provide insights into how deposit rates by institutional CBRUs can be increased. Many Canadian academic libraries still operate with some variation of a subject liaison librarian model, usually supplemented by functional positions (scholarly communications librarian, systems librarian, among others). It would be valuable to better understand whether the relationship between the subject liaison librarians and faculty or departmental CBRUs is important to achieving this relatively high rate of deposit, and how this success could be transferred to institutional CBRUs, whose staff may not have (or be aware of) a connection with a subject specialist.

There were a few instances of institutions that had adopted unique practices of dissemination that do not fit neatly into the results above, but are relevant to note as examples of possible approaches to expanding the reach of CBR. The University of British Columbia's DTES Portal (https://dtesresearchaccess.ubc.ca) is an impressive effort to expand access and awareness to research results relevant to the issues facing Vancouver's Downtown Eastside. The mandate of the DTES portal differs somewhat from that of the CBRUs included in this study, in that they aim to collect material of interest to the community regardless of creator or origin (not necessarily involving academia) and to profile this material in a standalone database. Their curatorial statement

(https://infohub-

2019.sites.olt.ubc.ca/files/2020/07/Curatorial-Statement-2020-Final.pdf), however, also indicates that they collaborate with the UBC IR in their collection of relevant UBC research outputs. Many institutions lack the resources to create a standalone topic repository of this nature, but the DTES Portal does provide a model that might be embedded within existing IRs. At another institution, the CBRU website simply links to the relevant section of the IR that lists all of the CBRU projects (including the full outputs). This means that all CBRU items are included in the IR, saving the CBRU the work of creating and maintaining a list of projects and associated outputs. These are examples of different ways for academic libraries to approach utilizing their IRs to collaborate with CBRUs in the dissemination of CBR.

There are some limitations to the methods used in this study. CBRUs represent only a portion of the CBR undertaken at Canadian universities. It would be useful conduct a study of researchers doing CBR without the involvement of CBRUs in order to understand if their dissemination practices differ from those observed in this study. Another limitation is the reliance on the CBRU websites to identify projects as well as outcomes. It is possible that some CBRUinvolved projects were not listed on the websites and therefore these outputs were excluded from the analysis. A future study might reduce this risk by asking CBRUs to provide a list of all the projects in which they were involved over a given time frame. Additionally, it is possible that in some instances CBRUs or researchers have chosen to communicate results to community members in other ways that would not be captured in this type of study (e.g., a seminar presenting results to community members or a report sent directly to a partnering community organization). This would be a suitable way to communicate with research participants and community stakeholders, but it prevents other individuals and organizations from benefiting from the results of the research. Surveys, interviews, or focus groups with CBRU

staff and affiliated researchers might be the best way to supplement the results of this study and deepen understanding of CBRU research dissemination practices and the role that academic libraries and their IRs might play in this process.

Conclusion

The results of this study indicate that academic libraries and their IRs play an important role in the dissemination of CBR outputs to the broader public. The findings also confirm that there is more work to be done; academic librarians, CBRU staff, and researchers can work together to expand access to and potentially increase the impact of CBR. Ideally, this would result in all CBRU project outputs being widely available, as well as providing more consistent access points to these bodies of work. IRs are not, by any means, the entire solution to the complex issues of CBR dissemination, but their more consistent use would be one piece of the puzzle. Additional services and supports for CBR could build upon the relationships established in implementing such a service, providing a way for academic librarians to contribute to the common good and amplify the social justice efforts of their universities. This work is one way to "reclaim . . . our role as facilitators of democratic discourse" (Heller & Gaede, 2016, p. 15) and contribute to the realization of what Mathiesen (2015) termed "informational justice" (p. 199).

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