Mapping Canada's Indigenous Digital Collections (Paper)

Abstract or Résumé:

The objective of this paper is to report on a comprehensive study to examine, identify, and map Canada's Indigenous digital collections available on the web in order to provide a metadata-rich, map-based interface that supports unified, organized, and systematic access to the Indigenous digital collections.

1. Introduction

Digital libraries, archives, and museums are important platforms to provide access to Canada's cultural heritage collections. Over the past fifteen years, community organizations, academic libraries and research institutions, and government organizations in Canada have created numerous Indigenous (aboriginal, First Nations, Metis, and Inuit) digital collections. One of the key challenges of accessing these collections is the lack of a coherent, organized, and systematic mechanism to facilitate access and a comprehensive perspective of the number, location, nature, and variety of these collections on the Web. The key to achieving sustainability of and access to digital cultural heritage collections for all is to provide a unified and organized access and retrieval environment that would showcase the scope, content type, geographic distribution, and the organizational affiliation for Indigenous digital materials. The exploration and creation of a one-stop Gateway/portal that would provide unified, organized, and easy access to Indigenous digital collections is the focus of the study reported in this paper. Therefore, the objective of this study is to report on a comprehensive study to examine and identify Canada's Indigenous digital collections available on the web in order to provide a metadata-rich, map-based interface that would support organized and systematic access to the collections. Specific objectives of the study include:

- Compilation of a list of Indigenous digital collections in Canada
- Distribution of Indigenous digital collections (by Aboriginal, First Nations, Metis, Inuit) across Canada
- Identification of the organizational affiliation and content type
- Provincial/territorial distribution of Indigenous digital collections
- Development a metadata-rich, map-based interface to support geographic browsing and exploration of the Indigenous digital collections

2. Context

With the development of numerous web-based Indigenous digital collections by libraries, archives and museums, the need for unified, organized and integrated access and discovery mechanisms to support learning, teaching, research, and education has become more pressing than ever before. Lynch (2002) argues that when we address digital collections and aim to create digital cultural heritage collections, we tend to focus on old materials. He notes that "we need to recognize that indeed there's an intellectual continuity between the cultural materials, the historical materials, the social materials of the past and those of the present. And we need to start thinking about how to make these more of a unity as we build digital cultural heritage

collections." Truth and Reconciliation Commission's Calls to Action stress the importance of providing the opportunity to record, document and preserve "Aboriginal peoples' inalienable right to know the truth about what happened and why, with regard to human rights violations committed against them in the residential schools" (Truth and Reconciliation Commission of Canada, 2012, p.8). Nationwide effort to address this important area is evidenced by the formation of the Canadian Federation of Library Associations (CFLA-FCAB) Truth & Reconciliation Committee, whose responsibility is to work with Indigenous (First Nations, Metis, and Inuit) people to address issues related to libraries, archives, and cultural memory institutions (Callison, 2017). Indigenous communities around the world have been taking up digital media in their broader struggles for decolonization, self-representation, and self-determination (Ginsburg, 2016; O'Sullivan, 2013). Thus through digital media projects, Indigenous peoples have fostered a sense of community resistance to and power against dominant colonial narratives, and a sense of control over collective memory (Flinn et al., 2009, p. 82). In order to promote Indigenous cultural heritage preservation and access for all, it is particularly important to develop digital gateways that would provide a unified and single access point to facilitate the use, re-use and visibility of these collections. This paper reports on a study that explores and develops a digital map-based interface to Indigenous digital collections in Canada.

3. Methods

2.1 Data gathering

In order to identify and locate Indigenous digital library, archives, museum collections across Canada that are available on the web, the following data gathering approaches were used:
- Conduct a comprehensive review of the literature related to Indigenous digital libraries, archives, museums and collections (Library and Information Science Source, Scopus, Google Scholar, Google)
4. Identify, analyze and deep scan Library and Archives Canada, websites of academic institutions, public libraries, as well as those of non-governmental and community organizations
- Examine each digital collection in terms of
    o categories of Indigenous communities, namely Aboriginal, First Nations, Metis, Inuit
    o organizational affiliation
    o digital content type
    o provincial/territorial distribution of collections

These results were tabulated in an Excel spreadsheet for further analysis.

2.2 Data mapping

A thorough examination of digital mapping tools was conducted to ascertain a suitable application for creating a map-based interface that would support not only geographic display of

digital collections, but also be capable of providing metadata-enhanced functionalities. The main idea behind this design idea was to make effective use of such metadata elements as content digital collection title, URL, content type, and affiliation to be easily accessible while users interact with the interface. The following mapping applications were examined:

1. Google Maps (https://cloud.google.com/maps-platform/)
2. OpenStreetMap (https://planet.openstreetmap.org/)
3. uMap (https://umap.openstreetmap.fr/en/about/)
4. OpenLayers (http://openlayers.org/)
5. PolyMaps (http://polymaps.org/)
6. Leaflet (https://leafletjs.com/)
7. MapBox (https://www.mapbox.com/)

 A detailed examination and comparison of these applications showed that OpenStreetMap would be suitable platform that serves the purpose of this project better than other applications. The rationale for choosing OpenStreetMap lies in the fact that it is an open volunteer-driven initiative, has no restrictions on using data, gets updated faster than Google maps since it is volunteer based, and has more flexibility than Google Maps in terms of any styling needed. Its maps can also be download offline and rendered it in your own language and the map data gets released under a free and open license. OpenStreetMap has an application called uMap, which allows the development of map layers. To plot the points on uMap, a spreadsheet was created with all the relevant data for the digital collections including the name of the collection, description of the collection, website URL, type(s) of content, location of collection, and affiliated organizations. Additional columns were added with the latitude and longitude for the location of each collection so each collection would correspond with the correct location on the map. The spreadsheet was then imported to uMap as a .csv file through their importing function.

4. Preliminary results

Indigenous digital collection distribution across Canada

A total of 121Indigenous digital collections were identified across Canada. Figure 1 shows a distribution of Indigenous digital collections categorized by communities, namely Aboriginal, First Nations, Metis, and Inuit. As can be seen from the figure 1, over 71(58%) First Nations digital collections.
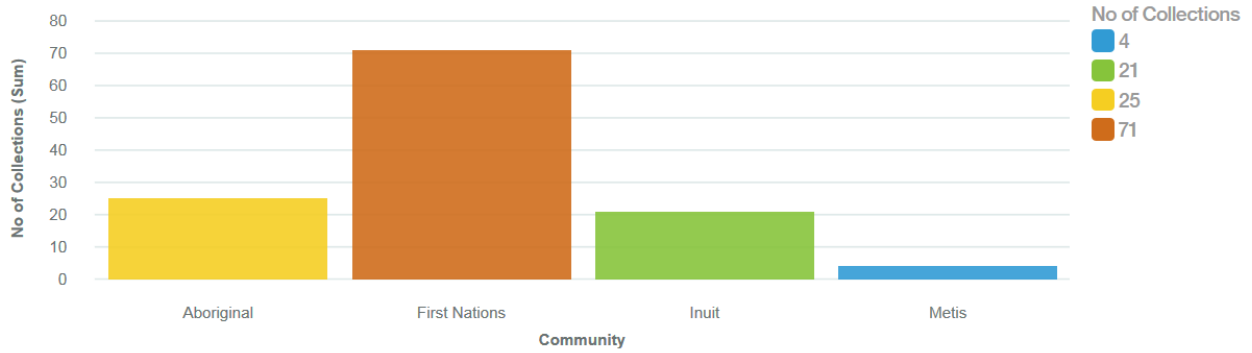
Figure 1. Distribution of Indigenous digital collections categorized by communities

Figure 2 shows a geographic distribution of the identified collections across Canada. As can be seen from this graph 29 (23%) of the digital collections are held by Library and Archives Canada.
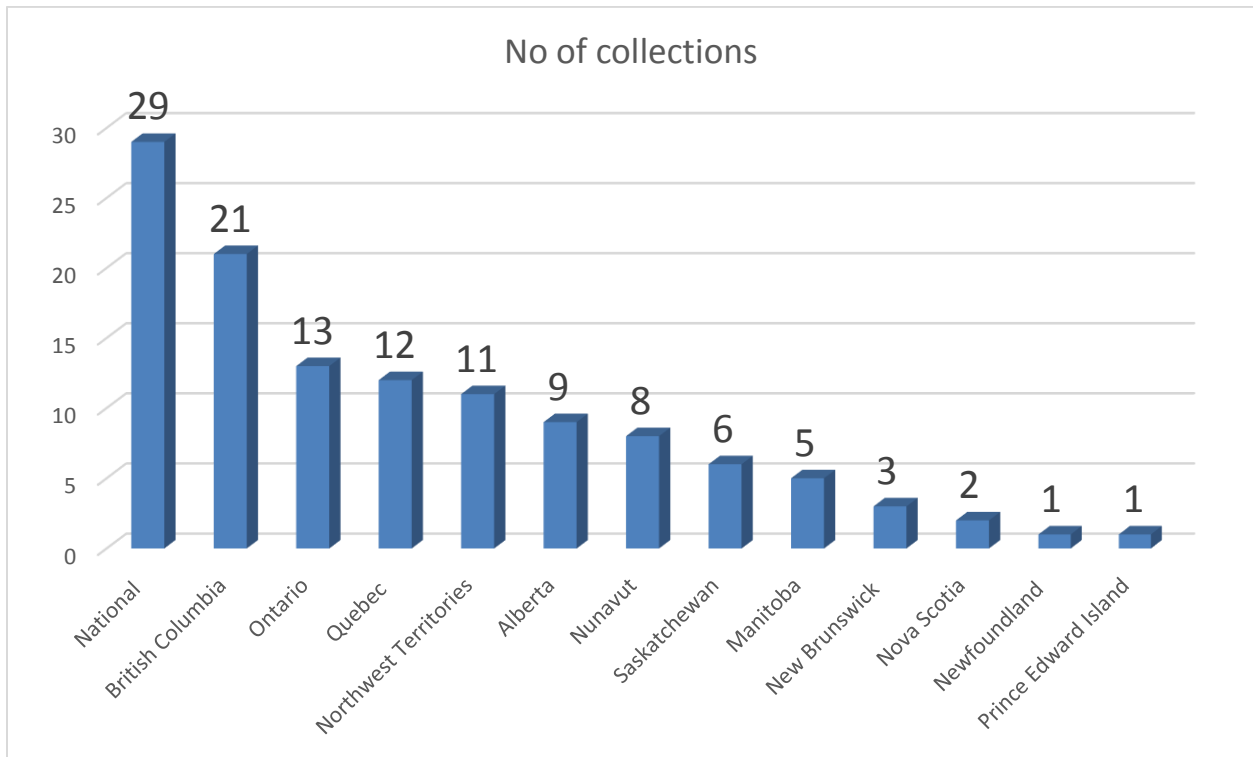

Figure 2.Geographic distribution of the Indigenous digital collections across Canada

Figure 3 shows a map of Canada with the number of collections highlighted in the provinces and territories.

Figure 3. Visual map of Indigenous digital collections

Figures 4, 5, 6, and 7 show the distribution of collections based on Indigenous community labels across various provinces and territories.
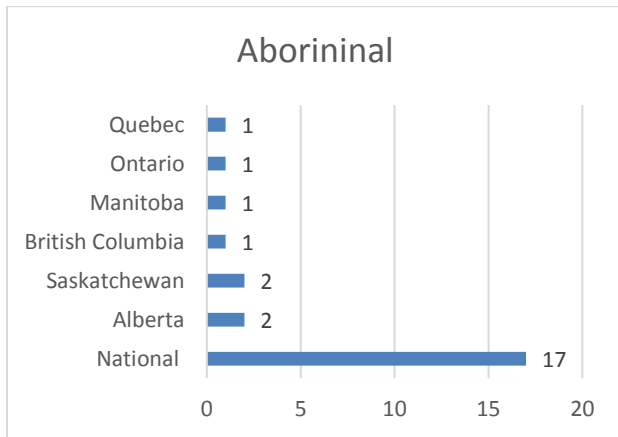

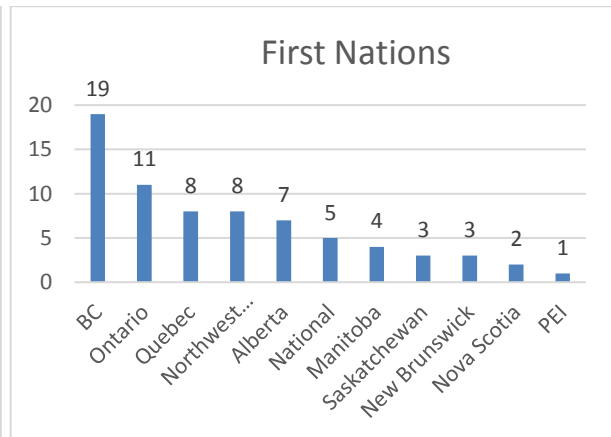Figure 4. Distribution of Aboriginal collections

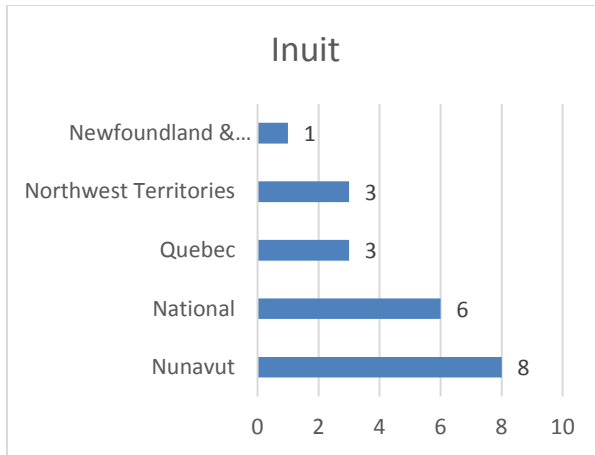Figure 5. Distribution of First Nations collections
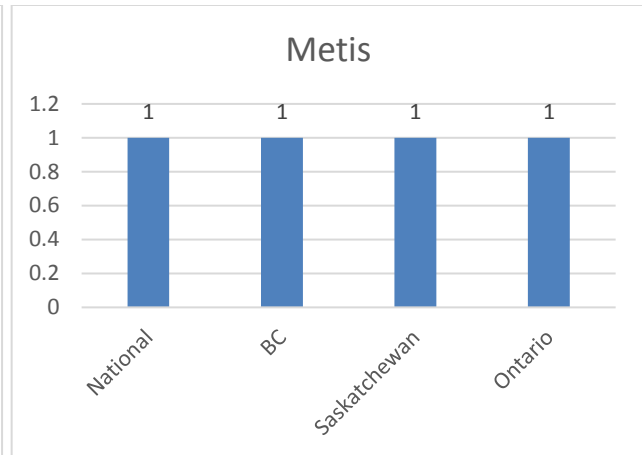
Figure 6. Distribution of Inuit collections

Figure 7. Distribution of Inuit collection

The above charts shows that a majority of the digital collections (71) are known as First Nations collections followed by 25 collections known as Aboriginal. There were 21 Inuit digital collections and only 4 Metis.

Mapping Indigenous digital collections

One of the key objectives of this project is to develop a metadata-rich, map-based interface to support geographic browsing and exploration of the identified Indigenous digital collections and to allow seamless access to the map and collection-level metadata to support research, teaching and learning. We experimented and piloted a sample of the our collection on uMap to explore its potential as an map-based interface that supports rich metadata display. Figure 8 shows three mapped collections in Vancouver, Montreal and Iqaluit. The metadata description for the *Aboriginal Art in the 60s* based in Vancouver is displayed, including the name of the collection, description of the collection, website URL, type(s) of content, location of collection, and affiliated organizations. Once completed, the full map interface will include markers and metadata for all of the 121 collections identified in the earlier phase of this project.
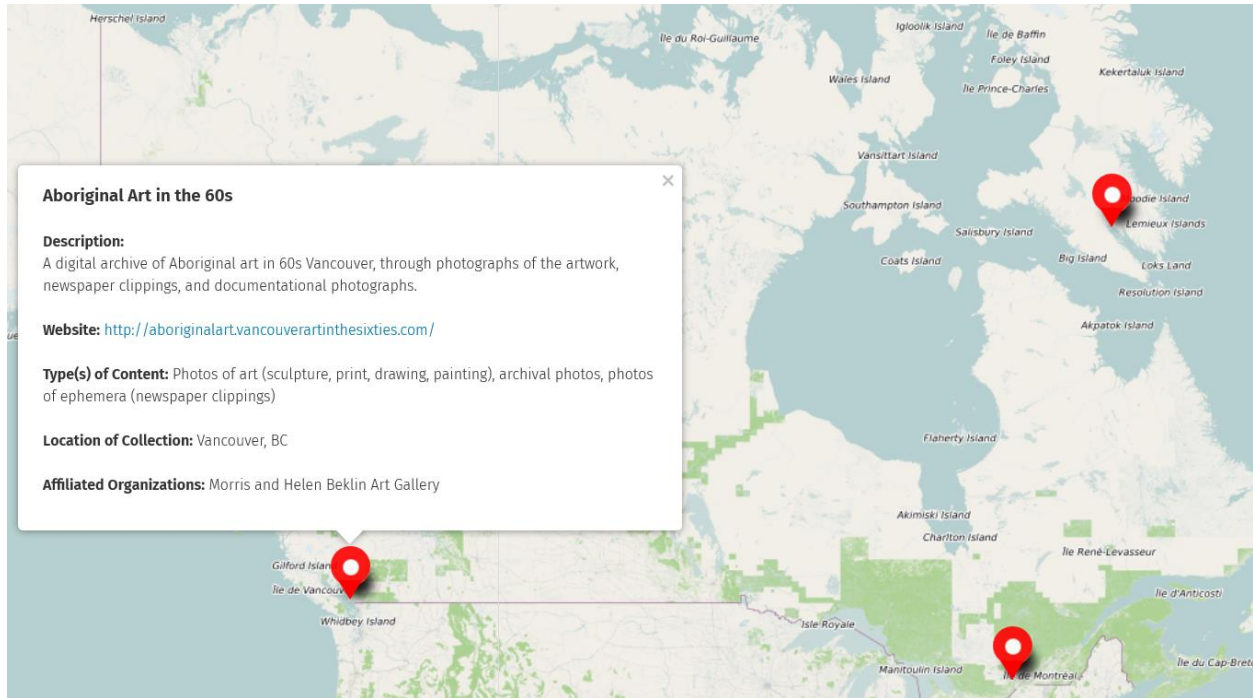
Figure. 8. Prototype map of Indigenous collections

5. Conclusion

This paper reports a study that will have concrete outcomes and contributions to support decolonization and Indigenization. It will provide detailed examination on the number, nature, variety, and distribution of Indigenous collections in Canada. Furthermore, the fully developed map-based interface will provide a one-stop, web-based and easy to access gateway to Indigenous digital collections in Canada. The metadata-enhanced map interface will provide access to a broad range of Indigenous digital collections in order to support education, research, scholarship, and citizenship and will benefit users of all categories, from researchers, scholars, and students to library and information professionals, digital collection managers and the general public.

Reference List:

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