Developing Culturally Competent Data Publication Resources

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Abstract

It is increasingly common for researchers to publish their datasets in open, mediated, or restricted form as a research output. The process of publishing data is complex and there are few guides that are practical or easy to understand. To bridge this gap, the Digital Curation and Data team at the University of Sydney Library initiated a project to develop applied data publication resources. To reflect current University and Library strategies, the team expanded the project to include a cultural competence review of each newly developed resource in order to reflect on the cultural biases that had gone into its creation and the ways in which the resource might appear through alternative cultural lenses, initially focusing on the data publication needs for research relating to Aboriginal and Torres Strait Islander peoples. It may be especially challenging for researchers who are working with culturally sensitive data to find resources that are easy to use and relevant. One initial goal of this project is to ensure that researchers, students and staff can support the ethical and culturally appropriate publication of data relating to Aboriginal and Torres Strait Islander peoples, communities, and knowledges. The team reviewed prototyped resources with researchers who conduct research with Aboriginal and Torres Strait Islander peoples to assess their usefulness and identify gaps. Resources are now being updated to reflect feedback, and additional resources will also be created. The intention is to continue to integrate cultural competence into the University of Sydney's data curation and publication services and to expand this process to include wider cultural perspectives.

Introduction

The University of Sydney Library has become the key support unit for data publication within the University and is working on a project to deliver a new institutional repository, which will provide streamlined infrastructure for publishing research outputs, including research data. To address the anticipated needs of researchers and higher degree by research students, the Digital Curation and Data team in the Library began work on a data publication support project, creating a series of resources for data publication aimed at researchers and students.

In its strategic plan, the University of Sydney is striving to develop culturally competent staff and graduates by embedding cultural competency values in strategy, research, teaching and learning, which have also been adopted in the Library's own strategic policies. Influenced by both strategies the team decided to expand the project to create resources that will increase awareness of cultural sensitivities when publishing data related to Aboriginal and Torres Strait Islander peoples.

Cultural Competence

Cultural competence is understood as a series of behaviours, attitudes and policies that enable professionals to work effectively in a multicultural environment and understand the needs of diverse populations (Cross, Bazron, Dennis and Isaacs, 1989; Overall, 2009). Most studies define cultural competency as the understanding of ethnicity, however the concept of 'culture' can also include other characteristics, such as religion, sexual orientation, gender, age and socioeconomic status. Cultural competency is achieved through understanding one's own culture and values, how these impact on others, and understanding other cultural perspectives (Papadopoulos and Lees, 2001). Through cultural competency, organisations and individuals can cater for and respond to the needs of others.

Cultural Competence in Libraries

Within the galleries, libraries, archives and museums sector, cultural competence has been primarily concerned with diversity of staff members, delivering culturally relevant services for communities (Garwood-Houng, 2014) or ensuring that diverse cultures are appropriately represented in collections (Thorpe, 2016). As highlighted by the Association of College and Research Libraries Racial and Ethnic Diversity Committee report '*Diversity Standards: Cultural Competency for Academic Librarians*' (2012), there is an expectation that librarians within the academic library sector provide resources and support to ensure that students, researchers and staff have the skills necessary to work with diverse communities and cultures.

Cultural Competence at the University of Sydney

At the University of Sydney, cultural competence became a key focus of *The University of Sydney 2016–20 Strategic Plan* (2016). The strategy highlights the University's drive to empower and educate staff members on cultural competence, so that staff and students can embed culturally competent practices within their research, teaching and learning

activities. In addition, the strategy sets a goal of educating staff and students to ensure they possess respect for cultural and social differences and skills to participate effectively in diverse interpersonal and professional settings by the time they graduate from the University. To achieve this, the University is embedding cultural competence within the curriculum to enable students to work collaboratively across cultural boundaries. As a starting point, the University is focusing on introducing cultural competency from the standpoint of Aboriginal and Torres Strait Islander cultures and will progress to include other cultural perspectives over time. The National Centre for Cultural Competence (NCCC) which is located at the University of Sydney, states that:

> 'Developing understanding and social cohesion with Australia's First Peoples is the appropriate starting point for the work of a Centre focused on valuing diversity, both in country and outwards across the globe' (NCCC, 2016).

Reflecting the University of Sydney's strategy, the Library's strategic plan also focuses on the importance of the Library in providing culturally competent and relevant spaces and resources. One key strategy the Library identified was to:

> '…partner with faculties and the National Centre for Cultural Competence to foster broader understanding of Aboriginal and Torres Strait Islander knowledge sources and protocols for accessing and using cultural knowledge in intercultural research and education contexts' (University of Sydney Library, 2016).

Cultural Competence and Data Publishing

Whilst resources have been developed to guide researchers in conducting research relating to Aboriginal and Torres Strait Islander people in a culturally competent manner (AIATSIS, 2012; NCCC, 2017) very little has been done to apply these principles in the domain of research data management specifically. In response to this need and the cultural competency work already underway at the University, the Library's Digital Curation and Data team undertook a review of internal resources for data publication in line with the cultural competency values. This review aimed to identify where additional supplementary information could be added, or new resources created, to assist researchers with publishing culturally competent research data.

Design Thinking and the Data Publication Project

In 2017, the Digital Curation and Data team undertook a project to encourage researchers to publish research data, complementing the implementation of a new institutional repository. The project used Design Thinking, a human centred approach to identify and address needs or problems through prototyping and testing solutions (Stanford et al., 2017). The Design Thinking framework starts with empathising with users, defining needs, brainstorming ideas, prototyping solution/s and then testing ideas on user groups. Although most models representing this approach present the process in

a linear way, in practice, it is not necessarily sequential and is often iterative in nature (Dam and Siang, 2018).

Empathise and Define

Researchers are now often expected by a funder, publisher or university to publish their research data, however they frequently lack the support or access to infrastructure that would allow them to do this easily. There is also a gap between the available information, which tends to be either broad-brush and generic or highly technical, and the practical step-by-step guidance that researchers actually need when they go to publish their data (Neylon, 2017). From their experience working with researchers, the team understood that researchers are often time poor and can be frustrated by additional administrative tasks. In addition to managing the institutional repository and providing support for research data publishing at the University, the team wanted to be able to provide scalable and sustainable support for researchers that was both informative and practical. Thus, the Data Publication project aimed to develop user-friendly, cross-disciplinary data publication resources for the University community.

Brainstorm and Prototype

With this aim in mind, the team met to brainstorm ideas using post it notes – individually writing different solutions and then sharing with the group. The team then voted on the most viable solutions to prototype. Once the solutions were selected, the team divided up tasks and set deadlines for the creation of prototypes. From this process, several resources were developed including:

- a series of annotated metadata examples;

- guides on what types of data are suitable for publication and what state data should be in when they are published;

- guides on determining access conditions for data;

- guides on finding, choosing, and using vocabularies to describe data;

- a guide on choosing a licence for a dataset;

- advice on how to remove identifiers from data;

- advice on issues to consider when seeking participant consent and going through the ethics process to enable data publication; and

- templates for consent forms so that permission to publish data is sought at the outset of a research project.

These resources were then integrated into a LibGuide titled *The Data Publication Guide*[1]. A LibGuide was purposely selected for a number of reasons, most notably that the team had direct access to the guide (as opposed to webpages which are managed by the Library's web editor), which allowed the team to make changes quickly, based on feedback. The LibGuide environment is also self-contained, which allowed for the guide to be easily shared in training sessions or consultations. The guide was designed to provide detailed information to users in a methodological format using six stages:

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[1]   Data Publication Guide: https://libguides.library.usyd.edu.au/datapublication

1. Assessing if data can be published

2. Finding a suitable repository

3. Describing data for publication

4. Selecting file formats for access

5. Choosing a licence

6. Persistent identifiers.

Test

The guide has been integrated into data publication training being delivered by the team to higher degree by research students and academic staff at the University. It is therefore continuously tested and improvements added as feedback is received. More thorough testing of the guide will coincide with the launch of the institutional repository in 2019.

Culturally Competent Resources

During the Data Publication project, team members were completing the NCCC's online cultural competence modules for University staff (NCCC, 2017). One team member had also participated in the NCCC's Cultural Competence Leadership Program (CCLP) (NCCC, 2018), which was designed to build on the online modules, develop cultural competence in relation to Aboriginal ways of knowing, being, and doing, and build a network of culturally competent leaders across the University. The team's experience in undertaking these modules and what they learned from them broadened their views and took them back to the initial stages of the Data Publication project, with a focus on creating resources to assist researchers to be culturally competent when publishing data relating to Aboriginal and Torres Strait Islander peoples.

To begin, the team put each of the resources created as part of the Data Publication project through a cultural competency review. As a collective, the team brought diverse cultural perspectives to the table, so they were able to review the data publication resources through multiple cultural lenses. Cultural competency starts with having an awareness of your own culture, values and biases. In reviewing the resources, the team reflected on how much of the content reflected the culture and cultural bias of the staff member or team who created it and whether the content of each resource would be relevant and understandable to researchers from different cultures or to researchers working with culturally sensitive data. The team identified potential issues and discussed them. For example, proper management of medical data is often emphasised in the data management and curation field. On top of this, many of the team's services and support are targeted at students and researchers in the Faculty of Health and Medicine, which is the largest faculty at the University of Sydney. They noticed that many of their resources on consent, access, and de-identification were created on the assumption that sensitive data was most likely personal health information, i.e. medical data. This meant that they were overlooking *culturally* sensitive data in their resources. The issues relating

to consent, access, and de-identification when it comes to medical data and culturally sensitive data are often very different. The team quickly realised that if they continued to work within their own culture and professional values, they wouldn't be addressing the needs of anyone working in a different cultural space. Open discussion facilitated an alternative cultural filter throughout the review process and allowed the team to expand the scope of the resources outside of their own culture, values and biases.

Prototype Development

To aid in the development of resources that would assist researchers to effectively and ethically publish data relating to Aboriginal and Torres Strait Islander people, the team created three categories for the resources that highlighted the actions that would be taken regarding the content:

- **No Changes Needed:** The resource was found by the review process to be broadly applicable across cultures and to culturally sensitive data, so no changes were needed to make it more accessible or culturally relevant.

- **Integrate Culturally Appropriate Content into Existing Resource:** The review process found that the resource was generally relevant but needed some adaptation in order to be understood across cultures or to be directly applicable to culturally sensitive data. The bulk of the resource was left unchanged, but supplementary material was added with modified guidance if the data being published was culturally sensitive.

- **Create New Culturally Appropriate Resource:** If team members found that the existing resource either would not be easily understood across cultures or was not addressing the needs of researchers working with culturally sensitive data, and could not be integrated with existing resources, a new resource needed to be created. These new, culturally targeted resources would sit alongside the existing resources but meet the needs of researchers in a more culturally competent way.

While initially all resources either fell into the first and second category, we were aware that re-categorization might become necessary after the consultation process and entirely new resources might need to be created.

Prototype Examples

Determine if you can Publish your Data[2]

This document provides researchers with advice on considerations to make before they publish their data. Topics covered in this document include whether a dataset contains sensitive information (such as data from human participants, or endangered species), and Intellectual Property rights. After reviewing this document, additional information

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2 Data Publication Step 1 – Determine if you can publish your data:
   http://libguides.library.usyd.edu.au/datapublication/step1

was included to cover research data that may contain culturally sensitive information as well as Indigenous Cultural and Intellectual Property (ICIP)[3]. Information in the guide also points to existing resources, namely the Australian Institute of Aboriginal and Torres Strait Islander Studies (AIATSIS) webpages on ethical research,[4] which contain authoritative resources to assist researchers with understanding ICIP rights as well as conducting ethical research with Aboriginal and Torres Strait Islander communities.

Finding a Vocabulary to Describe your Data

This resource provides in-depth instructions for how researchers can find suitable vocabularies to describe their data. This resource was expanded to include the AIATSIS Pathways Thesauri,[5] which provides a vocabulary of culturally appropriate terms to describe material relating to Aboriginal or Torres Strait Islander peoples. Other thesauri representing other cultures are also featured as examples in the guide, such as the Indigenous and Northern Affairs Canada Subject Thesaurus and the Nga Upoko Tukutuku subject headings from the National Library of New Zealand, providing a culturally diverse presence in the resource.

Access Conditions[6]

This resource provides a graphic and information describing the access conditions usually available when publishing data, and examples for when different conditions may be used. After the review, it was expanded to include additional information on consulting with Aboriginal and Torres Strait Islander communities to decide on an appropriate access condition when publishing research data and highlighting the option of using access conditions to provide appropriate community members or participants access in future.

As the majority of prototypes created for culturally competent data publication were based on changes to resources that had already been created, these were incorporated into the Data Publication Guide. While it was noted that this may make the culturally competent information harder to find, it did create one central place to find information to support research data publication at the University of Sydney.

Feedback Gathering

To test the culturally competent prototypes, the team conducted a series of semi-structured interviews with researchers, students and professional staff who work with data from Aboriginal and Torres Strait Islander peoples, or support researchers that do. The team also sought feedback from researchers who identified as Aboriginal and/or Torres Strait Islander. These interviews were intended to assess the appropriateness of

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3   Indigenous Cultural and Intellectual Property rights are 'Indigenous people's rights to their cultural heritage. Indigenous people's heritage is a living heritage and includes objects, knowledge, stories, songs, dances and images that are created today or in the future, based on that heritage' (Janke and Quiggin, 2006).

4   Australian Institute of Aboriginal and Torres Strait Islander Studies webpage on ethical research: https://aiatsis.gov.au/research/ethical-research

5   The AIATSIS Pathways Thesauri: http://www1.aiatsis.gov.au

6   Data Publication: Controlling access to published data: http://libguides.library.usyd.edu.au/datapublication/access

the resources and to identify any gaps that still exist. In total the team interviewed eight people. Based on discussions several key themes were identified, as outlined below.

Community Benefit

The team's support, resources and services focus on the benefit to the researcher, for example how the researcher can increase their impact or citations. Throughout discussions it became clear that when creating resources targeting researchers using data from Aboriginal and Torres Strait Islander peoples, the benefit to the community needs to be at the forefront.

The Definitions of "Data Sharing"

The team usually works with the definition of data publication being the process of making a dataset available through a repository, and data sharing being the more informal process of sharing data between researchers, usually within a research group. The interviews expanded the definition of data sharing to include repatriating research findings and data back to the community or the individuals involved in the study.

Repatriation and Archiving

AIATSIS was noted several times as being the most appropriate host for the long-term preservation of culturally sensitive data. Researchers especially considered the archive to have appropriate mechanisms in place to ensure that data is appropriately managed according to community and cultural expectations, whilst also ensuring future access to community members. Some researchers also mentioned that they provided access to research data by putting the data on USB sticks or CDs and providing these to individuals directly or to knowledge centres based in the community. It was noted that repatriation methods often depend on the technical resources available in the community. One researcher highlighted that, in the archiving process, it would be useful to document the ethics and consent process undertaken. This would mean greater transparency around the research protocol, provide evidence that research was done in accordance with ethical best practice, and help people in future understand if and how the data can be accessed and/or reused.

ICIP Education is Essential

Discussions highlighted the need to educate on and promote ICIP, especially for those engaging with data on a secondary basis so that they can have a full appreciation of the significance of collections. Having a full understanding of ICIP was noted as being extremely important for novice and non-Indigenous researchers working with Aboriginal and Torres Strait Islander communities. This also extended to repository staff and data custodians managing data relating to Aboriginal and Torres Strait Islander peoples. The possibility that other researchers may reuse data without appropriate community consultation or that data may be misrepresented were areas of concern. There have been notable cases of this in the past, such as the Havasupai blood sample incident in 2003 (see Hernandez, 2004), where data was reused for purposes other than originally intended.

Inclusion of More Aboriginal and Torres Strait Islander Centric Resources

Some researchers indicated that the guide should not only have relevant content integrated into it but should also point out to existing resources that have been produced by other universities or institutions.

Outcomes

Improved or New Resources

With the information and feedback gained through interviews, the team has been making amendments to the resources to make them more relevant to researchers engaging in research with Aboriginal and Torres Strait Islander peoples. For example, as specific metadata and access requirements are often needed for data relating to Aboriginal and Torres Strait Islander peoples, information will be added to the general "Find a suitable place to publish" page to guide to reflect this. Feedback from the interviews also helped the team realise that the resources focused heavily on individual benefits to sharing data (such as impact, citations etc.) but very little on explaining how communities could benefit from the practice. To assist researchers in being culturally competent with their data publication practices, resources need to be created that focus on the community rather than the researcher. To ensure that this is implemented, the team are planning to create a complementary guide on working with data from Aboriginal and Torres Strait Islander peoples, with particular focus on community centred, and driven, research.

The information gained through the interviews also encouraged the team to explore new resources and support. For example, learning about current repatriation and archiving methods helped the team to understand that while support for data publication is important, resources that support researchers to make data available to communities using sustainable and accessible methods are needed.

Increased Team Knowledge

Completing the Cultural Competency modules and then working through how to apply what was learned to a project allowed the team to grow their knowledge in relation to culturally sensitive data and ICIP rights. The team now feels more confident when advising on possible avenues for publishing or archiving research data relating to Aboriginal and Torres Strait Islander peoples and are more aware of the support offered by external organisations. The team's experience on this project has had obvious influence on other projects they are undertaking, including the infrastructure and digital collections projects outlined below.

Infrastructure projects

The University is currently in the process of implementing a new Institutional Repository and Digital Asset Management system. Both systems are intended to have a broad purpose to accommodate research outputs and collections relevant to the whole university. This limits the amount of customisation that can be done to the system for specific research areas or collections, for example the inclusion of metadata schemas for

items relating to a cultural group or integrated vocabularies for specific languages. With this in mind, during both projects, the potential to adapt infrastructure or processes to suit collections that contain culturally sensitive information was taken into consideration. For example, the team investigated Traditional Knowledge (TK) Labels[7] and their potential application to both systems. TK Labels are icons that can be applied to digital records to indicate that an object contains culturally sensitive or community-specific information or that the record may be incomplete. The Labels can help educate non-community users of the significance of the object, that the object relates to cultural practices or that information that may be missing from the record; for example, that the record is missing attribution of Indigenous Cultural and Intellectual Property (Local Contexts, 2018). TK Labels are currently being tested with institutions in the USA. Once this phase has been completed the team will have further discussions with Local Contexts to consider the application on both systems.

Digital collections project

The Library recently undertook a review of the digital collections that have been made available on the Library's website. The goals of this review included understanding the location, accessibility and richness of metadata of these collections, and to help select upcoming digitisation priorities. As part of this review, the Digital Collections Manager included an assessment of the diversity of the collection, based on gender and cultural representation. Doing this helped analyse the current digital collections to identify gaps and under-representation in the digital collections, which aided the selection of digitisation priorities for 2019–2020.

New Opportunities for Collaboration

Taking a Design Thinking approach meant that team members met with researchers and educators at the University to test resource prototypes. This subsequently led to the establishment of relationships and greater exposure for work that the Library is undertaking. Custodianship and ethical access to culturally sensitive collections is a growing area of concern for the galleries, libraries, archives and museums sector and this project provided the team with an opportunity to reach out to groups and establish new relationships with other institutions. When the team spoke with colleagues in the sector during this project a key point noted was the lack of opportunities to network and share knowledge regarding this area.

Going Forward

Continuous Improvement

The nature of delivering culturally competent resources and services requires conversations with a wide range of stakeholders both within and external to the university community. As the team members continue to create and deliver resources, they will ensure that resources and support are relevant and useful by testing them with the target audience.

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[7] Traditional Knowledge (TK) Labels: http://localcontexts.org/tk-labels/

Starting Small Enabled Growth

Creating services, support and resources that are truly culturally competent takes extensive work and can seem overwhelming. To overcome this, the team chose to review just one aspect of their service catalogue as a first step, with the understanding that the service review would expand as resourcing permitted. This proved to be a successful approach for dealing with a complex problem. Upcoming infrastructure projects will provide an opportunity for the team to expand their work. This will include developing procedures, practices and workflows for providing digital access to materials in the Library's collection that contain culturally sensitive information. In doing this, the team will go through a similar process of outreach with colleagues working with culturally sensitive collections to obtain advice on best practices.

Expansion to Include Other Cultural Perspectives

The team's experience on this project has facilitated a shift towards reviewing all team services, support and resources through a culturally competent lens. The team would like to expand cultural competency reviews to include perspectives from cultural groups outside of the Aboriginal and Torres Strait Islander communities to identify gaps in services and support.

Acknowledgements

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