
The Moral Imperative of Subject Access to Indigenous Knowledge: Considerations and Alternative Paths

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Abstract:

How should libraries classify indigenous or traditional knowledge? This paper presents an argument against universal access and in favor of working with the people who produce the knowledge. Adopting the perspective that reliable subject access to indigenous knowledge is a moral imperative for libraries and other knowledge institutions, this paper explores obstacles to inclusive subject access as a social justice issue – more specifically, a cognitive justice issue. We begin by looking at universal classification supporting universal access. Next, we define indigenous people and traditional knowledge as incompatible with positivist worldviews supported in universal knowledge organization systems (KOSs) such as Library of Congress Classification (LCC) scheme, Library of Congress Subject Headings (LCSH), or Dewey Decimal Classification (DDC) scheme. Organizing indigenous knowledge for use is then addressed, with examples of universal Western KOSs and specialized KOS initiatives presented and analyzed. In particular, we look at specialized KOSs supporting indigenous knowledge based on indigenous warrant, but also briefly survey schemes and vocabularies specialized for use by and for other marginalized groups as KOSs supporting the cognitive justice imperative. Finally, we look at options for access in light of the moral imperative that is reliable subject access and consider a number of innovative approaches. The use of Internet-based technologies permits the creation of robust ontologies that have the potential to support indigenous/specialized and universal access simultaneously. User-generated content (UGC) also can support reliable subject access in the web environment through the use of folksonomies, geographic information, or other content provided by end-users. Although technology offers a number of future paths, physical materials must still be considered. No matter the format of the item, one thing is clear: to provide reliable subject access to indigenous knowledge, the efforts undertaken must be a partnership between information professionals and indigenous peoples.

Keywords: Indigenous knowledge, cognitive justice, knowledge organization, information ethics, knowledge organization systems (KOSs)

Reliable subject access to indigenous knowledge is a moral imperative for libraries and other knowledge institutions, in part because obstacles to inclusive subject access present a social justice problem. We consider *indigenous knowledge* to be socially constructed knowledge based on a society's deep experience with and in a certain geographic area. Cultural heritage and knowledge institutions, including libraries, archives, and museums (LAMs), are part of a complex information ecosystem and face related issues regarding representation of indigenous, minority, or marginalized peoples. David Carr (2003) said, "In cultural institutions, knowledge structures offer taxonomies, histories, categories, vocabularies, insights – what we might call connective illuminations of knowledge" (p. 72). He explains: those structures can be either closed, meaning that the systems serve to maintain social structure, or open—that is, they can create a place for "unpredicted, inventive thoughts...[offering] contradictions, controversies, and alternative perspectives..." (p. 73). Access to indigenous knowledge prefers the latter.

The knowledge organization systems (KOSs) that most libraries rely on at present for organizing information (e.g., in libraries, Library of Congress Classification (LCC) scheme, Library of Congress Subject Headings (LCSH), or Dewey Decimal Classification (DDC) scheme) are close according to Carr (2003) and have the potential to limit ways of thinking. As Pauline Rafferty (2001) states: "All major classification schemes are built on clearly identifiable systems of knowledge, and all classification schemes, as discursive formations, regulate the ways in which knowledge is made accessible" (p. 182). One way this is apparent, and which is the focus of this paper, is in the incompatibility between traditional KOSs and ways of knowing that fall outside of these systems' limitations. That is, the systems fail to provide access to indigenous or traditional knowledge from the point of view of the people whose ideas are being represented.

Classification groups like things together (Buchanan, 1979), but from whose perspective are things alike? Members of a group in a classification scheme share at least one characteristic (Buchanan 1979), but which characteristic(s) is/are chosen as a basis for the grouping? Classification schemes used across various cultural institutions – especially in libraries, but potentially also in archives and museums -- often assume that the classes (and subsequently the selected characteristics) themselves in a given scheme are somehow innate, rising from a society's shared intellect (Otlet, 1934). Universal bibliographic control, a tenant in modern librarianship, arose "toward the end of the [nineteenth] century" (Svenonius, 2000, p. 30) with the advent of universalism. DDC, LCC, and Universal Decimal Classification (UDC) were all issue of this trend. Universal systems replaced the local systems that had been in use, with the intention of providing enhanced access to all kinds of knowledge (Svenonius, 2000).

The KOSs that information professionals use today were built based on a Western, positivist worldview, which excludes the vast universe of indigenous and traditional knowledge (Rafferty, 2001). By only using established categories for classification, we are left drowning in our own discursive formations, oblivious to the possibilities for including alternative knowledge. Diversity is not necessarily supported in these KOSs (or it is often presented as 'the other'), and we, like Rick Szostak, have concerns that "existing classifications privilege certain ways of looking at the world while obscuring others" (Szostak, 2014, p. 160). Unlike Szostak, however, we remain unconvinced that universal approaches to knowledge organization are adequate for providing reliable subject access in specialized circumstances such as access to indigenous knowledge. Although some of the systems (such as DDC) are flexible and extensible to an extent, they are still hierarchical and are not created by the users themselves. No body of knowledge is stagnant; new scientific discoveries, relationships

between realms of knowledge within each scheme, and a lack of compatibility between various systems of knowledge are some of the many perplexing problems for classification, especially in closed (Carr, 2003) systems. These problems are amplified when attempting to provide access to already marginalized knowledge.

Access is only one facet of librarianship, though. Collection building is another, and inclusive collections for indigenous users cannot be built by outsiders (such as anthropologists (Anderson, 2005) or those collecting data (Agrawal, 2002)) alone. Any collection should be created under the direction of, and be organized by, experts; in the case of indigenous or traditional knowledge or knowledge of other marginalized peoples, experts should also be involved in production to encourage dissemination, with a potential for collection development to take place organically and possibly also informally (see Corbman, 2014). Therefore, the challenge is to involve indigenous people, on their own terms, in the production, dissemination, storage, and organization of their own knowledge so that everyone benefits from a greater understanding of their knowledge and knowledge systems. This paper recognizes that collection building predicates organization, but given this paper's interest in classification and KOSs, will focus on the latter.

What do we mean by Indigenous People and Traditional Knowledge?

Mazzochi (2006) explains that what we refer to as *traditional knowledge* is not easy to categorize, as it touches on many different domains, “many terms are used to establish what indigenous people know, including traditional knowledge or traditional ecological knowledge, local knowledge, indigenous knowledge or science, folk knowledge, farmers' knowledge, fishers' knowledge and tacit knowledge” (p. 463). David Gordon and Shepard Krech (2012) point out that “Applying ‘indigenous’ to a particular people arguably has as much to do with political relationships as with any inherent characteristics shared with other so-called indigenous peoples” (p. 4). Knowledge systems are standards – they are essentially governmental documents developed by people who need to control how information is organized. Therefore, the concept of indigenous knowledge is really any knowledge system that has risen from a people that reflects a way of thinking, or a view of the world that is shaped by a way of life. Imposing another system on top of that forces it to be something that it is not – it forces compliance.

Western, positivist traditions privilege written knowledge (Rafferty, 2001), but some knowledge is inherently difficult to make explicit. Michael Polanyi (1967) describes *tacit knowledge* as a part of all human knowledge – examples include the inability to describe facial features and the ability to identify research questions to be explored in carrying out science. Tacit knowledge is not only *not* recorded, it is fundamentally difficult to make explicit; it is difficult for the knower to explain. Ronald E. Day (2005), in reflecting on Polanyi's conception of *tacit knowing* arrives at the conclusion that tacit knowledge is simply *knowledge* – and that explicit knowledge is *information*. Virtanen (2010), likewise, points out the differences between practical and objective epistemologies, expanding on Michael Polanyi's (1974) framework for considering tacit and explicit knowledge in regards to knowledge organization.

Mawere (2012) says that “The treasury of Africa is realized in its indigenous knowledge systems, proverbs and idioms, among other ‘scientific’ and literary genres...they are able to formulate their metaphysical and epistemological assertions” (p. 4) that are rooted in metaphysics. The knowledge system has been dismissed by Westerners (Mawere quotes Hegel as saying in 1828: ‘Let us forget Africa, for it is no part of human history.’) In the

process of globalization, African indigenous knowledge systems “were misrepresented by some Western researchers as bounded, savage and primitive; hence unfit for global consumption. This led to the decline” of the indigenous systems; and knowledge was labeled as ‘indigenous’ or ‘formal’ by people who held power (pp. 12-13). Mawere uses the subject of traditional Zimbabwean children’s games to explain the knowledge systems and represented values.

Researchers have recognized the importance of including traditional or indigenous knowledge in ecological work for many years, although before the mid-twentieth century (or later) traditional knowledge was generally contrasted with Western knowledge systems. Non-Western knowledge has often been dismissed as superstitious or primitive, as Nakata (2003) points out; it was ignored, suppressed by colonial authorities, or lost due to dislocation or disruptions of traditional ways of life in the face of global corporate development. No longer of cultural interest, indigenous knowledge is “merely another resource for potential profit” (p. 21). It is a commodity that can be “exchanged, traded, appropriated, preserved,... excavated and mined” (pp. 21–22). However, this presents a problem: knowledge is power, and power of all kinds is readily exploited. Indigenous people have experienced exploitation for centuries through the colonization, and ethical information practices would explicitly forbid repeating such past failures. Databases of elements of indigenous knowledge, designed to be analyzed at a later point in time, represent ways in which Westerners might benefit from the local knowledge otherwise not considered (Agrawal, 2002). One example is the World Bank’s Database of Indigenous Knowledge and Practices (<http://www.worldbank.org/afr/ik/datab.htm>), soliciting contributions from anyone with an internet connection.

Cognitive Justice

Cognitive justice is one framework that we might use to understand this problem. It is an approach to information ethics that:

tends to reject the language of universal human rights as following an unrealistic and particularly Western notion, and seeks to replace that language with autonomy, dignity, and a ‘commons’ approach to cultural authority...the object is...to promote healing and forgiveness by removing the continued burden of colonialism and legacy thinking (Burgess, 2015, slide 3).

It does not reject scientific approaches to knowledge, but seeks to maintain the cultural and social context of folk or traditional knowledge, recognizing that solutions to problems might be found by mining a wide diversity of solutions (that is, both indigenous knowledge and Western/positivist knowledge). Burgess further explains that librarianship has been complicit, if not responsible, for perpetuating colonial approaches to knowledge by replacing traditional knowledge with Western knowledge (in physical libraries established under colonial regimes), by failing to maintain the authority of the indigenous people who produced the knowledge, or by stealing or appropriating the knowledge without appropriate compensation. This criticism of librarianship certainly comes from a widely recognizable pattern across various disciplines and professions, such as education, medicine, and science.

As part of the cognitive justice focus, we might next consider what indigenous people need from organizational systems in libraries. Nakata (2003) offers one theoretical perspective, contending that “indigenous peoples need meta-knowledge – knowledge about knowledge as the basis for their interactions with the multitudes of intersecting, often conflicting or

competing discourses emerging from different systems of knowledge” (p. 29). Indigenous knowledge systems should not be ignored, but instead encouraged. He contends that siloing knowledge is not good for anyone – especially indigenous peoples, but that we also should not replicate injustices by minimizing their knowledge. There must be some way to include indigenous knowledge within a library’s current system; this is similar to a problem that Brooke Shannon and Jenny Bossaller (2015) struggled with in the theoretical possibilities of incorporating the wisdom of African elders into library collections.

Supporting cognitive justice in KOSs requires a sensitivity to the needs of the people that universalism cannot provide. At present, a number of KOSs are based on literary warrant, which was first developed as a way of deriving language for LCC (Svenonius, 2000). LCSH and DDC both rely on literary warrant (Green, 2015). Other kinds of warrant traditionally used in KOSs are *user warrant* and *structural warrant*. User warrant is based on the language of the end-user and was the original intention of Cutter’s statement that it should be the “supreme arbiter” (Svenonius, 2000, p. 135). Structural warrant provides hierarchical linkages where otherwise there is neither literary warrant nor use warrant; the example given by Svenonius is MASONRY VAULTS in the *Art and Architecture Thesaurus* from the Getty. This term is not one that otherwise exists, but it serves as a parent node to BRICK VAULTS, STONE VAULTS, and TILE VAULTS (2000). Ann M. Doyle, Kimberley Lawson, and Sarah Dupont (2015) identify a fourth type of warrant relevant here: *indigenous warrant*. For them, terms and potentially classification structures are derived from the worldview of the indigenous peoples themselves, not from the dominant cultures who write about them or who search for information about them. Indeed, classification acts as a way of mapping knowledge; Buchanan notes that for the Sioux, the entire nation was systematically organized, from its conception of the universe to the intricate hierarchies that were used in society (Buchanan, 1979). This approach will not be replicated in universal systems based on literary warrant that are in use today.

Organizing Knowledge Outside of the Mainstream

Why are there different knowledge organization systems, and why do they matter? As many people have discussed, a KOS reflects a particular view of the world. Librarians have chosen to use universal KOSs that reflect a particular worldview – one that we, in the field, see as logical, and these KOSs representing it are maintained by subject area specialists and experts in classification. Knowledge and perceptions change regularly, however, and classification schemes do as well (Rafferty, 2001). For instance, in early 2016, an effort to remove the term ILLEGAL ALIENS from LCSH was successful, with the less contentious UNDOCUMENTED IMMIGRANTS (“Library of Congress,” 2016) being used instead. This marks a change in thinking about relationships between people and government that surpasses the literary warrant upon which LCSH terms are based. Each decision about what to include and what not to include in a KOS is based on some decision about relationships between entities: where does this thing belong in the universe of knowledge? How should it be represented? Why is this thing an entity in its own right in the first place?

The way that Westerners have generally described knowledge of the world (and the proper way to categorize many parts of it) since the Enlightenment is largely based in the scientific method. There are other, valid ways of thinking about, interpreting, and interacting with the world, though. One example is the seven epitomes used in China’s first documented library catalog created for the Han imperial library collection (Lee, 2012). Trying to find how to incorporate other knowledge systems into current ones is a post-positivist undertaking. It represents a much more flexible way of thinking. It has room for, and respects, knowledge

that is born from differing world views – for instance, knowledge born from folk, local, or indigenous traditions, is issue of a particular worldview, as is knowledge connected to beliefs or religion or other (potentially marginalized) ways of thinking. As an example, Doyle et al. (2015) point out that the *Xwi7xwa* library at the University of British Columbia brought the concept of *wholism* (as distinct from the standardly-spelled *holism*), meaning “Indigenous understandings of the interconnectedness of everything in the universe” into the organization of the library. Bringing such alternative views under the umbrella of accepted knowledge brings also possibilities of enriching and extending everyone’s worldview and increasing tolerance. Its critics, though, might call such license postmodern, or even chaos.

Recognizing the value of non-Western knowledge, how best should information professionals organize indigenous knowledge? We believe, like Doyle et al. (2015), that “Indigenous classification and metadata are fundamental to Indigenous user-centered information and instruction services” (p. 108). For users to find recorded knowledge in information agencies, the KOS must be adapted to the users. Social justice tenets require that non-dominant users of a system have the same reliable access as users from dominant groups. Beyond the moral imperative to supply reliable access to users for their own information, we also identify the desirability of making indigenous knowledge, knowledge that may not exist in dominant cultures and therefore may not be describable by universal KOSs, available to all potential users. By reliably organizing non-dominant knowledge for retrieval, information professionals have the potential to facilitate the discovery of new knowledge and the creation of new connections, with potential benefits to all of humanity through scientific discoveries.

Challenges to Traditional Knowledge Organization Systems (KOSs)

There is a widespread belief now that including non-Western and traditional knowledge enriches ways of thinking, and this is good; however, there are practical barriers to doing so given the KOSs in use. Doyle et al. (2015) “view KOSs as socially constructed, shaped by purpose and cultural context, as well as by location in place and time. They are intrinsic to broader institutional, social, and political processes” (p. 114). Designed to serve the dominant cultures, standard, universal KOSs alone are not well-suited to provide access to indigenous resources. Indeed, the nature of universal classification schemes makes them ill-suited to provide access to non-dominant subjects even if they are widely developed and used. Such approaches are also ill-suited to provide access for members of non-dominant social groups, such as indigenous peoples. In other words, dominant KOSs can be irrelevant at best in specialized contexts, and potentially harmful in their offensiveness.

A number of challenges for access arise in cultural heritage institutions in attempts to make specialized knowledge reliably organized. Given these limitations, we turn to dominant KOSs commonly used in information agencies and heritage institutions. Such classification schemes and subject heading lists are rife with bias that has been well-documented over the years, due in no small part to their very nature as universal schemes (Rafferty, 2001).

Examples from Dominant KOSs

For indigenous peoples of North America, for example, the phenomenon of ghettoization and the problematic inclusion in history that involved the alphabetical scattering of tribes by name is widely acknowledged to take place within the Library of Congress Classification (LCC) scheme (e.g., Doyle, Lawson, & Dupont, 2015). Specifically, at E99 – History of the Americas – Indian Tribes & Cultures, indigenous peoples from throughout North America are grouped under the E99 number and are further organized beyond that based on the spelling of their name. In their example, Doyle et al. (2015) show the potential for the

Tsimshian of British Columbia to be next to the Tubatulabla of California, who are in turn next to the Tukkuth Kutchin of Yukon, who are followed by the Tzotzil of Mexico. The use of the alphabet to organize these groups within their classificatory ghetto is deeply flawed (see Rafferty, 2001). DDC has also been the subject of complaints about its treatment of indigenous topics. In summarizing complaints about indigenous people's treatment in DDC, Green (2015) lists the following:

- Classing materials on indigenous groups in the U.S. in the 1970s reinforces a stereotype that indigenous peoples are a “vanishing race.”
- Many topics specific to indigenous groups in the U.S. are missing.
- The DDC doesn't group materials on indigenous peoples in the U.S. in ways typically used by them; for example, the structure of Table 5. Ethnic and national groups is based on linguistic relationships, while for indigenous peoples cultural relationships are more important.
- The use of Table 5 notation (T5—97 North American native peoples) isn't sufficient for collocating materials on indigenous groups in the U.S.
- The use of Table 5 notation for indigenous groups in the U.S. fails to communicate their unique status as sovereign nations (Green, 2015, p. 212).

In her subsequent analysis, Green (2015), as an editor of DDC, refutes claims of DDC's ghettoization and historicization of indigenous peoples in the United States as unfounded; in addition, she proposes changes to DDC that she feels need to be explored in consultation with indigenous peoples before being implemented.

For other marginalized groups, DDC does not necessarily provide equitable treatment, nor is it meant to, as a universal classification scheme (Green, 2015). Rafferty (2001), similarly criticizes DDC for privileging and imposing a particular (Christian) worldview, and presenting society as “fixed, ordered and regulated...[the] classification scheme is both dominating and enabling. It enables users to access documents without mediation but it imposes on users the necessity of understanding and searching for knowledge in documents from within its particular viewpoint” (p. 185). Widely acknowledged examples of ghettoization of non-dominant religions in DDC include placing all of Judaica into 296 (Weinberg, 1983) and Islamic literature into 297 (Idrees & Mahmood, 2009).

Library of Congress Subject Headings (LCSH) also demonstrate how dominant KOSs are not suited to organize indigenous knowledge. An example in the paper by Doyle et al. (2015) shows the LCSH terms for indigenous peoples of Canada: LCSH uses Lillooet, whereas *indigenous warrant* prefers Stl'atl'imx. Sanford Berman (1995) assisted in the analysis of LCSH terms for the *American Indian Libraries Newsletter*. He likewise gives examples of how the Hennepin County Library where he was employed was responding to the need for using indigenous warrant for naming tribes by employing the names they preferred for themselves in the catalog. He also advocates for the use of the term HOLOCAUST to describe the systematic killing of Native Americans during the period of Western colonization, as a replacement to the “feeble” (section 4) INDIANS, TREATMENT OF heading in use. Berman also proposes the restoration of the previously used LCSH subheading –REMOVAL as a more accurate terms than the “essentially misleading and inaccurate” (section 3) –RELOCATION.

Specialized KOSs

Examples of successful specialized KOSs do exist, though, keeping in line with the Australian approach that acknowledges the “emergence of a new kind of public, one that includes Indigenous people rather than posits them as subjects which the Eurocentric gaze makes meaning about (although this still occurs)” (Anderson, 2005, p. 20). These specialized KOSs are designed to meet the needs of nondominant communities at a variety of levels in response to the problem of reliable subject access.

Classification schemes adapted to meet the needs of specialized knowledge and indigenous groups have emerged in LAM environments. The most interesting to this discussion of indigenous knowledge is the Brian Deer Classification (BDC) scheme, first developed in Canada in the 1970s as a way of providing access to indigenous resources. The BDC has recently received attention in the scholarly literature (e.g., Cherry & Mukunda, 2015; Doyle et al., 2015; Swanson, 2015) and in the professional literature (e.g., Sahadath, 2013) as classification scholars and practitioners reflect on its use and usefulness in providing access to indigenous knowledge in Canada. BDC has been adapted and subsequently adopted as a mechanism for providing reliable subject access to resources by and for indigenous peoples throughout Canada. Offering a basic core of relevant categories, the BDC can be adapted by institutions outside of the original place of creation, permitting locations and names for local areas to be classed first (Doyle et al., 2015; Swanson, 2015).

Traditional knowledge might also be said to surface around religion, another marginalized area for nondominant religions. Examples can be drawn through the examination of classification schemes for religious communities, such as the numerous published and unpublished Judaica classifications (Weinberg, 1983), especially the quintessential *Classification System for Libraries of Judaica*, now in its third edition (Elazar, 2008). Also a classification scheme created uniquely for a particular community, the unpublished classification system of the Central Catholic Library in Ireland (“The Classification System,” 2012) reports to include 33 sections on Catholic culture and the Bible.¹ Other systems opt to modify one section of a universal scheme such as DDC to create a local system that is both workable and relevant. A number of extensions to DDC’s 297 for Islamic topics and areas exist, fleshing out the number more completely. Another somewhat modular approach to providing adequate access to Muslim knowledge involves the complete reworking of DDC numbers devoted to Christianity as a way of better accommodating topics relating to Islam (Idrees & Mahmood, 2009). These unpublished solutions, although helpful in the individual libraries where they are created and maintained, are not widely tested or shared, thereby limiting their overall usefulness. Although individual efforts to provide access are laudable, preference is still to adopt a published scheme that can be tested and modified by a wide number of community members, such as the published and widely used *Classification System for Libraries of Judaica* (Elazar, 2008).

Specialized and formally published controlled vocabularies contribute to reliable verbal subject access to resources for nondominant and specialized groups. For example, the Xwi7xwa library’s First Nations House of Learning (FNHL) Subject Headings (Doyle et al., 2015) provides verbal subject access in a way that is consistent with *indigenous warrant*. So that these terms could be adequately included in the library’s MARC records, Xwi7xwa

¹ Here, we do not include reference to the Vatican Code (*Norme per la catalogazione degli stampati*) first established in 1931 since it was largely acknowledged to be an adaptation of the code used in the United States at the time (see Olson, 2006).

librarians petitioned the Library of Congress (LC) MARC Standards Office in 2004 to make FNHL an official thesaurus, a status that was subsequently accorded in 2005 (Doyle et al., 2015). As Doyle et al. (2015) point out, “The misrepresentation of Aboriginal names and concepts engenders mistrust and damages librarians’ credibility with knowledgeable library users” (p. 115), a problem that is alleviated by such initiatives. To provide reliable access to its primary user base, Elazar’s *Classification System for Libraries of Judaica* based its first and second editions’ terminology on *The Standard Jewish Encyclopedia* and its third edition’s on the *Encyclopaedia Judaica* (Elazar, 2008), i.e., on formalized and respected published references designed by and for the Jewish community.

Additional controlled vocabularies have been developed to support reliable subject access to resources for and about nondominant and specialized groups. Using a slightly different approach from those mentioned above, Mustapha Allouh (1998)’s *Ibn Rushd: Thésaurus arabe-français relatif au Maghreb et à son environnement historico-culturel andalou et africain* provides reliable, Arabic-French bilingual access to resources relating to the modern and historical Muslim West for the Ibn Rushd collection at the Fondation du Roi Abdul-Aziz Saoud in Casablanca, Morocco. This published thesaurus, although not widely available, conceptualizes time and place in a way that is fundamentally different from DDC (Moulaison, 2010). Also in keeping with the notion of reliable access for a specific non-dominant user group, Juhana Salim, Siti Farhana Mohamad Hashim, and Shahrul Azman Mohamad Noah (2012) developed an ontology for providing multilingual access to a set of authoritative websites devoted to Islamic topics. In this sense, *ontology* can be defined as “a kind of taxonomy with structure and specific types of relationships between terms.... [in which] relationships are greater in number and more specific in their function. ... Ontological relationships are used in more complex information systems, such as the Semantic Web” (“Taxonomies & Controlled Vocabularies SIG”, n.d., section, Ontologies). Basing their ontology first on the terms used on these websites and enhancing the ontology through terms found in the generalist KOSs LCSH and LCC, along with the *Index Islamicus*, the resulting ontology is rich and inclusive of dominant and nondominant approaches to organization, but did not require the labor-intensive step-by-step participation of domain experts. Finally, the American Library Association (ALA)’s Gay, Lesbian, Bisexual, and Transgender Round Table (GLBTRT) compiled resources in 2007 (Johnson, 2007), enumerating a number of relevant controlled vocabularies and classification schemes, many of which, unfortunately, are unpublished. Others are out of date. One of the institutions mentioned, the Lesbian Herstory Archives, recently celebrated its 30th anniversary in 2014 (Corbman, 2014); this growing institution actively maintains a classification system for materials and currently makes its classification available online (<http://lesbianherstoryarchives.org/tourcoll2.html>) (personal communication, April 22, 2016).

Subject Access Moving Forward

Access to indigenous knowledge is a moral imperative that can and should be addressed through library organization. We have, at present, several systems and models that we could draw from going forward. The Internet and online access has made it possible to reinvent reliable subject access. Authoritative ontologies such as the Salim et al. (2012) resource described above can combine a variety of approaches to classification, making them machine actionable and adapted to modern web technology in the process (Salim et al., 2012). Nonhierarchical web-based folksonomies also provide organization, though this subject access might not be considered *reliable* in the same way; they do involve non-professionals in the organization process, potentially opening (Carr, 2003) the organizational structures in

the process. In this way, new technologies offer non-traditional options for subject access that can be explored. We will examine both of these in this section, and will present concluding thoughts and recommendations at the end.

Classification schemes that are both 1) highly philosophically acceptable to members of the community and 2) specific will be most useful to members of the community (Weinberg, 1983; see Elazar, 2008); in the case of Judaica schemes, Weinberg (1983) notes that highly philosophically acceptable and highly specific schemes are also the least compatible with general systems. Moving forward, the creation of ontologies by linking concepts from a number of KOSs, as suggested by Salim et al. (2012) can provide a solution. Although merging two or more KOSs is not going to produce a structure traditionally called a classification scheme, it will allow robust access where context and terminology based on indigenous warrant can be supplied for the marginalized areas. Like Green (2015), we feel that universal KOSs are best applied to the materials they were designed to organize, and that “a mainstream bias may be appropriate in a classification scheme used for a general collection, while a special classification scheme may be more appropriate for a collection of materials for or about a specific group of people” (Green, 2015, p. 212).

By using published and reliable specialized schemes created by and in conjunction with the indigenous and marginalized peoples, librarians also remove the problem of creating classification notation when a number is not found in the scheme being used. Librarians are ill-equipped to make up classification on the fly, simply because they are not trained in classification theory in library school (Weinberg, 1983). At the same time, there is no reason to limit classification to a single scheme – either universal or specialized. Classification notation is no longer required to provide shelf locations, since having a single classification number is an artificial product of needing to place books on shelves (Budd, 1996). John M. Budd (1996) instead suggests providing additional access to library materials through the inclusion of multiple classification numbers in the surrogate, with one being identified as the actual shelf location. This approach could easily be taken in specialized collections as well, especially if these collections are part of a larger, generalized collection.

Additionally, participatory knowledge construction through the use of user-generated content (UGC) can supplement subject access in online environments. UGC can include terms such as tags to support subject access or provide other user-supplied metadata that will promote future access to nondominant content such as geographic information (Bishop, Moulaison, & Burwell, 2015). When information professionals are unable to provide verbal subject access through controlled vocabularies, either because the information professionals lack the knowledge or the time, or because the vocabulary lacks specificity or appropriate terminology, UGC can provide supplemental access while involving users. If UGC is structured and vetted, there is no reason to think access would not be reliable. In including UGC in LAM metadata records, the potential to de-silo content surfaces, especially if systems can be made interoperable and shared. One possible example is providing UGC for location-based retrieval. Geographic Information Systems (GIS), semantic searching, and creation of ontologies of non-textual information, hold promise in moving forward in our efforts to make explicit indigenous knowledge accessible (Bishop et al., 2015).

Concluding Thoughts

A universal subject access in LAMs might be akin to globalization, which is bound to subjugate culture. As Mawere explains (in the context of Africa): “While globalization can be allowed to take root in Africa, it...should respect and not subjugate the cultures of African

societies” (Mawere, 2012, p. 3). Merged and complementary published KOSs serve as examples of Marcia Bates’s superthesauri (Bates, 1989), and web-friendly ontologies and UGC emerge as adaptable mechanisms that are well-suited to the present computing landscape. This is the essence of cognitive justice for classification – it essentially blows apart traditional classification because it accommodates all eventualities in a way that is coherent for the indigenous people. Nothing is left in the margins, and indigenous topics are classed in a way indigenous users expect to find them.

Much of the focus in supporting cognitive justice is on the use of technology. Technology has the potential to support ontologies in the online realm, with linked data making it possible to incorporate various schemes into a single, consistently presented and reliable system of organization; this is, in essence, the modern take on the hypertext solutions to the problems of universal classification suggested by Rafferty in 2001. GIS and UGC may also benefit from linked data approaches in the future.

Physical collections, however, have the potential to create additional problems. If the low-tech solution of adding two classification notations to a record (Budd, 1996) is chosen (one from the indigenous scheme and one from the universal scheme), where then should the item be shelved? Shelving items according to subject matter is advantageous for browsing and discovery. Is it right for collections to segregate items physically, essentially continuing to marginalize indigenous knowledge in the library’s collection? Or, does the opportunity to provide the most robust context possible enable an autonomy that the ghettoization of the universal schemes does not? What is best for the indigenous user?

Ultimately, reliable subject access to traditional or indigenous knowledge must be found through a collaboration between information professionals and indigenous peoples (Green, 2015) (if the indigenous people are not information professionals). What is the most respectful way to store and provide access to the knowledge? How might cultural heritage institutions uphold and advance principles of cognitive justice? Classification schemes and other KOSs should clearly include input of the indigenous people they cover, especially in terms of the structure of the schema and the terminology used. Physical access must also be part of the question considered. Although we do not offer a solution to the problem of relying solely on universal KOSs to accommodate various worldviews, the information professions do possess the knowledge and experience to develop systems that will provide reliable subject access to indigenous knowledge going forward. As Tennis (2012) makes clear, we are the guardians of the world’s cultural heritage. As such, we are obligated to search for the best ways to provide access. In the case of indigenous knowledge, we argue that published, non-universal approaches harkening back to the “simpler times” (Svenonius, 2000, p. 31) of local organization are key in providing access, and that these methods should be combined with universal approaches and web-based technologies to provide reliable, cognitively just access to indigenous resources.

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