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The Diversity Paradox

Conflicting Demands on Metadata Production in Cultural Heritage Collections.

Anna Dahlgren, Karin Hansson

Abstract

At the core of museum practice is the notion of diversity. However, as this analysis of different types of metadata production shows, contradictory ideas and ideals pervade both metadata production among information specialists (i.e. archivists, metadata managers, curators working in the heritage institutions), and the systems for, and practices of, participatory metadata production. While the discourse on metadata standards is permeated by ideas of objectivity and interoperability the field is, in practice, far from coherent, being marked by a great variety as regards templates, formats and vocabularies. Conversely, the discourse on digital participation in the cultural heritage is permeated with notions of diversity, as means to increase democracy and support variety. In practice, however, the available crowdsourcing platforms are often formulaic offering few possibilities for the crowd to add individual interpretations and their own agenda. This analysis of the practice of producing descriptive metadata reveals the complex, multifaceted implications of notions of diversity for the cultural heritage. Diversity, meaning great variety, is then not solely a positive end in itself but can in fact hinder the distribution and linkability of information and thereby the creation and building of new knowledge. Likewise, participatory activities where heritage institutions reach out to the crowd do not automatically generate diversity as there is no direct correlation between the magnitude of the group and variability. To understand this complexity and acknowledge the, sometimes, contradictory demands and effects related to the notion and norms of diversity is at the core of the making and preservation of our cultural heritage.

Keywords: cultural heritage image collections, museums, metadata, metadata standards, participatory metadata production, crowdsourcing, diversity, open data

Introduction

One of the cornerstones of museum collections is the idea of diversity. Both UNESCO and the International Council of Museums (ICOM) highlight diversity in their recommendations and definition of what a museum or a collection is. UNESCO recognizes, for example:

the importance of culture in its *diverse* forms in time and space, the benefit that peoples and societies draw from this *diversity*, and the need to strategically incorporate culture, in its *diversity*, into national and international development policies, in the interest of communities, peoples and countries [our italics]. (UNESCO, 2015)

Likewise, ICOM suggests a definition of a museum as continually emphasizing diversity:

Museums are democratising, inclusive and *polyphonic* spaces for critical dialogue about the pasts and the futures. Acknowledging and addressing the conflicts and challenges of the present, they hold artefacts and specimens in trust for society, safeguard *diverse* memories for future generations and guarantee equal rights and equal access to heritage for all people. Museums are not for profit. They are participatory and transparent, and work in active partnership with and for *diverse* communities to collect, preserve, research, interpret, exhibit, and enhance understandings of the world, aiming to contribute to human dignity and social justice, global equality and planetary wellbeing [our italics]. (*ICOM Museum Definition*, 2020)

Diversity is thus at the heart of the mission and role of the museum collection, meaning a multitude and large variety of knowledge, experiences, opinions and beliefs. This norm of diversity, in turn, implies that enhanced audience participation provides the means to include wider perspectives and to develop a more collaborative and open-ended understanding of cultural heritage (Ciolfi, 2018). The question is then how the above, political, overall goals match the production of descriptive metadata, both within in-house systems comprising the databases for managing collections produced by information specialists and the different online interfaces where the general public, the crowd, is invited to produce descriptive metadata for the collections.

In this article we seek to discuss the contradictory practices in metadata production in relation to the notion of diversity, with a particular focus on metadata for images in museum collections, but also including cultural heritage institutions at large. The following synthesis is based on our previous research as well as others' studies of metadata practices and heritage platforms online, primarily in Europe and the US. We will argue that different ideas and ideals about coherence and diversity pervade both metadata production among information specialists (i.e. archivists, metadata managers, curators working in the heritage institu-

tions), and the systems for, and practices of, producing metadata through digital participation in crowdsourcing platforms, wikis and social media applications. It is important to note that the term diversity in the context of this study relates to its commonly used definition – varieties among humans – and diverging policies and practices. In effect, these diversity paradoxes illuminate the complex, multifaceted and partly contradictory implications for, and understanding of, diversity in the cultural heritage. In order to study the balance between political and institutional policies and practice it is vital to deepen our understanding of how we should and could develop inclusive and sustainable spaces for understanding both our past and our present.

Visual heritage and the politics of representation

Image collections in museums, archives and libraries are currently manually furnished with metadata in two key ways, either by professional information specialists working within the heritage institutions or by representatives of the general public – the crowd – through a variety of initiatives and platforms. The latter, what we in this article call ‘participatory metadata production’, is defined as the engagement of the general public in the production of metadata. This is closely connected to the development of Web 2.0 which has enabled heritage institutions to harvest metadata through individual institutions’ websites, heritage portals, wikis or social media platforms.

Turning to the crowd has not only provided a way for cultural heritage institutions to compensate for insufficient staff and funds to furnish their image collections with metadata, it is also thought to enable increased plurality through new readings and interpretations, and has the potential to engage and involve different audiences. In fact participatory metadata production may even provide better search functions as these metadata better reflect user terminology, and can also include emerging vocabularies (Cairns, 2013; Ellis, 2014; Alemu *et al.*, 2015; Manzo *et al.*, 2015; Ridge, 2017; Shaw *et al.*, 2017). In short, participatory metadata production might strengthen democratic processes and develop critical reflection, while at the same time offering a cost-effective data collection mechanism.

Cultural heritage institutions have conflicting roles: as maintainers of an open dissemination of knowledge, as producers of authoritative knowledge, as historical institutions founded on obsolete categorizations and understandings, and even as surveillance systems. For example, they may be suspected of monitoring, excluding and marginalizing certain groups. At the same time, they can be agents that work actively for a more just and pluralistic society (Ciolfi, 2018). In effect, for every cultural heritage institution governing the past there is a tension between fairly or accurately representing the existing historical collection and presenting a more diverse and pluralistic heritage. An institution’s mission is to display their collection in an unbiased way and gaps such as the lack of artefacts produced by

women or minorities must be compensated for. At the same time, decisions must be made about possibly outdated, and now no longer tolerable, parts of the collection that are problematic: whether they remain on display or are buried in the institutions' depositories. These conflicting roles also permeate the production of descriptive metadata for image collections. Similarly, historical metadata may be outdated or even offensive, yet institutions have to strike a balance between preserving historical metadata as part of the cultural heritage and making just metadata based on state of the art knowledge.

Image Metadata Creation

Seeman and Dean have highlighted fundamental differences between libraries and archives with regard to the purpose and content of metadata:

For libraries the purpose of metadata is to facilitate discovery and scholarship. Archival metadata, on the other hand, is doing more: it is responsible for enabling discovery of its content by patrons, but also has a duty to be faithful to the structure and context of the archives, and in turn, the presumption of authenticity of a particular fonds [...] While much of library metadata is explicitly derived from the object in hand – such as title and author – archival metadata is created by an archivist in response to what they can infer from an object (Seeman and Dean, 2019, pp. 8–9).

Museums in turn combine the openness and potentially large audiences of the libraries – through public exhibitions of the collection – with a strong focus on provenance, much like archives. In addition, many museum institutions include an archive, a library and museum collections of images and other artefacts. In short, museums are particularly complex types of collections not only because their holdings are very heterogenous but because they have diverging missions, being depositories for scholarly knowledge while also targeting the broader general public.

Metadata are always coloured by the institution or agent that governs the image collection – which is the focus here. The interest and agendas of these agents differ, depending on whether they are the original image producers, information specialist in the collecting institutions, scholars or the general public adding metadata (Schwartz, 1995; Schwartz and Cook, 2002; Baylis, 2014; Adler and Harper, 2018; Loukissas, 2019). This is true for all categories of metadata, indeed for all types of categorizations, but is especially so for descriptive metadata which is the main route for making image collections accessible. Descriptive metadata is "information about the content of a resource that aids in finding or understanding it" (Gilliland, 2016; Riley, 2017). Because this metadata also steer understanding and interpretation of a visual source it is central to the discussion on diversity and cultural heritage.

All types of material need descriptive metadata. They have particular significance for images as there is no one-to-one relationship between the transcribed and the transcription as there is often with text. Typically, the latter includes identifying letters or individual words in handwritten texts, or texts in images that are entered on a computer where all these letters and words are searchable. Images are too ambiguous, too nebulous and have the potential for a multitude of meanings which are too complex to harvest in a predefined template. This may be one reason why many participatory metadata production initiatives in the cultural heritage sector focus on text transcriptions rather than the handling of images. Likewise this may explain why participatory metadata production of images rarely feed back to the collection databases. Such metadata produced with the aid of the crowd are simply too diverse, too unstructured for machine reading and digitized searches, to be effective.

Diversity in standards and professional metadata practices

There is an increasing demand for the cultural heritage sector to pave way for a broad and heterogeneous representation of the past and the present. A number of studies have raised the problems of objectivity and the fact that classifying information often reproduces dominant norms that still bear the traces of their origin in the late nineteenth and early twentieth centuries, with obsolete and dusty notions about race, gender and sexuality, to cite the most apparent examples (Adler and Harper, 2018; Seeman and Dean, 2019, p. 6). For memory institutions like museums this entails sometimes irreconcilable demands. On the one hand the mission of the museum is to preserve old metadata as cultural expressions of historical periods. At the same time, they are obliged to promote and set an example as regards contemporary notions of gender, race and science, that is to provide progressive and informed interpretations of historical periods. As many collection databases do not include historical layers of metadata, the solution is typically to replace outdated metadata with new ones (Gilliland, 2016, p. 26).

While diversity forms the backbone of cultural heritage institutions, when it comes to collection accessions, display and public communication and audience target groups, issues of diversity are not always raised in the professional discourse on metadata standards. This is not unexpected as consistency is the main concern of metadata creation, to enhance searchability and usability. Consistency and interoperability are core values for metadata standards – not diversity (Gilliland, 2016). Indeed, the very language that describes metadata standards is filled with words relating to absolute values such as “objective”, “clean” and “good” (Dahlgren, forthcoming). By using the same wording and format, that is, using metadata standards, it is possible to create coherence and thereby reliability across one collection or institution, or between different collections in different institutions. Glassman’s handbook for librarianship even points out that “collec-

tions not using these standards create the need for considerable data clean-up and normalization if they are ever to be more than standalone projects” (Glassman and Dyki, 2017).

Despite the striving for homogeneity, in practice, the production of metadata among information specialists and the use of metadata standards is already marked by considerable diversity. This has come about for very pragmatic reasons. Different types of objects and collections require different types of metadata. The curatorial interest for particular information differs for example between images held in an art gallery and a library, as does the information specialists’ domain expertise. Accordingly, diversity in metadata practice seems to be greatest in museums as they are the institutions that govern the most diverse collections. While the library sector has ‘systematically and cooperatively created and shared’ metadata standards since the 1960s, the museum sector, mostly handling images and objects, has been slower to establish such collaboration and consensus. Until relatively recently the museum sector did not share metadata formats, standards and catalogues to the same extent as the library sector (Gilliland, 2016). One reason for this may be that “many libraries holds what amounts to the same thing” (Seeman and Dean, 2019, p. 5), while museum holdings are much more diverse. In many cases museum objects are even unique, single examples of a category of objects. However, this does not hold for images, especially photographs or prints whose very essence are their multiplicity. Neither does it hold for all illustrations in books, magazines or other printed matter in library collections. This is particularly evident when images originating from the collections of different institutions appear on aggregated online platforms. Then the different metadata practices of different institutions and individuals are clearly exposed (Dahlgren, 2009).

Thus, there is a tension between coherence and diversity as regards metadata production among information specialists, which are both desirable qualities for cultural heritage institutions. While the aim of a standard is to impose uniform language practices in order to diminish the diversity of metadata, there are at present innumerable different metadata standards in use. Riley’s detailed overview from 2009 outlines the most commonly used standards and their centrality in different types of cultural heritage institutions (museums, archives, libraries), for different types of material (visual resources, texts, cultural objects, moving images), and their primary function and importance (the extent of their use) (Riley, 2009). This overview maps no fewer than 105 different metadata standards. By cross-referencing the different categories in Riley’s mapping of metadata standards it is possible to make a shortlist of the principal descriptive metadata standards for visual material. Still, one would end up with no fewer than thirteen different standards, including seven structure standards, one content standard and five controlled vocabularies (Table 1).

Table 1. Most commonly used standards for descriptive metadata for visual resources (based on Riley, 2009)

Metadata structure standards	CDWA (Categories for the Description of Works of Art)
	CDWA Lite (Categories for the Description of Works of Art)
	DC (Dublin Core)
	DIG35 (metadata for digital images)
	Ontology for media resource
	PBCore (Public Broadcasting Dublin Core)
	QDC (Qualified Dublin Core)
Metadata content standards	CCO (Cataloging Cultural Objects)
Controlled vocabularies	AAT (The Art & Architecture Thesaurus)
	TGM 1, TGM II (Thesaurus for Graphic Materials)
	TGN (Getty Thesaurus of Geographic Names)
	ULAN (Union List of Artist Names).

In sum, the sheer variety of metadata standards indicates that there is no consensus, no common template that would actually make collections fully homogeneous and thereby linkable or fully interoperational. In addition, a considerable number of museums, archives and libraries do not follow a specific standard. According to Beaudoin this is partly because ‘many of the schemas are in a constant state of flux and new ones continue to be developed’ (Beaudoin, 2007). For museums in particular, this is also an effect of the great variety in their collections and of their audiences or users. This is apparent from a recent survey of 157 metadata specialists in the US conducted by the Visual Resources Association (VRA). In fact, the majority of the responding cataloguers, metadata specialists, librarians and curators did not use established standards but used their own in-house templates. According to the survey a large percentage of the respondents reported that they were using in-house data content standards (most common, 56%), and in-house metadata structure standards (second most common, 38%). The only types of metadata practices in which there appeared to be a greater consensus were in the use of controlled vocabularies, especially the vocabularies produced by Library of Congress (LSCH, LCNAF, TGM, LVGFT) and Getty Research Institute (AAT, ULAN, TGN, CONA), which were dominant (Waldron *et al.*, 2018). Thus there seems to be most diversity with regard to ontology development, established agreed-upon syntax for how to do descriptions – metadata structure standards – while coherence in vocabulary and content standards, that is established agreed-upon nouns to use within that syntax, show both large coherence and large diversity.

Table 2. Most commonly used standards for descriptive metadata for visual resources based on VRA survey 2017 (Waldron et al., 2018) per cent of the 157 responding information specialists.

Metadata structure standards	DC (Dublin Core)	42%
	In-house	38%
	Marc 21	37%
	VRA Core 4	29%
	EAD (Encoded Archival Description)	21%
Metadata content standards	In-house	56%
	CCO (Cataloging Cultural Objects)	42%
Controlled vocabularies	AAT (The Art & Architecture Thesaurus)	73%
	LCSH (Library of Congress Subject Headings)	72%
	LCNAF (Library of Congress Names)	62%
	ULAN (Union List of Artist Names).	53%
	TGN (Getty Thesaurus of Geographic Names)	48%
	TGM 1, TGM II (Thesaurus for Graphic Materials)	28%

So, while there are strong arguments and rationales for using metadata standards, there seems to be a constant tension between the coherence that the standards advocate and the variation between those many different standards, and the fact that individual institutions use different standards or even have their own unique systems.

Besides this unintentional diversity in the standards used there is also the unintentional diversity arising from the fact that different collections or institutions have different origins, types of collections, aims and audiences. As noted, archivists have historically worked under the flag of objectivity yet there is today a keen awareness of the biases in any archival practice in the archival discourse (Seeman and Dean, 2019, pp. 3–4). In this context digitization and online access is making these differences more apparent and have indirectly raised the requirements on interoperability not only within one and the same institution or collection but across individual institutions, cohorts of different types of museums, and between nations and continents.¹

As pointed out in previous studies, descriptive metadata produced by the general public “lack synonym control, can be polysemic, abbreviated, plural or

1 See for example the contribution to this special issue by Carlotta Cappurro and Gertjan Plets, “Europeana, EDM, and the Europeanisation of Cultural Heritage Institutions”, p. 165 – 191.

singular, mis-spelled, or even simply wrong” (Cairns, 2013, p. 111). However, our detailed study of the Swedish museum online portal DigitaltMuseum.se discloses the exact same palette of inaccuracies even though they are produced by museum professionals or information specialists (Petersson and Dahlgren, forthcoming). Here it is important to distinguish between schemas and content, or metadata structure standards and metadata content standards as these disparities primarily pertain to content not structure standards. Put differently, the schemas, what information categories to use, are agreed upon by different heritage institutions in DigitaltMuseum. However, the contents of these boxes often appear to be highly dependant on the work of the individual institutions or even the individual information specialist. Thus despite the use of agreed-upon schemas or metadata structure standards (i.e. what fields, what type of information should be included and in what order), it appears that individual institutions or information specialist interpret categories like “creator”, “subject”, “title” and “type” very differently – to take the widely used categories from the Dublin Core as examples (*Dublin Core*, 2020). It is understood that information specialist are experts in the craft of cataloguing and classification, but not necessarily domain experts equipped to semantically describe the content of the material (Alemu *et al.*, 2012). The vital difference, then, is not that information specialists are objective or unbiased but that they are “trained to be oriented first and foremost to the creator and the archives” (Seeman and Dean, 2019, p. 4) and not to their own persons, personal thoughts, opinions or experiences and so on. However, one could argue that no individual can completely act outside his or her personal experiences and therefore that any metadata is at least partially socially constructed, both those produced by “professionals” and those produced by “amateurs”.

Coherence in participatory metadata production

Given that there is not a common, defined understanding of the term crowd-sourcing we have chosen to use the term ‘participatory metadata production’. Consequently, the term as used in this article includes a miscellany of partly overlapping methods to produce metadata with the aid of the crowd such as crowd-sourcing platforms, wikis and social media applications where resulting metadata can either be folksonomies – that is user-generated, bottom-up created vocabularies – or taxonomies created by information specialists. This could include anything from large-scale anonymous crowds to small and personal projects, initiated by large public heritage institutions or entirely originating from voluntary private initiatives. Moreover, it includes a variety of tasks from simple micro-tasks, like formatted correction and classifications, to co-curation and complementing of collections (Estellés-Arolas and González-Ladrón-de-Guevara, 2012; Hansson, Ludwig and Aitamurto, 2019).

Historically, crowdsourcing platforms have been particularly strong in science, more so than in information collections for the humanities and social sciences. Platforms like Zooniverse, for example, have a strong dominance in biology and astronomy where the crowd is mainly tasked with visually singling out occurrences of different types of natural phenomena. In other words, this can be described, that it is primarily the visual perceptual discrimination of the crowd who are sought for not their personal, individual history, experiences or opinions. As most of these digital crowdsourcing platforms have been developed to serve the needs of science rather than the humanities they are based on science's needs to identify numbers of a certain species or formations. Such limited crowdsourcing tasks force ontological restriction, only offering a small set of possible fields to complete. However, it is important to note that although they concern micro-tasks they might still vary as regards vocabulary diversity. Either they welcome it – enter any term you can think of – or they impose strong lexical restrictions with multiple-choice interfaces. In both cases, however, the potential for diverse interpretations and perspectives are not fully realized.

A case in point is the Smithsonian Museum's Transcription Center whose 23 000+ active volunteers and a well-developed interface and effective system are among the major agents in the field. In this interface participants are invited to transcribe texts in handwritten documents, printed material and images. Thus, contributions are limited and offer little scope for individual experience, knowledge or interest. However, it is important to note that such tightly curated top-down designs may include other important democratic aspects for participation such as clear decision-making and credibility, although they do not support diversity to any great extent (Hansson and Dahlgren, forthcoming a).

The limitations in what is asked from the crowd also holds for the relatively free crowdsourcing platform *Kbh billeder.dk* at the Copenhagen City Archive. Yet, despite *Kbh billeder.dk* having a more open interface where the crowd can potentially add any terms or words, they, like many other participatory metadata production projects, prefer to ask for data that can be easily divided into smaller parts and collected, like single words, preferably nouns, describing depicted objects or geodata (Hansson and Dahlgren, forthcoming b). There is generally no room for lengthier information in the interface design, not only because it is space-consuming but because it would supposedly create metadata with low interoperability, which, in turn, means limited utility for a broader user group and for aggregated statistics. Naturally, this type of participatory metadata production for historical images has its limits which might explain why more open-ended collaborations and grassroots initiatives develop in the context of cultural heritage material. As argued by Cairns, folksonomies, whether this implies single words or lengthier stories, bring bottom-up collaborative classification methods that are the "antithetical to the formal and hegemonic taxonomies that museums have relied on to give objects context" and "[w]hile taxonomies are hierarchical and linear, folksonomies are uncentered and rhizomatic" (Cairns, 2013, p. 109). However, as

we argue below, although the platforms do not prescribe the exact input from the crowd the outcome may likewise remain not very diverse.

While the structures for metadata, that is what type of information, what categories of information, image collection should be organized around are defined by information specialists, and in many cases agreed upon across different institutions, the crowd is used to help fill these categories with content. Most participatory metadata production can therefore be said to focus on item level in collections and not in their relation to other items. Issues of context, meaning historical, societal, cultural situation, is defined by information specialists not the crowd. The idea that what the crowd could add is either item-level description or context, meaning their personal, individual reflections, has two implications. First, it may gear the existent context information to institution-related issues rather than a broader historical, societal, cultural context. Second, it does not take advantage of the aggregated knowledge of the crowd, meaning giving cultural, historical context. In short, the crowd, if given free rein, will bring personal reactions and opinions.

Participatory metadata production has been valued for its potential to reduce the workload of the heritage institutions and make possible speedier digitization. However, in practice, little of the resulting metadata has been reinserted into the institutions databases and used in-house by information specialists. There are several projects which include co-curation and a discursive development of the collections, for example through Flickr Commons or Wikimedia Commons, but the information from such attempts are seldom reintegrated in the museum's collection databases (Hansson and Dahlgren, forthcoming a). Projects that are more integrated in the museum's practices regarding metadata are most often about micro-tasks, where the crowd contributes answers to clearly defined questions provided by the institution, and where the institutions keep tight control of the content that is being added.

Arguments for initiating interfaces for participatory metadata production have also been rooted in participatory discourses (Gil-Fuentetaja and Economou, 2019). It can make use of the crowd's extensive knowledge, enabling the enhancement and expansion of the information on the collections and pave the way for deliberative processes which at best mix the 'institutional expertise with the discussions, experiences, and insights of broad audiences' (Oomen and Aroyo, 2011; Estermann, 2014). Some of the most successful initiatives also entail a free-standing position in relation to established heritage institutions. A number of these have actually created new readings and understandings of visual heritage. One is the Mukurtu platform which is a community-centred collection management system engaging in the work of describing collections. This is not an isolated crowdsourcing project but a long-term engagement with specified communities outside the museum to drive core collection description infrastructure. In this platform, communities may not only define their own vocabularies, but also define their own ontologies by establishing their own schemae of fields in a far

more capacious manner (*Mukurtu*, no date). Another example is Homosaurus, a community-driven vocabulary for use across many institutions as a counterpoint to hegemonic authorities such as LCSH. It is a key example of a well-organized domain-specific vocabulary compiled to oppose the erasure of critical LGBTQ+ communities and concepts in standard vocabularies (*Homosaurus*, no date).

In relation to participatory metadata production there are thus two related paradoxes. First, as mentioned, is the often tightly curated top-down design of crowdsourcing platforms where participation is wide in terms of numbers of participants but small in terms of what those participants are allowed to do. The second involves the preconception that the crowd per se, because of its sheer size, in some ways represents a diversity of perspectives and experiences, an idea which is often put forward as one of the benefits of participatory metadata production. Online participation, just like any other kind of participation, is subject to inequalities and discrimination which may disable representative participation, even though a large number of people are involved. However, the notion of diversity here suggests that overt differences between individuals, such as nationality, gender or race, automatically imply different perspectives. Several studies of crowdsourcing platforms and wikis indicate a lack of diversity in terms of age, gender, education, nationality, language, professional and religious background (Fort, Adda and Cohen, 2011; Zook, Graham and Boulton, 2015; Roued-Cunliffe, 2017). While the discourses around digital participation tend to treat the 'crowd' as a heterogeneous group of amateurs participating in their free time, research indicates that these crowds are not representative of the general public and that, rather than amateurs, consist of self-selected professionals and experts that typically comprise college educated, middle-class, white, English-speaking individuals (Brabham, 2012). Added to this is the fact that much of the output in crowdsourcing interfaces is most likely produced by a small core group of dedicated users, so-called super-users or super-taggers, who carry the major part of the workload. For example, among over 2 500 active crowdsourcers at Copenhagen City Archive which we have studied, the seven most active users account for 94 per cent of all edits – in other words, a very small group (Hansson and Dahlgren, forthcoming b).

Thus although the crowd is free to add whatever metadata they like through a more participatory regime, inequalities and particular viewpoints may be reinforced and diversity will not increase. Consequently, the sheer size of crowd does not mean that it is necessarily representative of a diverse range of people and perspective, rather that its core group of active users may consist of a handful of people who share similar perspectives and experiences.

The dilemmas of diversity and production of metadata

In this article we have outlined the contradictions that rest on the production of descriptive metadata, both for trained and specialized information professionals working within cultural heritage institutions and for the general public taking part in the cultural heritage sector's participatory metadata production initiatives. In essence, we argue that this can be described as a tension between ideals on the one hand, and practice on the other.

It is true that the metadata produced by the public differ from those created by information specialist. For example in a study by the Steve Project between 2006 and 2008 no less than 86 per cent of the terms provided by the crowd were not found in museum documentation (Trant, 2008). This does not indicate that the larger the crowd the larger are the diversity of tags. In theory, enrolling the crowd in metadata production through online interfaces entails "breadth of information and diversity of perspectives" (Gruber, 2008). However, in practice the crowd may in fact be composed of a very limited number of individuals and it is not certain that the sheer number of people involved – when the crowd is a really large group – automatically brings more diverse knowledge production. It could just as well result in more of the same. On another note, folksomies exist among information specialists and museum professionals too. Just as folksomies are characterized as "interpretations of, and reactions to" museum artefacts, the tags produced by information specialists are also influenced by their individual expertise and interest. In fact, this way of describing the crowd and the professionals emphasizes that the former have individual agency while the latter rather have a group agency. The crowd typically gives personal responses – if not highly circumscribed by templates online – while the information specialist does not.

Paradoxically, the professional, in-house institutional discourse on metadata is permeated by ideas of objectivity and interoperability while, in practice, the field is far from coherent, being marked by a great diversity as regards templates, formats and vocabularies. The degree of individuality and diversity is substantial. Conversely, and as paradoxically, the discourse on participatory metadata production in the cultural heritage sector is often presented as a way to harvest new readings and greater variety. However, many interfaces are often quite formulaic, based on micro-tasks which offer few possibilities for the crowd to add individual interpretations and their own agenda. Although museums have rapidly opened up during the past decade and are increasingly sharing their collections online, the participatory museum meaning where 'the voice of the user informs and influences processes of the museum itself' exists but is still quite rare (Gil-Fuente-taja and Economou, 2019). This means that audiences have typically been given greater and free access to the cultural heritage institutions but are not yet free to create it. The crowd is invited to participate but most commonly on the terms of the inviting heritage institution. This results in a very limited level of participation steered by established norms and the will of the governors of those institu-

tions, which is far from the vision of a truly pluralistic cultural heritage. In fact, this reveals the significant difference between free-standing grassroots organizations and heritage institutions, even though one might expect that participation would be at core of the established heritage institutions too (Roued-Cunliffe and Copeland, 2017).

Adding to this, one might ponder on the possible implications of these inherent contradictions. We argue that these conflicts between ideal and practice may in fact explain a number of issues related to the production of metadata through participatory actions in cultural heritage institutions' collections. It may, for example, explain why many initiatives are run as temporary projects and assigned to the institutions' educational and communication departments rather than being connected to the core collection management of the institutions.

Some institutions, like the Smithsonian and Library of Congress, for example, harvest metadata information produced through crowdsourcing, but others keep these data strictly separate from their main catalogue records by using the Wikipedia platform for harvesting metadata or by running crowdsourcing platforms in-house, but separate from the primary activities of the institution. The Metropolitan Museum and National Gallery of Art are examples of the former while The New York Public Library and the Tenement Museum are examples of the latter. Glassman's warning about the uselessness of collections which do not align to standards and are deemed be 'standalone projects' if they are not improved by considerable processing by professionals (Glassman and Dyki, 2017), can in fact be read as an indirect characterization of several crowdsourcing platforms. Probably for the same reason (i.e. the lack of interoperability or, in other words, 'professionalism'), many crowdsourcing platforms are designed and showcased as games and pastimes. The expected results, the metadata created by the crowd, are therefore relatively simple. They are primarily 'surface tags' that describe formal features and depicted object and are seldom 'deep semantic tags' like abstract concepts requiring interpretation or expertise (Wieser *et al.*, 2013). As such they are most probably useful for machine-learning applications, but less useful to current and future scholars, specialists and laymen.

In sum, this analysis of the practice of producing descriptive metadata reveals the complex, multifaceted implications of notions of diversity for the cultural heritage. Diversity, meaning great variety, is then not solely a positive end in itself but can in fact hinder the distribution and linkability of information and thereby the creation and building of new knowledge. Likewise, participatory activities where heritage institutions reach out to the crowd do not automatically generate diversity as there is no direct correlation between the magnitude of the group and variability. To understand this complexity and acknowledge the, sometimes, contradictory demands and effects related to the notion and norms of diversity is at the core of the making and preservation of our cultural heritage.

There are some conclusions which visual cultural heritage collecting institutions may draw that truly would support diversity. First, it is central to criti-

cally reflect on what participation means in terms of power and diversity. It is not enough to use technologies like crowdsourcing platforms or wikis, or to interact with the audience on social media to achieve the goals of diversity. On the contrary, this type of method can even be counterproductive. Instead, a thorough developed strategy based on a well-thought-out view of democracy is needed, where one looks at all parts of the institution's systems and decision-making processes, in terms of influence, co-determination and co-creation. Second, if the museums are to be "democratizing, inclusive and polyphonic spaces", it is far more than about giving the audience "open data". Above all, it is about opening the institution to new impressions and other stories from diverse communities. This means not only opening data content but also opening the data infrastructure itself for negotiation and variability. At the core of this is the issue of power, and here lies the challenge. The price for increased diversity is the loss of control. Thus in order to include wider perspectives and to develop a more collaborative and open-ended understanding of cultural heritage, what we need is trust.

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