



Data feminism in museum collections: mapping principles to practices

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Abstract

Introduction. In library, archive, and museum (LAM) collections, there has been much work towards restorative cataloguing and addressing harms found within collection data. However, this work is still being done in ad-hoc ways. As a result, there is both 1) a lack of a comprehensive summary of this work and 2) a gap in connecting this work to similar research in critical data studies. Parallel to this, the recent publication *data feminism*, offers a framework for critically examining data practices through a lens of power and oppression.

Method. This qualitative systemic review maps the seven principles of *Data Feminism* (Examine Power, Challenge Power, Elevate Emotion and Embodiment, Re-think Binaries and Hierarchies, Embrace Pluralism, Consider Context, Make Labor Visible) to existing work happening in museum collections.

Results. While museum practitioners are adept at understanding the limitations of their data schemas and organizing structures, further work is required to incorporate emotion and embodiment into museum data, as the current model relies on external researchers and community members for this.

Conclusion. This review underscores the importance of interdisciplinary work and speaks to the intensive data labor happening in LAM collections; it also offers actionable insights for advancing feminist data practices within museum collections.

Introduction

Library, archive, and museum (LAM) collections are sites where data-intensive work has been conducted for decades (Strasser, 2012; Sepkoski, 2013; Turner, 2020). This data often has problematic legacies rooted in colonialism, imperialism, and patriarchy, making their data equally filled with intersecting biases (Lowry 2023; Philips 2011; Reilly 2018; Turner 2020), yet touted as objective fact. These biases result from the often-obscure methods to which the collections came to be, and through the data classification schemas that reinforce white/patriarchal ideologies while erasing other forms of knowledge in the process (Patin et al. 2020). Many practitioners are invested in repairing these harms in their collection data.

Reparative or critical data work is not unique to museums, however. The recent publication *data feminism* offers a compelling framework for data scientists to incorporate practices that will ‘create more just, equitable, and liveable futures’ (D’Ignazio and Klein, 2020, p. 6). Rooted in intersectional feminist theory (Collins 1991, p. 18; Crenshaw 1991), the authors posit that we must examine intersecting forms of power and oppression (like race and gender) to address the inequalities in our existing data and data practices, and to push back against harmful notions of neutrality that permeate data science. This framework is delineated by seven core principles (Examine Power, Challenge Power, Elevate Emotion and Embodiment, Re-think Binaries and Hierarchies, Embrace Pluralism, Consider Context, & Make Labor Visible).

Much of the reparative work happening in museum collections is rooted in an intersectional approach, critically examining how white, western, and patriarchal epistemes shape the knowledge in our collections. Because of this parallel, *data feminism* offers a generative conceptual framework. By mapping existing LAM, specifically museum, literature to these seven principles, this review serves as a starting point for future empirical research on the extent to which practitioners are willing to implement critical data practices and their specific limitations when trying to do so.

Methods

This review employed purposeful sampling of LAM literature most relevant to the seven principles explored below, following methods for a qualitative systemic review. Rather than traditional inclusion/ exclusion criteria, a qualitative systematic review relies on an assessment of literature to ‘mediate messages’ for a narrative synthesis of a particular phenomenon (Grant and Booth 2009, 38). Here, the phenomenon is the established tenants of *data feminism*, aiming to expand their application and relevance to LAM literature as a foundation for future empirical research. This paper does not exhaustively examine all LAM literature yet provides a conceptual framework for the author's empirical dissertation and bridges the gap between these two scholarly areas.

Museum data work is a niche field, with much of the work being conducted by practitioners who do not publish their data practices. As such, literature about feminist work in museums is scattered, often within larger texts and manuscripts. Other literature was found through sources intended for LAM record-keeping more broadly. Examples of journals that were systematically searched included *Collections: A Journal for Museum and Archives Professionals*; *Journal of Documentation*; and *Cataloging and Classification Quarterly*.

One of the intended narratives of this review is to demonstrate that discussions around data practices are ongoing across various types of museums. Notably, natural history museums, which handle the largest volumes of data, have the most extensive body of literature. Because of this, literature from the natural history domain was often excluded to prevent it from overshadowing other areas of museum data work.

Data feminism in museum collections

Examine power

When examining power, D'Ignazio and Klein (2020) give a variety of points to pay attention to understand the '*matrix of domination*' (Collins, 1990), or the intersectional power dynamics that structure our society. They urge us to look at factors such as who is doing the work and for whom, and the silences and privileges that result from that.

D'Ignazio and Klein in their analysis of this principle state that *who* has access to do the work is important (2020). Historically museum work, even invisible museum work, has only been accessible to a certain type of woman: one who is most likely college-educated, and can afford to accept low or no wages, through either other spousal or other family support. Because of this, museum work like other LAM professions continues to hold 'White-IST', or white and elitist (Mehra and Gray, 2020) institutional values, overall limiting the intersectional work that is acceptable in these spaces. When speaking of power, there are privileged dynamics of race and class at play as well in museum work.

Museum work is a clear example, however, that women having representation in a workforce does not equate to power or equality (Callihan and Feldman 2018). Museums are a feminized profession, with most of the work being done by women across all divisions (Baldwin and Ackerson, 2017; Sweeney et al. 2022;), and follows similar trends of other '*pink collar*' professions of stagnant pay and limited upward mobility (Howe 1978; Nie 2017). Museum professionals also face pay disparities between gender and race, as white women make 71 cents to the dollar of their male colleagues, while Black and Latina women make 60 cents and 55 cents to the dollar of their white male colleagues (Baldwin and Ackerson 2017).

Challenge power

'Challenging power requires mobilizing data science to put back against existing and unequal power structures and to work towards more just and equitable futures' (D'Ignazio and Klein 2020, 53). The authors note that principles like equity and co-liberation are critical within the act of challenging power. Many of the issues mentioned above prompt action from practitioners, community members, and scholars to mitigate the negative impacts of power dynamics. Practitioners are taking a proactive accessioning approach to minimize this in the future (Reilly 2018; Halpern and Berns 2019). Notably, many queer museum workers are spearheading efforts to challenge oppressive structures within these institutions (Middleton and Hagen 2022). Similarly, the Guerilla Girls, an artist-activist group, has a long history of calling out institutions that have gender discrepancies in their collections and exhibition practices (Guerilla Girls 2020). These examples, while happening in museum spaces beyond computing, demonstrate that these conversations around feminism and intersectionality are an interest throughout these institutions and a clear space for future collaboration.

In critical data work, refusal and resistance are clear forms of action (Cifor et al. 2019; Garcia et al. 2022; Sutherland 2023) against harmful data regimes. Resistance is also present in museums to challenge oppressive powers as well. This includes cultural heritage workers resisting mass incorporation of potentially harmful artificial intelligence (AI) technology (Dikow 2023; Foka 2023; Murphy 2024) and a refusal to allow the oppressor's standpoint to permeate collection data (Caswell 2022; Patin et al. 2021). From a community standpoint, it also involves a refusal to do things in a way that is convenient to colonial institutions. Robin Gray calls for Indigenous community members to embrace the concept of *rematriation*, a practice rooted in Indigenous, feminist values that aims for repair beyond repatriation. She states, '*Rematriation involves both a turn away from the colonial order of things and a turn toward Indigenous nationhood*' (Gray 2022). Other examples of this include museums that purposefully centre their data and exhibitions centre around the experiences of their community members, rather than object data (Duhamel and Peristerakis 2017).

Elevate emotion and embodiment

'Data feminism teaches us to value important forms of knowledge, including the knowledge that comes from people as living feeling bodies in the world' (D'Ignazio and Klein 2020, 73). Within this principle, *Data Feminism* authors are speaking specifically to the power of bringing emotion and embodiment into our data and pushing back against Donna Haraway's *'god trick'* of data having one singular point of view or seeing *'everywhere from nowhere'* (Haraway, 1988, 581).

Museums have caused real harm to communities, partially through the ways they have decontextualized many of their objects, severing them from any sort of subjective experience. From an exhibition standpoint, many efforts are underway to build affect and emotion into exhibits (Arnold-de Simine, 2013; Katrine, 2017; Kidd, 2018; Smith, 2021), often with the assistance of technology (Benford et al., 2022). The disconnect here is that many museums leave *'interpretation'* up to curatorial and exhibition staff, while those working in museum computing are still dealing with the remnants of the *'old museum'* data (Cameron and Robinson, 2007).

Many recognize this gap (Cameron 2010; Canning 2018; Losh et al 2016; Prosper 2024; Turner 2020); however, this sort of work often works directly in opposition to the narrative format (Manovich 2002) of structured databases, a persistent problem. Some of the most successful examples are when researchers outside of museums take museum data and transform it in embodied and affective ways. (for example: see projects like the *Great Lakes Research Alliance for Aboriginal Arts and Culture* (Bohaker et al., 2014; Rayburn et al., 2024; Wilmott et al., 2016), and projects built on the Mukurtu content management system (Christen, 2017; Christen, 2019; Passamaquoddy Peoples' Digital Archive, n.d; Plateau Peoples' Web Portal, n.d.). However, since much of this work is happening within individual projects, those working in museum computing have not incorporated this into their work practices on a field-wide level.

Re-think binaries and hierarchies

'Data feminism requires us to challenge the gender binary, along with other systems of counting and classification that perpetuate oppression' (D'Ignazio and Klein 2020, 97). The authors also note this work includes examining classification systems for what knowledge or types of data the system intentionally leaves out or does not collect. This principle speaks most directly to the classification schemas used to organize 1) the physical collections in these institutions and 2) their accompanying data that has been produced over time. Museum catalogs and records, for many peoples, have been tools of erasure that reproduce harmful categorizations (Patin et al., 2020), such as referring to Indigenous communities by terms that were imposed upon them by settlers (Phillips, 2011; Turner, 2020). Museum documentation has also been highly skilled at legitimizing oppressive epistemologies like white supremacy and patriarchy into its collection knowledge.

In the last 50 years, there has been a shift in LAM institutions, recognizing the ways that classification systems reinforce systemic oppression. Sanford Berman, one of the first *'radical librarians'* widely recognized to push back against these practices, interrogated Library of Congress Subject Headings in the 1970s (LCSH) (Berman, 1971). His work led to a larger call for action from LAM practitioners beyond libraries, which came to be known as radical cataloging (Roberto 2008), and more recently critical cataloging (Adler, 2017; Snow and Dunbar, 2022; Watson, 2020). Specifically, there has been a focus on creating collection metadata that is inclusive of gender (Billey and Drabinski, 2019; Watson et al., 2023), centring Indigenous epistemes (Cherry and Mukunda, 2015; Duarte and Belarde-Lewis, 2015; Swanson, 2015), and general push back against *'neutral'* information organization systems (Patin et al., 2021). Further, in museums, this work is often referred to as re-description, which in most connotations is directly working against past harmful data schemas (Adler, 2016; Christen and Anderson, 2019; Haberstock, 2020).

Embrace pluralism

This principle of *data feminism* scrutinizes the myth of ‘clean data’ and urges data scientists to consider how data cleaning, in many ways, is an act of ‘scrubbing’ data into a single point of view. D’Ignazio and Klein state, ‘*data feminism insists that the most complete knowledge comes from synthesizing multiple perspectives, with priority given to local, Indigenous, and experimental ways of knowing*’ (2020, 125).

Calls for plurality of data in museum records emphasize the need to embrace diverse interpretations of collection items and connect them to various ‘cultural, social, historical, technological, artistic, and disciplinary contexts’ (Cameron 2010, 89). Additionally, there are calls to prioritize Indigenous (Duarte and Belarde-Lewis 2015) and Black feminist (Patin et al. 2021) ontologies. Bringing language plurality in records is a common example of this (Castle 2021; Christophe 2024; Lewis 2024; Trammell 2019). Specific examples include the Keaukāna‘i research group partnering with the British Museum to integrate a Hawaiian language taxa into the museum database (Christophe 2024) or the integration of the Sm’algyax language at the Burke Museum of Natural History and Culture (Castle 2021). Much of this work also happens with external research and community groups use museum data as a starting point and build plurality into it.

Within this principle, D’Ignazio and Klein also note that when moving away from a single objective truth, uncertainties and ambiguity appear in one’s data. Part of embracing plurality is making sure points of uncertainty are visible to users. Uncertainties within museum data are pervasive because of the convoluted and hasty nature that most collections were acquired under. Further, details that were important at the time of collection centered Western and white priorities while intentionally erasing other ways of knowing (Patin et al. 2020). These uncertainties are still present within the data, and in fact, incomplete object records are seen as the norm. Many practitioners are grappling with how to make uncertainties more prominent, rather than let them disappear within the documentation infrastructure. Some practitioners have noted that the task of creating robust documentation should be a museum-wide effort, involving the efforts of curatorial and exhibition staff as well (Mulkerin 2013). In the natural science data, it has been argued that noting places of uncertainty (Faniel et al. 2019; Vollmar et al. 2010) makes collection data stronger and more accurate for future re-use.

Rather than trying to fill in the gaps, other scholars have argued for using points of uncertainty and silence to write ‘*narrative[s] of what might have been or could have been*’ (Hartman 2008, 12). Uncertainty can also be used as an advantage during decolonial work. Alirio Karina, speaking on the uncertainty of object records in the Smithsonian’s African ethnographic collections states, ‘*Uncertain objects...which form a significant portion of African ethnographic collections – offer an opportunity to think outside of a fixing imperial gaze*’ (Karina 2020, 18). These brief examples demonstrate the multitude of ways memory institutions and those using their collection data are grappling with the idea of uncertainty, but the consensus is that it cannot be ignored.

Consider context

The 6th principle of *data feminism* urges us to consider the context of the data we use and question how it came to be. In a museum context, this includes who collected the original data, for what purpose, and what data-cleaning efforts have occurred since the original documentation. Hannah Turner, speaking specifically on the colonial legacies of ethnographic collections states, ‘*when museum documentation is seen as neutral...we must question what the origins of this objectivity are, where it comes from, and how it stands to last*’ (2020, p.5). Furthermore, she argues that data cannot be detached from its repositories and their initial aims for collections. Many museums were founded from private collections or ‘*cabinets of curiosity*’ (Strassor, 2012) and later aggregated into public institutions. That means both the collection biases and the data associated with them are in many ways limited by these early collecting efforts. Many anthropological and natural history collections were systemically created with specific calls out to scientists and government officials

for desired objects and species (Parezo, 1987; Turner, 2020); their documentation practices followed a similar positivist methodology. Finally, museums have a long history of helping to legitimize nation-state efforts in colonization and genocide, often through their documentation (Onciul, 2015). This context should also not be overlooked.

Make labor visible

‘The world of data science, like all work, is the work of many hands. Data feminism makes this labor visible so that it can be recognized and valued’ (D’Ignazio and Klein, 2020, p.173). This principle centres around the fact that much data work, especially within large tech companies is unknowingly obtained (Morreale et al., 2023), or the labor of people of colour that are drastically underpaid and purposefully rendered invisible (Gray and Suri, 2019). D’Ignazio and Klein also note that the labor of data entry is dramatically undervalued, a trend most similar to what has historically and presently been the case in museums.

Museums have a long history of undervaluing data entry and rendering this work invisible. When computers were first integrated into museum collections in the 1960s, many museums hired women trained as ‘key punchers’ to transcode collection data into the digital medium. This work was viewed as unskilled labor that came with its own industry standard, not as a component of the knowledge production process (Lindsay, 1968). Connotations of data entry work as unskilled have been perpetuated, with consistent trends of hiring students or unpaid interns to do data entry or attaching precocious funding to it through short-term positions (Bryant, 2022; Südkamp, 2021).

Invisibility also relates to the original purpose of museum records. They were created for internal purposes, not meant to be shared with the public. This placement of museum data as part of the museum infrastructure meant that by design, the documentation (and as a result those creating and maintaining the documentation) are designed to fade into the background of the environments they operate within (Bowker and Star, 2000). As such, rarely are museum records ‘authored’. This amplifies the bias problems explored above as it is often unclear who did the documentation under what circumstance, similar to ‘black boxing’ that happens in data science. Some museums are trying to work against this by considering the knowledge work that goes into museum computing and are considering ways to author museum records.

A noticeable trend regarding museum labor is the push by practitioners to recognize that museum data work is contingent and low-paid (Bryant, 2022; Rodriguez et al., 2019; Südkamp, 2021). This follows trends in other memory institution work, highlighting the high rates of burnout and exploitation in jobs that have been framed as a ‘sacred calling’ (Ettarh, 2018) like librarianship. In museums, especially since the Covid-19 pandemic we have seen mass unionization efforts (Horowitz, 2020; Middleton and Hagen, 2022; Ripley, 2023). The parallel efforts for work visibility are a valuable intersection that data science and museum studies could benefit from further cross-discipline collaboration.

Conclusion

Data feminism is a powerful framework with the potential for significant impact in LAMs, particularly in museums. This review begins to map the principles of data feminism to existing work in LAMs, revealing a longstanding awareness of the limitations inherent in the data schemas that structure collection data. However, it also highlights the need for museums to avoid over-reliance on external researchers and community members to add plurality and embodiment to their data. There is a clear necessity for practical data guidelines for museum practitioners who actively resist harmful notions of objectivity from the past. Additionally, more empirical research is needed to assess the extent to which critical data work is currently being integrated into museum collections, especially as data-driven practices and the use of robust AI systems and large language models (LLMs) continue to grow. Understanding how practitioners can resist harmful tech, and the power structures embedded within these systems will be increasingly vital.

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