Framing Data Curation as Museum Practice

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This paper describes a potential approach for framing data as a museum practice. These principles may be used to help people who are deciding how to present data to make choices appropriate to the setting and context of use as well as making data easier for an audience to make sense of. This paper next considers different possible levels of engagement with data and its interpretation and use within data stories, starting from raw data sets, moving towards stories from data and finally how the act of embodying data as data drama or experiencing data theatre may lead to new perspectives on it. We briefly describe a case study that used some of these ideas for creating future personas, or SciberPunks, for sustainable and more-than-human design scenarios.

Data curation, sensemaking, museum practice.

1. CURATION AS MUSEUM PRACTICE

The term curation originated as part of museum practice. The various curation roles in a museum relate to two types of practice. These are 1) the identification, procurement and management activities related to the museum collection 2) the selection, organization and presentation of museum objects for display as part of an exhibition. Activities for each include

IDENTIFICATION, PROCUREMENT AND MANAGEMENT

a) Collect: Identifying and collecting objects that are of interest to the museum and that are in scope of the types of things they are interested in. For example, if they are a museum of 20th century folk art they are less likely to want to collect and display 16th century renaissance paintings.

b) Archive: Collecting and storing information related to the object. For example, this could include recording all known details of the object and its history, as well as current information on where the object has been loaned/borrowed/displayed and also how it links to other artefacts either in the museum or elsewhere.

c) Preserve: To ensure the preservation of items in the museum collection, including understanding how items should be stored and implications of different ways of interacting with artefacts. Examples include strategies to prevent damage that may be caused by handling or using artefacts, or placing them in certain atmospheric conditions, such as damp or light. Also, understanding any dangers posed by the object towards the public, such as capacity to cause physical injury, to offend or be culturally insensitive.

SELECTION, ORGANIZATION AND PRESENTATION FOR AN EXHIBITION (WITH A FOCUS ON MUSEUM STORIES)

a) Sensemaking and story construction: to organize museum objects for the public with respect to an overarching story. In this role, the act of curating means selecting and presenting objects for an audience in a way that reveals interesting stories about i) individual objects ii) across a set of objects. To view objects together to see what extra insight this brings.

b) Present: To present objects in a physical or virtual space in a way that reflects the museum story. This may include determining the positioning of objects, the angles from which it is possible to view (for example a statue placed against a wall where the visitor cannot walk behind). It also includes defining the ways that people can interact with it, or alternatively how they are discouraged from interacting with it such as using of cordons, ’do not touch’ signs, or placing out of reach or behind glass. It also includes understanding how objects may provoke reactions particularly if presented in certain manner or juxtaposed against other objects.

c) Storytell: To convey the museum story to the exhibition visitors, including providing access to key information about individual objects as well as how they relate to the main exhibition story and to other objects. This could utilise, for example, information panels, audio tours, tour guides, AR applications, virtual gallery tours.
d) Visitor experience: visitors experience the museum story in different ways. How they engage with and understand the museum story may be influenced by a number of factors: the order in which they visit objects, the objects they pay most attention to, the extent to which they read provided information or make their own interpretation, whether they use a real or virtual tour guide that may pick out alternative highlights and stories to the intended curated exhibition and finally their own knowledge, cultural background and experience (Schorch, 2013).

Curation has more recently been used to refer to the act of collecting and presenting things on social media. One example is Pinterest, where people identify things they want to ‘collect’ and then present them under a common theme. Such curation practices are often more lightweight than traditional curation practices of museums, for example there may be less thought given to relationships between objects or stories that can be told about them. Often the content collected is a replica or snapshot of some existing content and so a specific aspect of the original is preserved but not the item itself.

The common acts of curation in both these cases are that the objects somehow belong together under some theme, that someone (the curator) interprets them in that context - even though other groupings/contexts could be possible - and that they also show how these various things are related to each other.

2. CURATION AS DATA PRACTICE

Data is curated at several points within its lifecycle. These include the curation of data for reuse as well as the curation of data within a particular context, such as when using that data to communicate a story to an audience and where the data may be evidence for the story. One common example is the use of charts and graphs within news stories to show trends in data, recently seen a lot in stories about Covid-19.

It is possible to draw clear parallels between the curation activities in museums and data curation. Similar to museum curation of objects, data curation relates to the activities of managing and improving data after it’s generation. The aim of data curation is to ensure its availability and reuse in future. Based on the data curation lifecycle model proposed by Digital Curation Center (DCC), “Data curation is a process of selectively implementing ongoing and systematic maintenance and management of reliable scientific data of reuse value from its generation in line with scientific data lifecycle to ensure reuse and value addition of the data, including a series of activities such as scientific data planning, data creation or collection appraisal & selection, organization & disposal, description, transformation, storage and reuse” (Zhang and Zhao, 2017). Table 1 shows clearly this relationship between curation of museum objects and the curation of data, for both curating data for reuse and within the context of creating evidence based stories.

<table>
<thead>
<tr>
<th>Curation Activity</th>
<th>Data</th>
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<tbody>
<tr>
<td>Collect</td>
<td>Identify and collect relevant data that is relevant to the theme of an (open) data repository. For example open research data, open government data and so on. This separation allows each type of repository to offer specialized support.</td>
</tr>
<tr>
<td>Archive</td>
<td>Research and capture metadata, including the data provenance and also usage history (information on where it has been loaned/borrowed/displayed).</td>
</tr>
<tr>
<td>Preserve</td>
<td>Understand appropriate and inappropriate contexts of use for the data, for example bounding the geographical area in which it has relevance. Consider privacy and security concerns of data, GDPR, data bias.</td>
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<tr>
<td>Sensemaking and story construction</td>
<td>Identify stories within and across datasets (using the ParCos Data Explorer, upcoming deliverable D6.2) and understand how the data evidences a particular view on a science story. Understand and visualize relationship between datasets, e.g. placing on same graph to see what extra insight this brings.</td>
</tr>
<tr>
<td>Present</td>
<td>Decide how to present data in the context of the participatory science story. Consider the potential emotive aspects of the data. Will the data be presented in digital or non-digital form. To what extent will it be interactive?</td>
</tr>
<tr>
<td>Storytell</td>
<td>Convey the participatory science story to the audience, including deciding a) what information is needed to be shown about a data set in the context of a story b) how to make clear relationship between dataset and the overarching story c) how to show relationship between different data sets.</td>
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<tr>
<td>Visitor experience</td>
<td>The audience participates in the story by bringing their own interests and experiences to understanding the story and associated datasets. They build an emotional connection towards the story and the issues revealed via the data that evidences it.</td>
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Table 1: Framing data curation against museum practice
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The aim of making such analogies is to show how intangible objects such as data may be considered as an artefact, much like a museum object, rather than something intangible and that this framing may in turn help those who are deciding how to present this data to an external audience.

3. FOSTERING NEW EXPERIENCES WITH DATA

When data is used as part of data storytelling, constraints are often placed on the ways that data may be interpreted within that particular context and setting. For example, telling a story from data often means defining the specific time and place (setting) that is of relevance to the story being told or choosing specific attributes to focus on. When presenting data alongside a story, ensuring that the presentation and curation of data in that context reflects the boundaries placed upon it by the story being told may help the audience to make sense of the data. However, this may in turn limit the potential of the audience to start to make sense of the data for themselves, or to find their own angle with it.

The conceptual model in figure 1 shows that starting from a data story, there may be two ways in which to increase audience participation with data. The first is to provide access to the data, possibly first using structured ways but then moving them towards less structured exploration and finally raw data. We view this as a move from a data story towards data narrative (the space of possibilities within related data sets from which a story could be told) and ultimately the data events which are the events relating to the raw data collection itself.

In the other direction, we see that embodiment of data through arts-based approaches may support finding different perspectives on the data. We frame this as data drama where an audience use a variety of embodied approaches in their own interpretation of data to help explore moral issues and develop empathy, or data theatre where others perform data to an audience in ways designed to give a different aesthetic experience than the norm.

4. CASE STUDY

We have previously used this approach in a project designed to develop future personas, called SciberPunks for more than human design (Wolff et al., 2021). SciberPunks are augmented humans with the capability of understanding directly and communicating about environmental data. They are intended to reflect different environmental concerns, derived from real data sets, and be able to reflect them during a design process, answering questions about how certain design choices may impact the environment according to what the persona would say or feel about them. In this approach, we collected and initially curated data to make it easier to engage with, including the use of an overarching data story that provided a structure for engaging with a set of activities that encouraged experiencing the data in different ways. These were especially designed to build empathy towards environmental concerns. This included role playing with the data in the process of building the SciberPunk characters as well as making sketches and stories about them. The SciberPunk characters themselves embody the data and communicate it in different ways. In relation to the museum model above, the creation of SciberPunk reflects several of the museum data curation practices described above. The first is in relation to the management of the data. The available data was thoughtfully curated in a way that made it easier for the people reusing it to understand it for the purpose of informing the development of their SciberPunk characters. Next, in a co-creative fashion participants in the SciberPunk project...
constructed their own narratives about their Sciber characters and the particular aspects of the environment they were concerned about. This is essentially an act of storytelling and deciding which parts of the data are interesting for their character and how to convey that. Finally, the visitor experience refers to the secondary use of characters, when other people encounter or use SciberPunk characters in their design or to understand more about the environmental concerns they were created to represent. In terms of the model shown in Figure 1, the SciberPunk also represents a Data Storytelling entrypoint to understanding the data that was used in the construction of the character. However, SciberPunks could also be used in Data Drama or as part of Data Theatre. In these modes, people would either act their character to gain more understanding of what it represents and to find their own relationship to nature through the character (data drama) or else watch the character being performed by someone else and see how that person has chosen to interpret it (data theatre).

Figure 2. Sciber characters being performed. Picture courtesy of Lasse Kantola and character design by Jon Lautala

5. CONCLUSION

This short paper describes an approach for framing data curation in the same ways as in museum practice in order to support development of experiences with data that go beyond typical data visualisation and which encourage engaging with the data through stories and embodying data in different ways to achieve different viewpoints and understanding of it than normally occurs through more traditional means.

3. REFERENCES

