



CITIZEN SCIENCE AND SCHOLARLY COMMUNICATION

Issues, Challenges and
Opportunities for Libraries

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ECODOC

Linking knowledge

ECODOC project: building a device for visualizing the dialogue between scientific and lay knowledge.

- *cartography to identify, differentiate and link knowledge*
- *a catalog.*

Citizen science and the production of scientific information in an academic context by non-scientists:

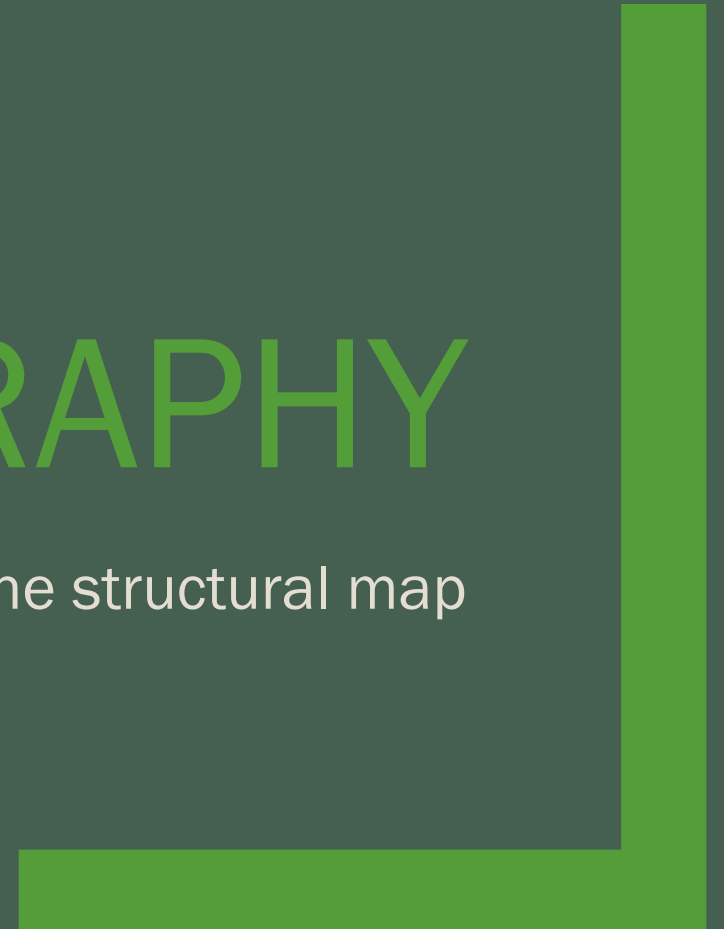
- *Is the distinction between scientific and lay knowledge effective?*
- *Do CS projects lead to a new approach to expertise and knowledge production?*
- *For our device: do we need to think in terms of new authors, new forms of writing and perhaps new production formats?*

Drawing up an initial map of Citizen science publications

- *Methodological and experimental stage*
- *Plan: method for building this cartography, issues of identification, specificity and relationships, for librarians and for our device.*

CARTOGRAPHY

Building the structural map





BASIC STRUCTURE

To begin the map

Project Information

1. General information about the project:
 - *Temporality of the project*
 - *Type of participatory project*
 - *Location*
 - *Object of study/Topic*
 - *Project actors*
 - *Project funding*

Introductory elements of the object

The table describes each knowledge object with identification details:

2. Knowledge object

- *Title*
- *Digital File Extension*
- *Materiality of the object*



TRANSLATIONS

Translations

- Latour: Cascades of translations
- Callon, Lascoumes, Barthes: Dialogic democracy
- Citizen Science: Cascades of parallel or consequential translations?

The table describes each knowledge object with elements of temporal description.

3. Temporality of production :

- *Production time*
- *Calendar order*
- *Consequential order*



KINSHIP

Kinship

Donna Haraway: kinship, stories and narratives

Towards a common culture.

Impressions

- What impressions does the author/producer of a knowledge object leave?

The table continues with a description of the authors

4. Authors

- *Nature of authors*
- *Quality of authors*
- *Number of authors*
- *Type and level of contribution of different authors*

Narratives

- What does the knowledge object tell, and what narratives does it echo?

The table suggests elements that give access to content and narrative.

5. Content & Narration / Narrative

- *Description of content by interviewed researchers*
- *Enunciation of the issues by the researchers interviewed*
- *Narrative form*
- *Protagonists of the narrative*
- *Keywords*
- *Recipient*

Traces

- What interests us in the trace is not so much what it says about the object as the object's subsistence: where do we find it? How do we find it? How can it be read?

The table describes these issues in terms of the accessibility of the object of knowledge.

6. Accessibility of productions / Traces

- *Distribution space*
- *Access date*
- *Institution managing distribution*



FILLING THE TABLE

Methodology

The table has therefore been organised according to these 5 categories, which are directly linked to the research project under study and the objects arising from it.

We then conducted interviews :

- *with the scientific leader of a Citizen science project, rather than with the other parties involved: we were looking for (at first) a list of products, rather than a sociological approach to production.*
- *Focusing on a single project to question the construction of the pattern/model*

The table was constructed in several stages, alternating between interviews, theoretical readings and research on each identified object of knowledge.



DIVERSITY OF KNOWLEDGE OBJECTS

Diversity of objects

Objects

- 33
- 21 accessible on different locations: web site of the project, YouTube account of the funders, preprints sites, etc.
- 4 preprint papers, 2 published.

Authors

- Papers' authors : Researchers only. One paper counts 50 authors.
- Other documents' author: mainly researchers, but also participants (mainly without researchers).
- Non academic Authors are only once authors of a scientific publication (slides of a conference) but named by the project title.

Nature of objects

- Wide variety: papers, augmented papers for schools, protocols, augmented protocols, comics, videos, pedagogical supports, art, etc.

Temporality

- Objects produced all along the scientific process, as usual
- But the production of mediatic objects are made by participants and not by outside producers (journalist, scientific mediator, etc.).
- It's very difficult to have a clear chronological sequence between objects: because object functions change according to their distribution, because the boundaries between object functions are porous, and because few objects have a clear link of consequence.

Impacts

This diversity shows just how far we'll have to go to make the most of these productions, compared with our usual library habits.

1. *Taking an interest in objects of different kinds*
2. *More numerous than we think*
3. *And cataloguing them will be complicated as the authors are not identified on a permanent basis.*

The system designed to take account of this diversity should :

1. *Offer a real search by successive facets.*
2. *Offer a visualization of the whole to make the richness visible. Tools such as Cosma (Arthur Perret 2022) could facilitate this visualization.*



DIVERSITY OF NARRATIVES

Diversity of each object

Objects have many lives. One object can have :

- *Different functions*
- *Different recipients*
- *Different dates of diffusion.*

This diversity make each object able to tell different stories/narratives.

Describing these knowledge objects assumes that each knowledge object is unique. An object is a unit. However, filling in the table has enabled us to see that what we initially consider to be one and the same object may in fact be the subject of several modalities of manifestation, appearance, use and so on.

Diversity of each object 1/2

Descriptions

- *Differentiate between nature, function, form and story type to get a complete description of each object.*
- *For example, Oak bodyguards is a comic book (nature) whose initial function is to promote the project (function), in the form of an illustrated text (form) of a fictional-narrative type (story type).*
- *Need for detailed metadata to understand the specificity of each manifestation of the object.*

Diversity of each object 2/2

Functions

- *If an object can have only one nature (it may or may not be a teaching aid or a tweet or a protocol), it can have several functions.*
- *These dual functions can be simultaneous: a course support can be used as a teaching tool and at the same time as a celebration tool.*
- *They can also be temporally distinct. The video made by the participants has a celebratory function when it is broadcast by the participants, and will have a promotional function later when it is broadcast by the researchers.*
- *Each object carries a distinct narrative depending on whether we look at it from the point of view of its production or its dissemination (and therefore of its places and recipients).*
- *An interest in the intention that manifests itself in these shifting functions.*

Impacts

This diversity of subject matter also calls for new library habits

1. *Take an interest in the authors' intentions in production and distribution.*
2. *Include time in catalogues. And time for the same object of knowledge. Not the different objects produced from one work, but different manifestations of the same object.*
3. *The object as a collection?*

The system designed to reflect this diversity should :

1. *Propose a multi-layered temporal visualization. A kind of 4D visualization.*
2. *Be complemented by a visualization of the semantic issues raised by metadata.*
3. *A set of representations of the nature/function/form/type of story to make it easier to understand: more than just terms, color schemes (as in Cosma) or graphics.*

Conclusion

Does this study enable us to answer our initial questions?

Is the distinction between scientific and lay knowledge still operative?

- *Yes, the interplay of functions, forms and natures, as well as narratives and recipients, means that the scientific/profane distinction can still be seen as operative.*

Don't CS projects lead to a new approach to expertise and knowledge production?

- *Yes, if the authors are valued and their impact can be truly measured.*

And, in fact, don't they require other elements of consideration in our device, since they invite us to think about new authors, new forms of writing and perhaps new production formats?

- *Not so much new authors, forms and formats, as new relationships between objects of knowledge.*

Opportunities for librarians

>>> take a greater interest in all the objects produced, because they enable us to truly measure the impact and reception of these projects, which should be communicated not just in terms of scientific results, but also in terms of their social impact.

- *This echoes the question of the concept of “documentary hospitality” (Bats, 2021).*

>>> Work to highlight the relationships between objects from angles not previously studied: the temporality of the lives of the same object, intention and function,

- *This is in line with current thinking on bibliographic transitions. Perhaps this is the next step.*

>>> Examine visualization within catalogues. Think 4-dimensional visualisation, including space and time.

- *AI could be of some help here.*

And now?

1/ Repeat with other participatory projects to see if, depending on the type of project/discipline/whatever, you get a different visualization. Move from experiment to model.

2/ Repeat with non-participatory projects that generate a lot of mediation, to see what kind of visualization emerges. Think about the difference between media knowledge and lay knowledge.

3/ Study stories and see what common culture emerges.

THANK YOU!!!

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