Visualizing Theory in Context to Aid Teaching, Learning, and Applying New Ideas in Interdisciplinary Research

Theory and CSCW research can benefit one another. Theory can offer new lenses through which to predict, observe, and interpret computer supported co-operative work, and the CSCW community can improve theory by testing it in novel and quickly-changing socio-technical systems. I believe we can improve the teaching, learning, applying, adapting, and developing of theory by recognizing the unique challenges of our interdisciplinary work and collectively creating a tool for exploring theories, epistemologies, methodologies and relationships among them.

In strictly disciplinary fields, PhD students apply to work with a professor whose work they admire, and whose theoretical perspective they may take as a starting point. Students take classes that cover the theory in their discipline or subfield, and those theories may be covered by comprehensive exams. They publish and read papers, go to conferences, and collect new ideas and models from others in their research areas as they emerge. A given research problem or area may have a few competing theories, which are informed by a small set of epistemological perspectives and support a familiar range of methods. Occasionally, a multidisciplinary or visionary researcher will import or adapt a theory from another discipline. A system in which researchers inherit theoretical perspectives from their mentors and collect and develop them through reading and research is good way for theory to propagate and evolve, and in disciplinary fields, this method may be sufficient.

In interdisciplinary fields, like many which contribute to CSCW research, learning and applying theory is more complicated. It is difficult to teach and learn a thorough overview of theory. Even small cohorts of PhD students can have broadly diverse backgrounds and topics of interest. Even within a single topic area, theories that describe related phenomena can emerge from multiple disciplines. Often, the theories have different epistemological perspectives and support different methods to address the same research problems.

Interdisciplinarity doesn’t just pose a theory-learning problem for new PhDs. When a research problem could benefit from several theoretical perspectives, it can be challenging for even a seasoned researcher to find and select the best theories and methods. Trying on a new theoretical perspective to understand a phenomenon can be challenging without knowing what of your familiar perspective and techniques still apply. If an interdisciplinary researcher, faced with a research problem, were able to more easily and efficiently explore new theories that could apply to her phenomena of interest without abandoning the context she’s built around her existing expertise, she would have more flexibility and success learning from, applying, and adapting theories with different intellectual heritage.

An understanding that connects theories to one another, their epistemological heritage, and methodological implications is ideal, but difficult to achieve. To improve the teaching, learning, application, and development of theory in social research, I propose an open-source, linked dataset covering social science perspectives and techniques from epistemology, through theory, down to methods so that researchers can explore new ways of looking at and seeking answers to their research questions while maintaining context and empowering them to build on and share their areas of expertise.

Additional benefits to the proposed data set include:

* A centralized lexicon with which to build consensus and identify areas of unresolved conflict or under-explored topics
* An opportunity to share and connect with social researchers across disciplinary and topical boundaries
* A resource for training new PhDs (including by critiquing or extending the dataset)
* A visual mnemonic to clarify and remember confusing distinctions and connections

I have created a seed for this dataset that sketches out the big picture and gives us a place to start. It should be taken with three caveats.

1. For a comprehensive science education, a rich, narrative description of philosophies and perspectives of science is indispensable. **This project is not an attempt to replace difficult synthetic and critical thinking with simple chart**, but instead an effort to create something like a genealogy chart that guides and grounds a reader through a complex history or novel.
2. I am not an expert. I am a second year PhD student who is still learning the ideas this map is intended to guide folks through. I have never applied or even encountered a devotee of many of them. For this reason**, the content of this dataset cannot be dictated by me.**
3. I have investigated the meanings of and relationships between these concepts at a particular point in their dynamic history**. The content of this project must not be set in stone.**

Given these things, I suggest the following.

We polish and release open-source 3 seed csv files that I have created, or some version of them that has been improved by people more expert than me.

Currently, they cover brief definitions of and citations 95 [concepts](https://drive.google.com/open?id=0B6bF8E3NIIeiUjlMajY0Y19jOXM)-- epistemologies, ontologies, theories, methodologies, and methods-- along with about 130 “triples” that describe their [relationships](https://drive.google.com/open?id=0B6bF8E3NIIeiSTJ1TlY4T2lmTFk) to one another, and a document that defines the [controlled vocabulary](https://drive.google.com/open?id=0B6bF8E3NIIeiZTZFVU1zdUJWODg) I used for the relationships.

For example, the concept “dramaturgical approach” is defined as “A theoretical perspective that identifies and interprets social practice and ritual (Crotty, 1998).” It has two relationships: “dramaturgical approach” is a “type of” “theoretical perspective” and a “type of” “symbolic interactionism.” The concepts “dramaturgicical approach,” “theoretical perspective” and “symbolic interactionism” can be visualized in a network as a nodes, and the two instances of “type of” are edges.



Figure 1: An example of a network diagram that could be produced with a linked dataset

The dataset can be accompanied with a visualization—something like I mocked up in Figure 1-- a draft syllabus and other ancillary materials that could help folks efficiently and effectively use the information. I welcome ideas about these materials, and hope that, once we publish the data set, the research community will improve and add to the data and materials that will suit the community’s needs. This way, not only will we be able to generate a more accurate, granular, and usable dataset, we will be able to see where the most controversy among experts about definitions and relationships lie. We can learn and apply new theories better, and we can understand one another and our work better.

**References**

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