Navigating Knowledge: Nifty Tools for Nimble Networked Learning Researchers

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Intended audience

Teachers, researchers, and research students who are interested in knowledge modelling methods and enhanced search tools that can be used in networked learning research.

Workshop description

In this workshop, we will demonstrate four research tools: 1) card sorting, 2) upward laddering, 3) think-aloud, and 4) a search visualizer.

Card sorting can be useful as an exploratory knowledge modelling method to gain insight into people's understanding of their surrounding world. Derived from Kelly's Personal Construct Theory (PCT) (Kelly, 1955, Herd, 2001), card sorting can help to explore peoples' constructs and their perceptions of how the constructs relate to each other; in other words, card sorting can help to elucidate mental frameworks. Although there are many kinds of card sorting, we will guide participants through a hands-on exercise using single-criterion card sorting (using both digital and in person techniques). Participants will learn about text-based, image-based, and object-based options, when to use card sorting, how to collect data, and how to analyse card sorting data through visual-numeric 'heat maps' (co-occurrence matrices).

The card sorting exercise will lead into upward laddering, a technique that is often used to complement card sorting. While card sorting provides evidence of how constructs are related, upward laddering allows exploration into goals and values (Rugg & Gerrard, 2023). Workshop participants will have an opportunity to access a simple, robust, newly created online tool for upward laddering.

Also used alongside card sorting is the think-aloud method which involves both observation to see how people perform a task and think-aloud to hear what people are thinking and noticing while they perform the task. This inexpensive, easy-to-use method allows researchers to tap into reasons and tacit knowledge.

The fourth tool we will demonstrate is a newly launched search visualiser (SV). Using keywords, this search tool allows researchers to comb through specific databases and/or to access Google results. Rather than simply return a list of links to articles, the SV returns a visual depiction of the keywords within each text. Each key word is represented as a coloured square. A user can hover their mouse pointer over a given square to see the phrase within which the word appears. Using this tool, researchers can get a better, visual sense of whether the article is likely to offer useful content. There is now a version with audio for visually impaired users as well as a version that can explore synonyms to support textual-literary analysis.

Participant engagement & activities

This workshop will be fun and informative. It will involve some introductory explanations with more information given during the hands-on activities. Participants will be encouraged to ask questions and make suggestions throughout the session. The general organization of the workshop will follow this pattern:
1. **Expository segment**: A brief explanation about each knowledge modelling method. (15 min)
2. **Hands-on activities**: Working in small groups, the workshop participants will interact with both physical and digital tools. (45 min)
3. **Feedback and discussion**: The workshop participants will be encouraged to critique each method and share their reflections on how they might apply these tools in their own current or future research. (30 min)

Participant Outcomes

- Describe basic card sorting procedures using text, images, and objects.
- Participants can download a free, Java-based card sorting analysis tool that outputs 'heat maps'.
- Explain what co-occurrence matrices can reveal about card sorting data.
- Describe the basic process for upward laddering.
- Explain why a researcher would use upward laddering.
- Describe the basic process for the think aloud method.
- Explain why a researcher would use the think-aloud method.
- Conduct a search using the VS.
- Given data (a list of articles) from a VS search, explain which articles are more likely to address a research question.

Alignment with conference themes

This workshop is aligned with the theme: *Philosophies, theories, methodologies, and research designs for networked learning (e.g., postdigitality, posthumanism, phenomenography, phenomenology, social network analysis, socio-material approaches).*

Within complex research designs, it is tempting for researchers to assume that data collection tools/methods are clear, that interview questions are phrased appropriately (linguistically, socially, and culturally), and that underlying assumptions about who the participants are and what they know are accurate. We argue that the methods and tools shared this workshop are easy-to-implement, relatively quick, and robust. By virtue of their simplicity, they can help to elucidate completeness, representativeness, and consistency of participants responses and knowledge (both tacit and semi-tacit). The methods and tools can support more complex data collection methods and methodologies.

Exploration, testing, and analysis of methods—whether old or new—is important in social sciences research. Networked learning in which both human and non-human actants are recognized (NLEC Collective, 2020) can benefit from knowledge modelling tools by helping researchers better understand peoples' constructs and their perceptions. Some of the methods we will demonstrate have been selected because they can reduce bias from linguistic or cultural characteristics (i.e., card sorting) that might interfere with accurate communication between researchers and participants. If networked learning focuses on human/inter-personal relationships, technology (especially digital communications technologies), [and] collaborative engagement in valued activity (joint inquiry, knowledgeable action, etc.)" (NLEC Collective, 2020, para. 9), then it is important to ascertain what people's values are, what they consider knowledgeable, and to build authentic relationships. The tools we will demonstrate can provide different ways of looking at information and support networked learning research.

References
* A longer page of references will be supplied to the workshop participants

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