Visualize your research: Explore a subject area with concept mapping

We all have an inner astronaut. This one is a little overwhelmed by how much information is out there. It is not the easiest thing to keep track of where you've been and what you've discovered.

As we learn about concept mapping together, we'll show the astronaut that it is possible to get a handle on any subject area.

Now, let's suit up and get going with **four basic steps** to building a concept map.
First of all, every good map responds to a focus or research question. The focus question spells out the problem that we are working on. For example, the astronaut is interested in how to safely land a rover on Mars, and has the question:

**How do we assess engineering considerations for Mars rover landing safety?**

Step #2 is to choose concepts that describe the objects or events involved. On average, we would try to come up with 15 to 25 concepts that are important for answering the question.
The astronaut already has broad concepts in the question. The focus is on engineering considerations and landing safety, but we will need to help brainstorm others. It’s okay if we don't have as many as 15 in the beginning.

Step 3 is to arrange the concepts hierarchically, from general to specific.
The map is taking shape.

The last step is to connect concepts with words or phrases to define the relationships. This is actually the most difficult part of concept mapping. Concepts on their own are not as meaningful and don’t demonstrate understanding, unless we describe how they are related.
Back to the astronaut's landing site selection. It's important to be as brief as possible when connecting concepts. The concepts and linking words will form propositions, or statements, so that the map can be read at any point. Maps are always works in progress. As we continue to read papers and visit websites, our maps will grow.
Wait, the astronaut wants us to know that there is a great article on this topic.

Actually, it can be really helpful to map a review article that gives an overview of a subject area, or a seed article, where a particular issue or solution was first described.

Here is how it works...

**Selection of the Mars Science Laboratory Landing Site**

What were the engineering constraints important to the selection of the Mars Science Laboratory Landing Site?

A research question can be pulled out of the paper. The astronaut already defined a focus question but another example could be: What were the engineering constraints important to the selection of the Mars Science Laboratory Landing Site?
We next circle the main concepts while reading the paper and arrange them hierarchically, as we saw in the steps. These concepts are keywords that can also be used to search Google Scholar and subject specific databases.

Documents and links to websites can be added directly to concepts using a software, such as CmapTools. It will help to keep track of important resources.
The good news is that the astronaut is learning a lot from concept mapping and is ready for feedback from a professor. Every map benefits from sharing it with others.

And now it is your turn to practice the steps. Organize the main ideas from important papers, websites, and media. Share your map with others and use it in the design of a search strategy to expand your knowledge.

You are welcome to make an appointment to come by for help one-on-one.

We look forward to seeing your maps!

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