Creating Concept Maps

by Hugh Dubberly

A concept map is a picture of our understanding of something. It is a diagram illustrating how sets of concepts are related. Concept maps are made up of webs of terms (nodes) related by verbs (links) to other terms (nodes). The purpose of a concept map is to represent (on a single visual plane) a person's mental model of a concept.

Concept maps provide a useful contrast with essays. With a concept map, a viewer can see both the forest and individual trees. The big picture is clear because all the ideas are presented on one surface. At the same time, it's easy to see details and how they relate.

Examples and a good description such as those described by Gowan and Novak (in Learning How to Learn) are helpful for understanding concept mapping. An exercise in which you make a simple concept map (with eight to 12 terms) may also be helpful.

The first step in concept mapping is to generate lists of words related to the main concept. The list can come from research, reading, experts, brainstorming, or any other source. Sharing lists from members of a development team will help generate other words.

The second step is to edit the list. Some terms may be related to the subject, but not in a way that meets the project goals.

The third step is to define the terms on the edited list. This is particularly important with unfamiliar or technical terms. But it also helps with familiar terms, too.

A useful exercise is to create a matrix listing all the terms down one side and repeating the list across the top. The relationship between the terms is noted in the boxes where a row and column intersect. The resulting matrix of relationships provides a checklist for building the concept map.

Another important step is ranking of the terms. Simple "triage" may be sufficient. Some terms are key to defining the concept. Others are clearly details. Some fall in the middle. The ranking provides a way to begin to look at building a structure. Primary terms may be candidates for an armature sentence.

One approach is to ground the primary concept within a sentence that also contains the other two or three most important terms. A first sentence might set context; a second sentence might define the main term branching out at 90 degrees from the first sentence. The armature sentence provides a starting point for the map. From there, you can add secondary terms and then the details.

Another approach, is to look for a structure or model to underlie the concept map. For example, brand is a type of sign. Signs have three components. Those three components become the anchor points of the concept map. Innovation is a process which repeats, oscillating between convention and innovation. The process provides a structure for the concept map.

Making a concept map in an area that is well defined is sometimes fairly easy -- if the information space can easily be found and if most authorities agree on it. For more ambiguous topics, a great deal of time may be needed to agree on scope (which terms are in or out) and on structure (how those terms relate). This process can take several weeks or even several months.

Once the terms and structure are agreed to, you can move to a second phase: giving the map an appropriate typographic form — to make the typographic hierarchy support the structure of the content.

Main steps in creating concept maps:
- List terms
- Edit the list
- Define the remaining terms
- Create a matrix showing the relations of terms
- Rank the terms
- Decide on main branches or write framing sentences
- Fill in the rest of the structure
- Revise
- Apply typography to reinforce structure
- Revise