



the owllet

WHERE SCIENCE TEACHERS GET CURRENT

Organization of knowledge and effective recall via building networks or web diagrams

Definition of knowledge network in memory: Organization of meaningful information in a logical and interrelated manner in such a way that the information encoded in memory can be effectively retrieved. The information that is organized properly can be available for efficient recall and application.

Important issues to remember:

1. Present the **context** continuously during the lesson:
The appropriated and relevant information is recalled when prompted by the context. The frontal lobe organizes the access and retrieval of stored information. In order to assemble the information the context is important (sociopolitical, geographical, etc.). Since working memory (WM) is limited, the context should be revisited constantly “Where are we going” and as the lesson continues new ideas have to be related back to the context “Where are we now”.
2. Establish a **clear relationship** between labels and the context as well as explore the linking pointers with students.
Label: word, representation or iconic picture such as a building (the white house), an organelle, etc. Working memory is limited, thus labels that represent chunks of information (categories) provide a better way to store information rather than individual items.
Pointers: goes with the label and indicates what other elements can be associated with it in a logical and meaningful way. The more pointers, the more elaborated and sophisticated the knowledge network. Which pointers are mobilized by the frontal lobe depends on the context. Forward and backward, reciprocal pointers help to develop strong linkages between labels and lend plasticity to the recall and retrieval of information. Also, emotional values (health of the planet, effects of advertisement of junk food to our health) on the linkages can lend strength to the encoding in memory.
3. An important refining point is to make sure the students understand the context under which the network is being recall by giving and example and applying it (How broad is the context?). The information should be general enough so that it can be applied to new situations.



the owllet

WHERE SCIENCE TEACHERS GET CURRENT

4. Use visual representation to show the network of ideas as they unfold during class. Multimodal representation helps because learning is achieved by the integration of multiple cues.

How to enhance networking of ideas: web diagrams involve the use of iconic pictures representing main ideas and verbal connections written in the links between labeled pictures.

The representation of the main idea is put in the middle or a big piece of paper. The secondary ideas are set in the periphery, as cards to be glue on by students as they construct the diagram in small groups.

The students then build a network and connect the ideas with double-direction links. On the links, complete sentences that characterize the relationship are written in the forward and backward directions (cause and effect, positive and negative, etc.).

How does the organization of information looks like when communicated by a person (narrative)?

The use of knowledge networks help students to communicate the ideas in a coherent and interrelated manner. The information stored in the mind is multidimensional but because of the linear nature of language, it has to be put in a sequential manner, it has to be organized. Here the number of labels and pointers makes a difference. For a rich, complex and coherent narrative, the more linkages and labels the better.

The finished diagram can be communicated in verbal or written (narrative) manner or both.

Teachers can analyze the narratives by flow-map analysis were recursive relational utterances are counted as evidence of linkage between ideas.