C-Map

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As a small collective dedicated to collective pedagogies, the CCRA currently claims a number of interconnected projects that weave together innovative, community-centered research, learning, and local capacity-building. The CCRA's investment in co-learning spaces generates critical analytical skills, research tools, facilitation techniques, and community service strategies able to address the intersections of environmental regeneration, community well-being, community safety, food sovereignty, and community health. For more info: ccra@mitotedigital.org

Concept maps, or c-maps, are systems of information that allow us to assess pre-existing knowledge, archive existing knowledge, and generate new knowledge. Although there are many different approaches to concept mapping, we have come to rely on the concept mapping techniques introduced by Joseph D. Novak in 1972 and later developed further in collaboration with Alberto J. Cañas at the Institute for Human and Machine Cognition (IHMC).

C-maps, according to Novak and Cañas, are "graphical tools for organizing and representing knowledge." C-maps consist of concepts, or "perceived regularities in events or objects… designated by a label" and propositions, or "meaningful statements" that contain two or more concepts connected with a linking word or phrase. As the c-map on c-maps below indicates, concept maps are collectively constructed tools organized in a hierarchical fashion taking care to note the interrelationships, or cross-links, between related concepts. Representations of knowledge are more precise when they are conveyed in propositions with linking words. A semantic map provides a more complete representation of knowledge that already exists, being co-generated, archived, and presented. A successful c-map making use of this approach is one that recognizes the context in which knowledge occurs often through a focus question. In addition, a sophisticated map highlights how concepts are interrelated, or cross-linked. Thus, the emphasis on propositions allows mapmakers to not only make more accessible maps but to also use map-making for a variety of purposes. An effective c-map maps the full extent of available knowledge, both internal and external, as well as the pace of knowledge acquisition.

Concept maps, like all knowledge production, are collective. Of course, a researcher can produce a c-map in the solitude of a cubicle but even that map reflects the accumulated and contested knowledge of the author's participation in a discursive community. In other words, like any text, a c-map reflects the debates and exchanges that inform a specific topic or dominate a particular field, discipline, or research area. When maps are the result of more deliberate, collective efforts they can expose the shared wisdom of the group and generate new knowledge in the collective effort of coming to agreement about how to represent newly generated knowledge.

Select Resources:

The Institute for Human and Machine Cognition at <http://cmap.ihmc.us/>

Joseph D. Novak and Alberto J. Cañas, "What is a Concept Map" accessible at <http://learn.cmappers.net/resource/1L2W8CZG2-KLRBP-25YK>.

Novak and Cañas "The Theory Underlying Concept Maps and How to Construct and Use Them" at <http://cmap.ihmc.us/publications/researchpapers/theorycmaps/theoryunderlyingconceptmaps.htm>

Joseph D. Novak, *Learning How to Learn* Cambridge: Cambridge University Press, 1984).

Joseph D. Novak, *Learning, Creating, and Using Knowledge: Concept Maps as Facilitative Tools in Schools and Corporations* (New York: Routledge, 2009).

Not surprisingly, this particular approach to c-maps can be put into service for a wide variety of purposes. For example, c-maps can be used as a facilitation tool to establish a process for a group to work collectively. As a facilitation tool c-maps can serve as a vehicle to present information, assess the state of knowledge of the group as it grapples with a particular text or concept, and generate new conceptualizations that can in turn be archived for a later date. C-maps can empower a group to distinguish the different knowledges present in the working space. In this regard, the map-making should make observable dominant knowledges, or those views understood as a common-sense about specific topics. In addition, the collective process of map-making should also expose alternative or minor knowledges, the ways of knowing that are oppositional or situated in relation to dominant knowledges. The success of horizontally facilitated map-making will be to produce a c-map as a system of information that not only maps the group's process but also exposes the competing discursive formations that intersect with the group. Thus, c-maps are critical tools to expose the epistemological dimensions of political projects by making it possible to assess, present, generate, archive, and disrupt competing knowledges present in any given project or text.
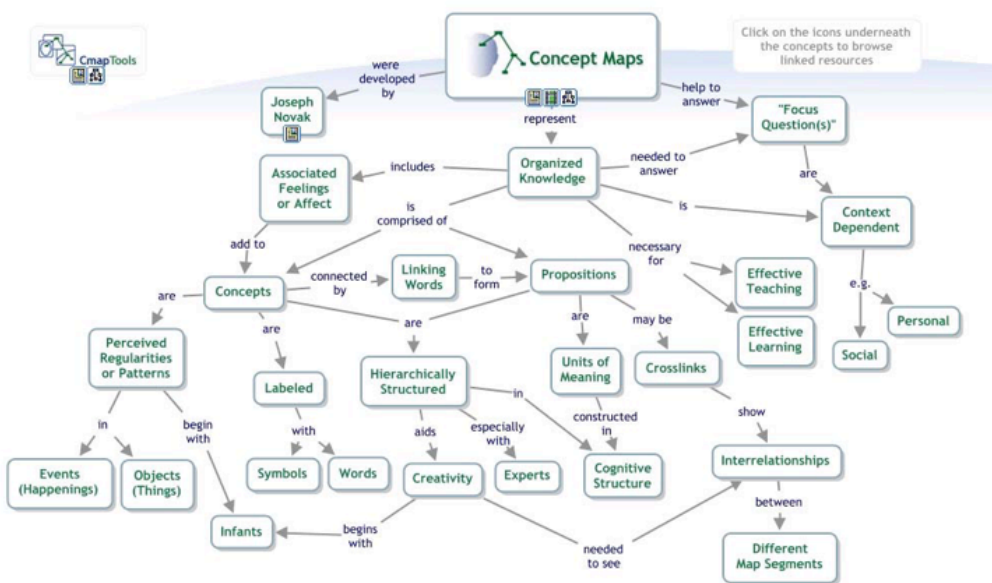
A c-map works most effectively as an assessment tool when it is deployed to determine the state of knowledge of a particular group —what the group knows it knows and what it does not know. This can be used, for example, when a group attempts to read a particular text and represent it through a collective c-map.

More than an assessment tool, a c-map can also generate new knowledge. The effort to represent a particular text will necessarily provoke new conceptualization(s) that can be included in the map or represented in additional maps.

An effective c-map can also archive the new knowledge that is co-generated by the group as it attempts to reconcile its existing knowledge with any new information. Once the knowledge claimed by the group has been archived, it can be available for further examination generating even more knowledge through critical reflection. The advantages of a c-map in this instance is that it is not a linear representation of the state of knowledge and therefore allows the presentation to become more of a collaborative process inviting observers to become participants and enter into the representation at any given point to further explore specific components of the knowledge being shared.

Constructing effective c-maps, whether collectively or individually, works best with a focus question that provides the context for the knowledge being produced or represented. It is suggested to "brainstorm" a list of related concepts making sure to organize them hierarchically. Once concepts are ranked and relations between them established a preliminary map will take shape. Successful maps are the result of revision. Effective maps will, in many cases, not feel complete or finished.