Title/Authors	Main Point of Paper	Experiments/Research Performed	Relevant Findings/Ideas
The Theory Underlying Concept Maps and How to Use and Construct Them (Technical Report IHMC CmapTools) by Joseph Novak and Alberto Cañas	Research supports that concept maps are an excellent means to construct and organize new knowledge and cue recall of recently-learned knowledge. With this in mind, the authors are essentially selling CmapTools as software that should be used in all schools. They boldly propose "A New Model for Education" centered entirely around concept maps created and maintained by CmapTools.	Exploration of literature grounding the development of CmapTools, as well as several examples of its use: • as a curriculum organizer/guide for both teachers and learners • "expert" skeleton maps created by experts in the field and available for learners • embedded media and hyperlinks in concept maps • "focus question"-centered inquiry • mapping an entire science textbook series (*The World of Science*) on CmapTools for student/teacher interaction	• It's most effective to create concept maps that answer specific focus questions rather than general topics. • Meaningful learning requires relating prior knowledge to new knowledge and defining relationships between them—concept maps ask learners to do just that. • Human memory is a complex set of interrelated concepts—so are concept maps (they explicitly model how our brains connect concepts). • Concept maps serve as a template/scaffold for learners to help them effectively integrate knowledge into long-term memory. • Concept maps are also effective in that they are visual—the human brain is proven to remember images remarkably well. • By creating concept maps for learned concepts, the learner "constructs" his/her own knowledge meaningfully. • Concept maps (and learning in general) are effective when constructed collaboratively.

Computers as MindTools for Engaging Learners in Critical Thinking by David Jonassen, Chad Carr, and Hsiu-Ping Yueh	Technologies should not support learning by attempting to instruct learners, but should be used to support instruction. Students should learn *with* the tool, not *from* the tool. The author calls these MindTools.	General survey of available MindTools for learning, including: databases, concept maps, spreadsheets, expert systems, systems modeling tools, microworlds, visualization tools, hypermedia,	• "The best way to learn something is to teach it" is true--MindTools support this b/c learners must teach computers what to do. • Using MindTools is not necessarily natural and effortless, but asks learners to think more deeply and meaningfully about the concepts. • MindTools support the constructivist learning philosophy—learners actively participate in the environment in ways intended to construct their own knowledge. • "The result of an intellectual partnership with the computer is that the whole of learning becomes greater than the sum of its parts."
Understanding Knowledge Models: Modeling Assessment of Concept Importance in Concept Maps by David Leake, Ana Maguitman and Thomas Reichherzer	Concept maps are a suitable representation for guiding the retrieval of topic-relevant information, regardless of their layouts. However, it is important to pay attention to topology (shape) use when the maps are intended to be shared with others.	20 college students answered questions about 12 concept maps that were vastly different in topological design and layout. For each question, students were given one map and two of its concepts, and were asked to answer which of the concepts best described the map's main topic or whether they were equal.	• Researchers found statistically significant results suggesting that most closely supported the Connectivity Root-Distance Model (CRD), which focuses on the node connectivity and direction of arrows in a map. • Essentially, this data supports the idea that as long as standard shapes and arrow-direction principles are applied, concept maps are

			easily understood by non-experts on the topics. The map layout doesn't necessarily matter, but the topology does.
A Comprehensive Use of Concept Mapping in Design Instruction and Assessment by Hanna Barenholz and Pinchas Tamir	Concept mapping enhances the performance when used as an educational tool in a biology unit (SORT OF).	Israeli students in grades 10 and 11 studied a new program in two groups—one used and constructed their own concept maps and one did not.	• The students who used concept mapping scored higher than those who did not…BUT the study's results were not statistically significant and they said the higher scores could also simply have been attributed to different academic abilities among students. • Most of the students could perform the concept mapping task easily without help from the teacher. • There was some opposition by both teachers and students to the process of concept mapping, and some teachers chose to exploit its benefits better than others (implies that our work may require some pre-written structured activities as examples for potential teacher users.