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Mental Maps and Classroom Technology: Multiple Points of Entry

Melissa Hediger

La Salle University, hediger@lasalle.edu

Joel Garver

La Salle University, garver@lasalle.edu

Bruce Leaby

La Salle University, leaby@lasalle.edu

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Mental Maps and Other “Points of Entry” for Helping Students Understand New Information

Concept maps

Excerpt from Kathy Yancey’s workshop summary:

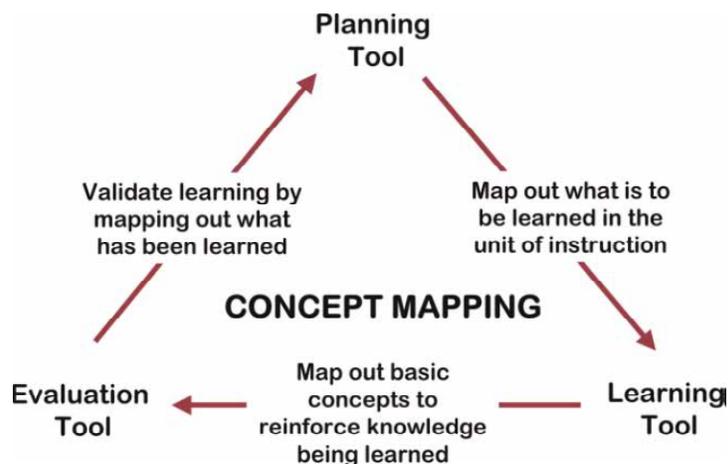
“Visual mapping helps students to see the relationships among the material in a course and/or the relationships among the material in different courses. We know that ‘mental maps’ are used by experts in their fields when confronted by problems to solve or new material to be learned.

For this method to work most effectively, students should not only have the experience of making a ‘map’ but they should also be asked to articulate the rationale for the map to others.”

Common goals

- To visualize relationships and hierarchies and to articulate what ‘links’ the various ideas together
- To connect prior knowledge to new knowledge
- To move students beyond rote memorization
- To move students towards more ‘expert’ ways of understanding concepts in a discipline

Need to consider purpose



Concept mapping classroom triangle from Leaby, Szabat, and Mass (2010)

Points to consider to get student “buy in”

- Bentley, Kennedy, and Semsar (2011) did surveys after using concept maps in four physiology courses. Three factors were associated with positive student attitudes about the use of concept maps:
 - Mapping activities need to be designed to meet certain educational goals and not be too complex
 - Students need adequate feedback (whether from professor, TA, or peers)

- Students need to understand how mapping and the concepts on the map relate to the exam (so not just seen as “busy work”)
- Negative comments tended to revolve around four themes: structure of the maps (especially if too large), amount of feedback, exam alignment, and mismatch with their own learning styles/study habits

Implementing ideas (Novak and Cañas, as well as Zeilick)

- Focus questions to give students direction
- Post-it notes to move around easily, especially as students learn to construct
- Discussing good “linking words” or phrases to start articulating the relationships between terms
- Complete or partially filled in maps to get them used to the practice, or have them start with a topic on which they are an expert

Graphic Organizers as another “point of entry”

- Robinson et al. (2006) and partial graphic organizers
- Consider the ones included in your textbooks and how students might extend them to incorporate your lecture material
- Can serve as a reading, note-taking, and/or studying tool
- Can be especially useful in understanding categories, comparing and contrasting, etc.

Classroom technology “points of entry”

- Using Power Point in Philosophy (Dr. Joel Garver)

References

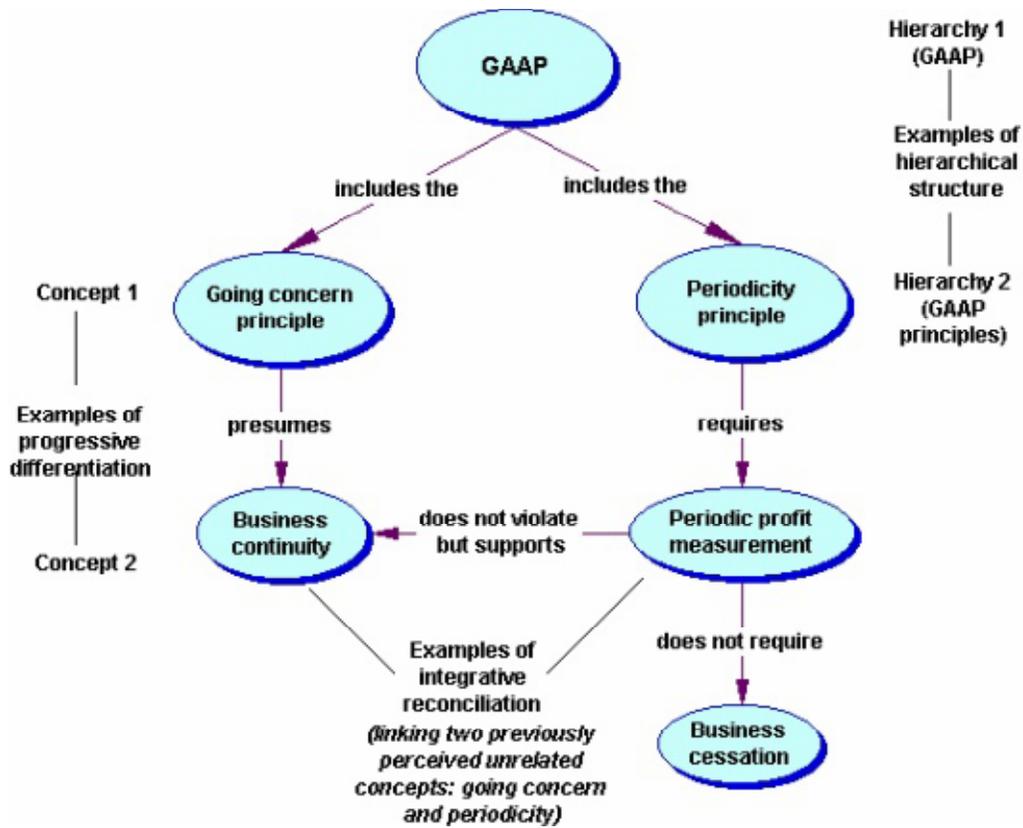
Bentley, F. J., Kennedy, S., & Semsar, K. (2011). How not to lose your students with concept maps. *Journal of College Science Teaching*, 41(1), 61-68.

Leauby, B. A., Szabat, K. A., and Maas, J. D. (2010). Concept mapping—an empirical study in Introductory Financial Accounting. *Accounting Education: an International Journal*, 19(3), 279-300.

Novak, J. D., & Cañas, A. J. (2008). The theory underlying concept maps and how to construct them: Technical report IHMC CmapTools 2006-01 Rev 01-2008. Florida Institute for Human and Machine Cognition. Retrieved from <http://cmap.ihmc.us/Publications/ResearchPapers/TheoryUnderlyingConceptMaps.pdf>

Robinson, D.H., Katayama, A.D., Beth, A., Odom, S., Hsieh, Y., & Vanderveen, A. (2006). Increasing text comprehension and graphic note taking using a partial graphic organizer. *The Journal of Educational Research*, 100(2), 103-111.

Possible useful website (includes some examples of maps as well as ways to use them in the classroom): Zeilick, M. Classroom assessment techniques: concept mapping. Retrieved from <http://www.flaguide.org/cat/conmap/conmap7.php>



Accounting example from Leaub, Szabat, and Maas (2010)

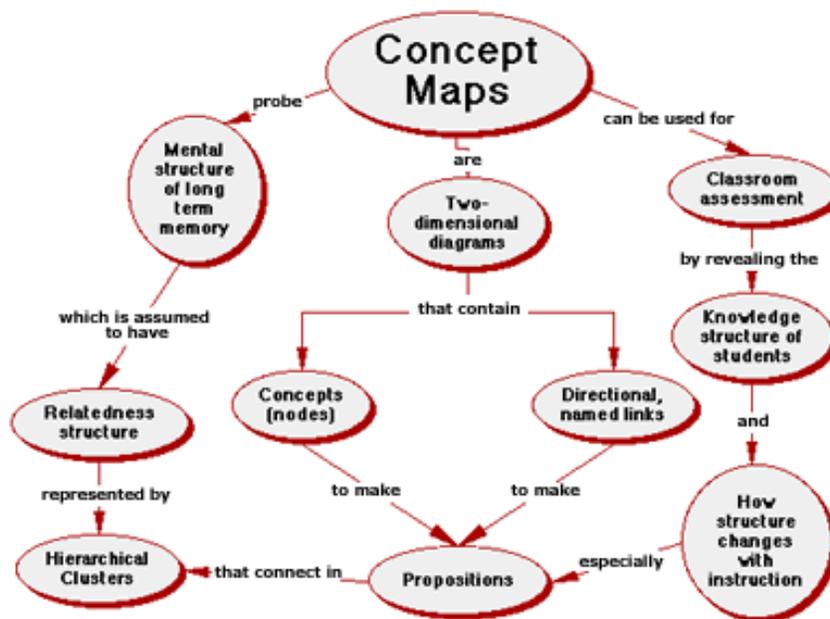


Figure 1: Concept Map Of Concept Maps → from Zeilick, M. (<http://www.flaguide.org/cat/conmap/conmap7.php>)

APPENDIX B
Example of a Partial Graphic Organizer Used in Experiments 1–4

<i>Gestalt Psychology Laws:</i>		Similarity		Pragnanz
<i>Definition:</i>	People tend to perceive as a unit those things that are close together in space.	_____	_____	_____
<i>Example:</i>	_____	A person sees the word <i>Texas</i> in a stadium because some fans are wearing orange shirts, whereas others are wearing white shirts.	_____	Mary falsely remembers that a shape she saw was round when it actually was oval.

Partial graphic organizer used by Robinson et al. (2006)