

The Power of Metaphors

June 2011

INDIANA UNIVERSITY

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Metaphors can be used to model the kinds of thinking we want students to do, especially for something with which students are struggling. Metaphors are powerful because they can connect an unfamiliar concept with existing knowledge in a way that students will understand and remember.

The best metaphors are based on something that is already familiar to the student, and the more vivid and concrete you can make it, the better. How do you come up with a metaphor? Once you have identified a bottleneck to learning, ask yourself, what is the desired thinking like? In a fine arts example, if I want to model the thinking process I use when I create a self-portrait, am I trying to picture the light and dark colors, like a kaleidoscope? Or is it about creating a message about myself, more like deciding what to bring along on a canoe trip? The metaphor will help the students understand the kind of thinking to be invoked.

Metaphors can help students overcome the persistent misconceptions that can be problematic in science teaching. A misconception from the domain of meteorology is that weather on earth is caused by the seasons, when it is actually caused by the transfer of heat and cold between the equator and the poles. A metaphor describing a pot of boiling water where the movement of the water in the pot (the weather) moves the heat from the bottom (equator) to the top (pole) will help students understand how the earth, which gets super heated at the equator due to the angle of the sun, transmits that heat to the cold poles through the process we know as weather.

The more familiarity students have with the metaphor, the better they will learn from it, so it is important to select metaphors about which students already have prior knowledge. In the videos linked to below, you will see two examples of professors using metaphors to help their students make conceptual leaps.

1. The students of Professor Tony Ardizzone in the Creative Writing Program at Indiana University were used to explaining, which was not productive for a creative writing class. Prof. Ardizzone wanted his students to write evocatively, to use their senses. Watch for the metaphor about marriage he uses throughout his lecture, to model how to pick just the right word for a poem.

[[Watch Video](#)]

2. The students of Professor Leah Shopkow in the History Department at Indiana University did not know how to get the right balance of explanation and evidence for their historical writing. She created a metaphor about cookies to help them get it right. Students referred to the metaphor throughout the rest of the semester, including when giving each other feedback on their written work.

[[Watch Video](#)]

More Resources:

- Braasch, J. & Goldman, S. (2010). The Role of Prior Knowledge in Learning from Analogies in Science Texts. *Discourse Processes: A Multidisciplinary Journal*, 47(6), 447-479.
- Pace, D. & Middendorf, J. eds. (2004). *Decoding the disciplines: Helping Students Learn Disciplinary Ways of Thinking (New Directions for Teaching and Learning*, 98). San Francisco: Jossey-Bass.
- Savion, L. & Middendorf, J. (1994). "Enhancing Concept Comprehension and Retention." *The National Teaching & Learning Forum*, 3(4): 6-8.