



## Home Workshop 03 - Doing Math

### Metacognitive Memoirs

*How can we better communicate thinking?*

*Objective:* TLW explore the use of metacognitive memoirs in supporting students' efforts to think about and share their thinking as they do math.

**Schema Activation:** Review your in-class work on the painted cube problem.

#### Focus: Metacognitive Memoirs

**Metacognition** is the awareness and understanding of one's own thinking. For our purposes, it has been associated with the ability to monitor our progress as we do mathematics. It might be characterized as answering questions such as:

- What am I doing?
- Why am I doing it?
- How is it (or isn't it) helping?
- What else might I try?

**Memoir** as a genre of writing usually refers to a piece of autobiographical writing that focuses on a specific event or connected series of events in the writer's past. A memoir characteristically "centers on a problem or focuses on a conflict and its resolution and on the understanding of why and how the resolution is significant in your life." [<http://inkspell.homestead.com/memoir.html>]

If you put these to ideas together, then you have a powerful tool for helping students to experience what it means to do mathematics by thinking about and communicating their efforts to others.

#### Activity: Comparing Showing Work with Sharing Thinking

We begin with a model, Carl Barnard's *The Painted Cube*, available on BB. This piece was found on the internet and it contains many elements that we believe an MM ought to contain.

As you read *The Painted Cube* compare his efforts with what might typically be expected from a student's math paper. You are looking for evidence of where Carl is sharing his thinking as opposed to simply showing his work. For example, identify how/where he is responding to the metacognitive questions listed in the focus. Record your observations in your journal so that we may discuss them at a later date. Be sure to leave at least ten minutes to reflect on your work.

#### Reflection: Choice

From the list provided below, select at least two questions to help you to reflect on your work. Write your responses in your journal for us to discuss later:

- What did you learn about the Painted Cube problem?
- How is showing work different than sharing thinking?
- Where does Carl's work demonstrate doing math?
- What might a metacognitive memoir on this problem look like for a student who does not arrive at the solution as quickly as Carl did (or maybe doesn't arrive at a solution at all)?
- How would you begin to organize your work from the schema activation to write your own metacognitive memoir around this problem?