

Focus: the Production and Valuation of Mathematical Knowledge
a schematic of my thoughts...*please remember that the following is a WIP*

Initial Thoughts

- began by thinking about norms in the classroom--what norms do I as a teacher choose to emphasize & how are they established? Developed a whole list including
 - students actively construct/produce/generate mathematics
 - mathematical conversation/community is fostered
 - decision-making process and purpose of work is made explicit, discussed, shared between students and teacher, at least at times
 - teacher is a knower of students, on-going learner about students' mathematical thinking, orchestrator of mathematical experience, questioner/prober
 - issues of equity and social justice are addressed
 - disequilibrium, questioning, rethinking, reflecting are supported and valued
 - sense of awe and spontaneity are nurtured
- a few assumptions (there are lots embedded in the above list as well):
 - issues of equity and social justice in mathematics classrooms are addressed in part by conceiving of all learners as producers of mathematical knowledge
 - it is also crucial to know students as individual learners as well as part of aggregates--the class, school, family, community, ethnic group with which they identify...
 - knowledge (its production, generation, valuation) is an aspect of power in the classroom
- Thus...I began to focus on the production and valuation of knowledge, an issue that grew from my work last semester in several courses as well as from Marie Laroche's influential article (see Excerpts)

Production and Valuation of Mathematical Knowledge

- how is mathematical knowledge produced and valued in mathematics classrooms? how does this aspect of power in the classroom manifest?
- a few assumptions:
 - students produce knowledge, and the knowledge that gets valued *starts* with what the students produce
 - students and teacher have a responsibility to probe students' knowledge productions--this is a primary way to value it
 - teachers also produce/generate knowledge about students (relates to assessment)
- relates to ethics--a choice of goals, both for the teacher (choice of what questions to ask, what experiences to orchestrate...), and for the student (choice of what avenues to pursue, how to participate in the generation of knowledge individually and with classmates, what questions to ask, what to value...)
- requires interrogating knowledge from all sources as well (textbooks, "authorities," etc.)
- I see it as ultimately liberatory/emancipatory because knowledge I produce is a part of "me," who I am as a learner, versus something separate--some body of information or processes that I must wrap my head around and digest. So I think paying attention to the production and valuation of knowledge grows awareness about connections...between self and knowledge, between self and others...

How Consecutive Sums relates to the Production and Valuation of Knowledge

- students generate mathematical knowledge about consecutive sums, patterns, and seeds of proof
- students explore and evaluate their ideas (conjectures they know to be true, conjecture they suspect are true, "false" conjectures--i.e., conjectures they thought were true and found out were not)
- students communicate their knowledge in groups and to the whole class for discussion (thus the productions of all groups get valued and probed)
- teacher plays role as noted (knower, orchestrator, learner, questioner/prober)
- students reflect on the process (via discussion and writing) of the production of mathematical knowledge
- students see the variety of mathematics that may be produced by themselves and their peers via a single mathematical activity
- my hope: that by viewing herself or himself as a creator of knowledge, a student "...will tend to gain consciousness of his or her ability 'to create a difference', to 'act otherwise', that is to say, 'to be able to intervene in the world or to refrain from such intervention, with the effect of influencing a specific process or state of affairs'..." (Larochelle, 2000, p. 59-60)

To me this world view is emancipatory and thus addresses issues of equity and social justice.