When we, as teachers, consider the multiplicity of knowledge in our professional lives, it is quite amazing that more teachers are not schizophrenics. We have the knowledge measured by teacher tests, imposed by the textbooks and curriculum used in the classroom, evaluated by the standardized testing of students, expected by parents (and the variability embedded within that), hoped for in our students, demanded by administration and colleagues, and the list goes on. The teacher, Bill, in the Thompson & Thompson articles (1994; 1996) is one example of how the teacher factors into this swirling mess of knowledge and emerges as a central figure – a locus, if you will.

Clearly, Thompson & Thompson are proponents of, and favor a ‘conceptual knowledge’ of the mathematics of rate. They state that “if curricular reform is to happen in classrooms, teachers must teach from the basis of a conceptual curriculum” (1994, p.300). By privileging the tasks that Bill used over those that he might have preferred – “reforming” his teaching to a more “quantitative reasoning” approach seemed central to the story – the authors are apparently interested in altering Bill’s mathematical worldview. This would definitely suggest they are confident in the benefits and primacy of conceptual knowledge. Yet, given some of our previous readings (Nesher; Sfard; Rittle-Johnson), this elevation of conceptual over (an implied) procedural is problematic – and to do so within the shroud of a proposed systemic reform is even more so, given the wide range of individuals teacher face within their classrooms every day. In addition, I am not quite clear on the difference the authors imply between having students solve problems as a “consequence of [their] understanding” and it be “the goal” of the lesson (1996, p.20). It seems only a slight linguistic shuffle between the two – with, I suppose, the argument being that understanding is so foundational it transcends any specific problem – and I strongly suspect Bill (and most other teachers) would likely not claim there was any distinction between these two in his teaching.

To go from Bill, and his mature knowledge of mathematics, to the students within Simon & Blume’s study was quite a shift. It is tempting to suggest that the development that occurs between this stage and a few years into a teacher’s career is due to such self-serving factors as teacher education or mathematics courses. More likely, it is the accumulation of experiences and the exponentially increasing ability to understand them that make all the difference. Then again, if such courses were designed to “further students’ connections” (p.487), I might need to change my assessment of them. The central feature one can take away from this article is that, as a teacher finishing a lesson “it is difficult to know whether [students]… understood” (p.491) what was taught; and, like the practice of teaching itself, sometimes the process of doing (and running into challenging problems that force adaptation and questioning) is what creates the most ‘connections’ and deepens ones knowledge the most.

I find it interesting to note a larger question that emerges from within the texts that I am asking within my own work with teachers – is it possible to see fundamental shifts in teachers’ conceptualizations (not merely surface features, but core ‘beliefs’ about teaching a subject) without either seeing direct evidence in student outcomes or sustainable differences in teaching habits and strategies. For instance, on a research project that I am working, teachers are asked to incorporate the process of inquiry into their practice – making patterns and then explanations out of observations – and I am amazed at the number who speak of the subject and create lessons and activities markedly different than one year ago. This shift in their thinking of the topic, however, has had no discernable (to this point) affect on their teaching or their students’ learning. If it is an issue of “longitudinal coherence,” of which Ma speaks, then perhaps the teachers’ subject matter knowledge (or, at least, its depth) is to be questioned. Then again, perhaps we have a situation, like Bill, where teachers are mismatching their own “packed” knowledge and tools for explaining (unpacking?) the subject with those of their students. And this is where I struggle – perhaps all that understanding comes down to is the possession of knowledge that permits one to communicate with another. If this is true, do we really want all students to become so adept at mathematics that they are able to become teachers themselves; does ‘teaching for understanding’ really mean teaching to create teachers?