

Final session of Reflecting on Practice

Friday, July 25, 2008

Whole-room discussion led by Gail on three questions that seemed to emerge from the work of designing a lesson.

What's the difference between a goal or mathematical objective and the task?

Blake: The goal isn't just the title of the section in the textbook... think about what students need to understand. For example, "solving two-step linear equations." What do students need to know to do that? What do you want them to learn? Football coaching example: Task is pushing a blocking sled 15 yards. What do I want them to learn from this task... that will help them in a football game? Example: How to sustain a block when on the offensive line. What do I want them to learn in doing mathematics in general? Objective: What mathematical ideas do you want them to glean from doing the task.

Question: Do you make the objective or the task explicit to the students? Neither? Both?

Blake: It depends.

Aki: Sometimes we give students a problem and think solving the problem is the goal. But we really want them to solve a general case. Students will, unless they can see many similar problems or a connection, think the specific problem is the goal. Our job is to help students to see this bigger picture. In this process we talked about one specific lesson, but we really want you to see the bigger picture as well. Through the window of one lesson, we hope this happened. The objective might not be explicitly told to students, but we want students, through doing the task, and examining relationships within and among lessons, to get a more general concept (for example, similarity.)

Nicole: Something that helped crystallize the goal was the question of what new mathematics we wanted students to learn from the lesson. Also, the order of the process became very important to the groups – need to start with a goal first and then plan an activity, not start with an activity and then try to map that to a goal.

Rey: Our group basically lied to our students. Our goal was very thin, but as teachers we conspired to show them more. Is it appropriate to make students think the goal is simple while leading them on to do harder stuff?

Blake: If you have a task with multiple entry points, allowing students at different levels of readiness to all work on it, that's good. On the surface it seems simple but underneath there's a lot there. This is a wonderful thing to have.

Tad: The challenge we have is to make mathematical understanding clear, and articulate the goal in a very explicit way. This is an issue of "grain size": for example, slope, or two lines with the same slope are parallel. Need to get to what this understanding really entails. Try to get to the sub-understandings, and the prerequisite understandings, and then will lead us to the focus of this lesson. Often this objective is too big to achieve in one lesson. Too often we can't (don't?) make

this clear. I struggle with this in my mathematics content courses for prospective teachers: what is the understanding I want students to reach from this individual lesson. Being able to articulate the specific understanding is very useful.

Avery: I'm not even sure I know what a lesson means any more.

Aki: Lesson in English and lesson in Japanese mean different things. In Japanese, it's *juyo*, more like a series of activities. When you plan a lesson, it's important to think about the future, the unit, the sequence of lessons. Where is this lesson leading? How is this lesson going to support that? There needs to be cohesiveness. The concept of a set of lessons is more a series, with a sequence.

Tad: It's okay to think about each class period too – once you have that continuous series, then you need to think about what chunk of this flow of ideas can reasonably fit into one fixed unit of time. It's important to have both the broad perspective and how to chunk it into your structure.

Sendhil: Collaborating with strangers, out of context of specific students, but there's still this idea of a "good lesson", independent of context. We can do this sometimes and the process is valuable, but I can't see doing this for every lesson. What's the value of making these lessons ourselves, and what's the value of using the lessons that others have produced?

Gail: Teachers doing these problems in many different ways – insight that the kids are also doing so. Understanding that different people will approach a problem in different ways; opens eyes as to how to modify instruction to allow this to happen for kids.

Aki: Japanese teachers believe there is no perfect lesson, no best practice. Even a good lesson can be taught in a bad way, or in a meaningful way. The teacher is very important. We need to tweak, day by day, student by student. How we tweak it is very important, and that is never discussed publicly. Lesson study looks at the lesson, and revision is discussed.

Blake: In the US we interpret the product as the value (the lesson that comes out). That misses the mark – it's the process. Imagine doing lesson study a few times – then when you plan your next lesson, you will think differently, think about different ways of addressing the problem. It changes your practice and your planning. Dialogue changes your approach.

Aki: My mentor said the secret to a successful lesson is to forget the lesson plan – if you keep thinking about the lesson plan, then you forget to look at the student. All this process helps you choose a best way to reach the student in front of you.

Tad: I agree this is an artificial setting. Reflecting on yesterday's experience was hard because it wasn't a real lesson with real students. But it offers an opportunity to think about the mathematics more deeply, because we come from different backgrounds – different districts with different curricular organizations, different prior knowledge, and so on. Especially with more advanced topics, can get there in multiple different ways. Having a diverse group of colleagues allows that careful examination of mathematics and leading to the goal understanding from different perspectives. We want to share product ideas; we want to make it sharable. What's

sharable is the different ideas about how to get from where the students are to where we want them to go through this particular path.

What are the characteristics of a good task that can engage students and provide teachers with information about what and how students are processing the mathematics? (Look back at Gail's presentation from last Monday.)

What's the difference between sharing and having a discussion? Most of our mini-lessons never quite got there.

Blake: The goal is not just to have a lot of different solutions up on the board; that's just sharing. The real richness occurs when there's a discussion among students and teachers about how the methods are related, which are better or worse and how, and connections are really made for students. It's not just "Look at all these wonderful solutions! My job is done." We want to have this good student thinking to lead us to our goal.

Aki: Just a show and tell doesn't need a teacher. You could just put up a problem and student solutions on a website. Teachers' big task is to orchestrate the sharing of these solutions in order to help all the students to reach the goal. That's why we need a teacher.

Nicole: Not just orchestrating discussion with our students, but which each other. When we're working with each other, what's the difference between sharing and discussion? Not just "I do it this way, you do it that way." That's not very meaningful. Lesson study – every little part we plan and think about beforehand, the more we can be flexible in the moment, and make better instructional decisions.

Tad: Students have many different ways to solve the problem; fine. The discussion is trying to figure out how they are different and similar.

Gail: Reflecting on practice is one of the hardest things we have to do as teachers, given all of the demands on our time – all this stuff happens. When do I have time to reflect? Deliberately taking time, whether through lesson study or some other way, is a way to nurture this process. Reflecting about how we work with kids and how they learn is how *we* learn and improve our teaching. Working with the Japanese and the Dutch – why does the observer always sit in the back of the classroom? All they are seeing is the back of kids' heads; you can't tell if learning is going on unless you look in their eyes, and look at what they are doing. Sometimes we do this as teachers. Can we reflect on this enough that when we are in the classroom, we can focus on what students are doing and whether they are learning?

Compiled by Sendhil Revuluri