Helping teachers learn from practice: Making visible the entailments of professional development

Lynn Paine

Michigan State University

Overview

- Studying the practice of teacher learning
- How does the knowledgeable other know what to do, when, and how?
- Preliminary data about knowledge, skills, considerations and moves that support teachers learning in and from practice

How is teacher learning through practice-based, lesson-focused inquiry supported?

- What do elementary staff developers need to know, understand and be able to do when they try to help teachers examine and learn from their practice?
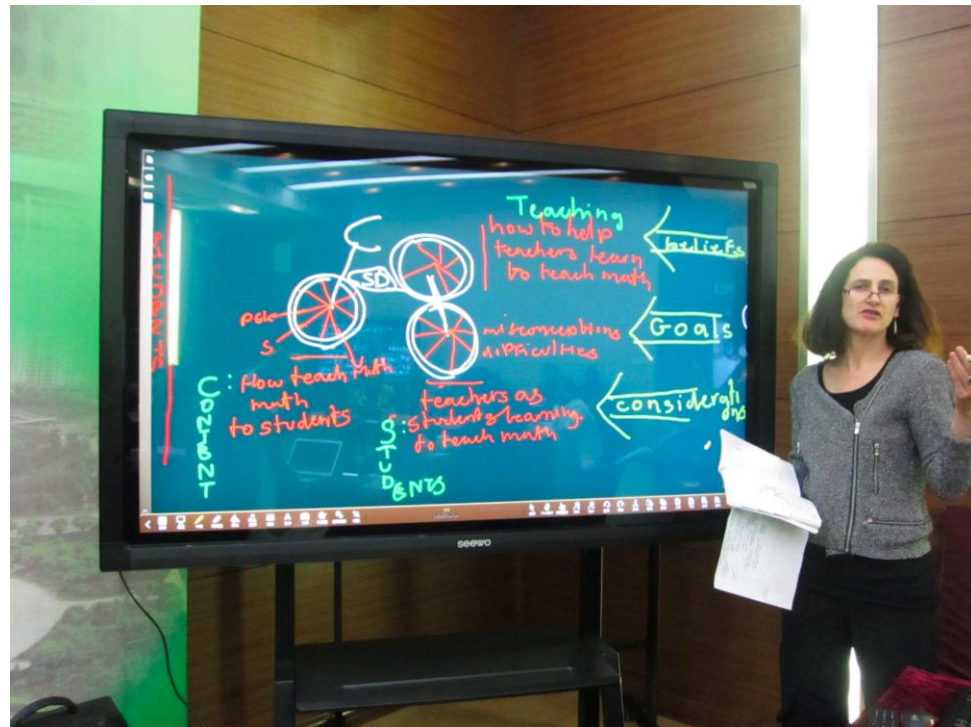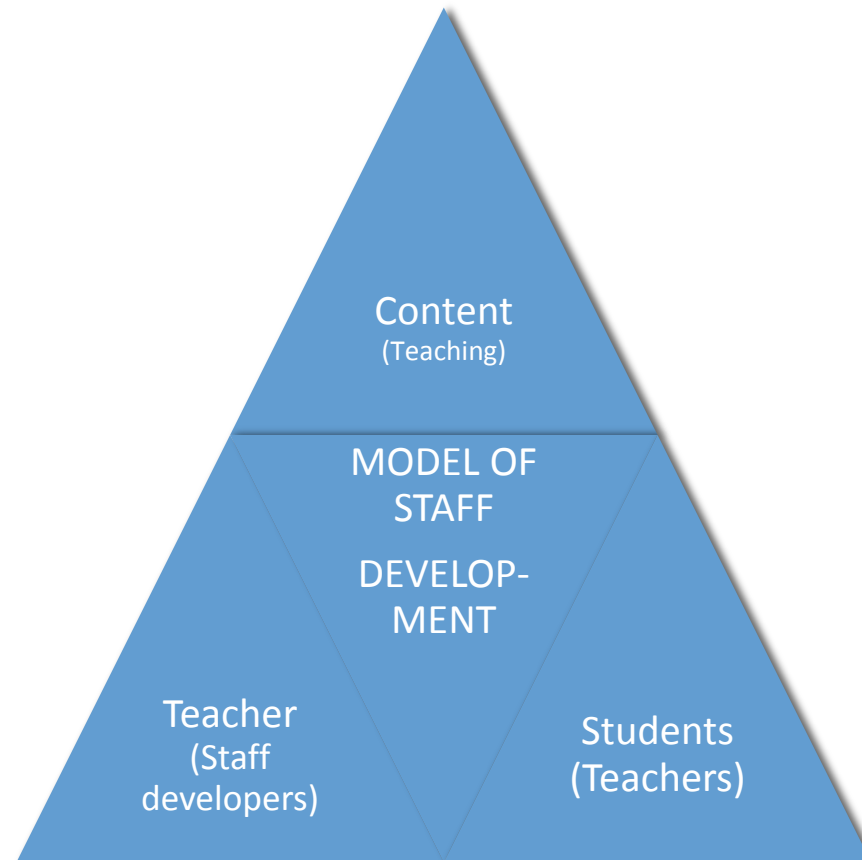
Conceptualizing professional development

Professional development

- As a practice
- As a teaching practice
- As a thinking practice
- As a situated practice

Unpacking professional development as a teaching practice

PD as teaching

- *Knowledge for mathematics professional development*
    - Of content
    - Of pedagogy
    - Of pedagogical content
    - Of learners (teachers) and (teacher) learning
- *Skills, dispositions, and beliefs*
- *Practical rationality* (Herbst and Chazan)

Staff developers use practical rationality

"the hypothesis that practitioners' instructional actions respond *to obligations to the discipline, the students, and the school institution*, but are *neither determined by those obligations nor chosen at will through individual management of personal resources*. Rather, courses of instructional action are constructed as viable, tactical plays of a game that pursues curricular and other stakes through the collective production of work over time" (Herbst and Chazan, 2006)

The focus: **knowledge** and its **use**

- Despite our expressed intention to focus on knowledge use, our categories may seem static. Ultimately, we are interested in how teachers reason about and deploy mathematical ideas in their work. We are interested in skills, habits, sensibilities, and judgments as well as knowledge. We want to understand the mathematical reasoning that underlies the decisions and moves made in teaching. The questions we pose in our measures of mathematical knowledge for teaching are designed to situate knowledge in the context of its use, but **how such knowledge is actually used and what features of pedagogical thinking shape its use remain tacit and unexamined.** (Ball et al, 2008)

Entailments of practice-based professional in China, Japan and US: Study Design

- Develop a video case
- Edit and create a stimulus tape
- Focus groups
- Analysis
- Share stimulus tapes across countries
- Dialogue among staff developers in international meeting

Looking at practices from different contexts

- Creates contrast
- Elicits people revealing their thinking and practices that they otherwise tend not to articulate

  "We would tend to interrupt" (Vicky, a US staff developer, had not commented on when and why she would intervene or interrupt, but not seeing it happen in a tape from Japan created opportunity to talk about it)

Viewing the "familiar" in "unfamiliar" context

- Creates an ambiguity—what people want to understand tells us what/how they think, what they need to draw on

  - "I really wanted to know why they were working on rounding up or rounding down. I really wanted to understand. I always like, what's the math we are working on here and why." [Elizabeth, a US staff developer, asking about the math goals]

Tasks for supporting teacher learning from practice

- Sizing up teachers' knowledge or a situation
- Drawing teachers' attention
- Getting teachers to consider new or deeper ways of thinking
- Providing teachers information or knowledge they lack
- Giving teachers chances to experience or look at practices
- Making ideas accessible

What SDs talk about when talking about their ways of working--practical rationality

1) <u>What</u> they might work on with teachers
2) The <u>considerations</u> that shape how they carry out this work
3) The <u>beliefs</u> that guide them
4) The <u>moves</u> and strategies that they deploy
5) The <u>knowledge</u> that they bring to bear

Goals for teacher learning

Curricular and content:

 I think, for example, teachers are not sure when they teach this lesson in 4th grade because there are six grades in elementary school. **So it is no use to discuss just specifically about this lesson,** so, I mean, **teachers should think about what these students will find difficult in their 5th or 6th grade**, and what students need to pay attention in their earlier grades based on their observation of the students' struggle (in this particular lesson).

Goals for teacher learning

Noticing students and learning, using evidence to make claims:

I thought teachers talked just with their impressions. What I usually worry about, which is not limited to this particularclip, in groups where people observe lessons using sticky notes, is that I do not see the reality (the evidence) in students. Teachers say "it was good" or "I think the lesson was good because of this or that," but they rarely talk about why they think it was good based on whom (which students) they observed and what the students actually did. So I think one of the most important roles of a study lesson is that the teacher who taught the study lesson can get information about "what particular individuals did" and about "this student did this," because the teacher was so committed and could not see the details in the whole lesson. So in the clip, I thought that the observers saw the lesson very roughly.

Strategic considerations

I often start with positive evaluation of the teaching, commenting on the effective teaching methods that the teacher has used and summarizing the strengths of his/her teaching. However, **the point of praising the positive things in the teaching is not just to say good things, rather it is offered so that it makes it easier for me to shift to the weaknesses.** So I often start with the problems that students seem to have during the class, and move on to an analysis of the reasons, and then point out what problems the teacher had in the teaching. The problems you point out for teachers must be specific, with reference to his/her teaching. Then you need to explain to the teacher where his/her problems are…. After all these steps—analyzing the teaching, the reasons of the problems, and the rationale and theories behind your analysis, you need to offer them specific suggestions. **Teachers love that**.

Belief in learning as dynamic

- …it's just this chorus of "How did you get that?" "Tell me what you're thinking" "How did you get that?" "Tell me what you're thinking", which is great because teachers get a lot of information. **But if the teachers start to progress, their questions become more detailed and link to what the students actually do.**

(implicit) theories of teacher learning (ex #1)

The process of discussing the lesson is as follows, first, the teacher will talk about the teaching, then the people in the room will discuss the teaching together, just like what happened in the Japanese video. The final part is the staff developer's summary of the staff development session: what are the issues or problems in this lesson, what can teachers do to address those problems. Take this lesson as an example, staff developers probably should also talk about two-digit number division, and offer a basic summary, for instance, the basic or the common method to solve the problem, whether to round up or to round down, how to adjust the quotient. There are special cases like 25 or 35, how to calculate with numbers like this in the middle. In a word, staff developers need to offer a summary, which can help those involved in the staff development session to understand what they can do to help students to solve division problems with divisors like 25 or 35, what are the different ways to solve this problem, what is the usual way, and what are the additional methods. Only then can the teachers attending the staff development session learn some pedagogical content knowledge.... We have always been telling teachers that they should make sure that their instruction should help students to learn and grow. This is true for our staff development too—we should help teachers to learn and grow through experts' guidance, peer assistance among teachers, and teacher's self-reflection during the staffdevelopment sessions. Therefore, we must summarize the staff development session at the end.

(implicit) theories of teacher learning (ex #2)

I want to hear most about what a teacher tries to achieve, or what aims a teacher has for today, or this lesson. If a teacher cannot explain it clearly, the focus of the conference is usually blurred. So one thing is teacher's wishes or aims (*negai*), such as "what a teacher tries to do," "what a teacher tries to teach," and "what a teacher wants students to learn." And another thing is, "how a teacher tried to achieve that goal." Many teachers do not have this. They have ideas about what they want to achieve, but not how they try to achieve the goals…. I want to discuss whether the lesson works or not to achieve the goal, based on the evidence. Regarding this point, I think teachers have their own thoughts, and this is what I really want to hear… In addition to these two things, I ideally want to hear about how the teacher evaluates what was effective in the ways in which he tries to achieve goals.

Common moves

Well, sometimes …we have sort of **routine set of questions we ask because we think that over time as we work with the group of teachers it'll help them to focus on something that we're interested in**, so, for example, sometimes when we really want to orient people to notice students' thinking we start with questions like: what do the students do, which is really to describe what the students did, and what did you think that means that the students understand. So we really take the time to say what the students did and then we try

to name what kind of knowledge is evident in what the students did. Then we ask what questions would you ask the child to know about what he is thinking. I think about that as a framework that can, with repeated engagement, help people focus more on students' thinking.

Knowledge, locally framed

Staff developers should be able to have a clear understanding of content knowledge, *the key points and difficult points, and critical points* in one lesson. Besides these, we should also know the strategies for implementing the instructional activities, and teaching method. Just like what we discussed, staff developers should know which parts of the lesson are more difficult and challenging, what better methods teachers should use to solve the problem. Also, staff developers should have some knowledge of disciplinary pedagogy, which is important for them to analyze the students' learning, to understand the basic process of learning.

The task of PD reflects a local lens

I was trying very hard to track everything that he was saying. What would it afford to slow down a little bit to put the student's work on the projector or something like that, to be able to **unpack** more as a group or something, it would be interesting to see what **that move** as a facilitator might **afford**.

Dilemmas at the core of the work

- Sometimes I step into that role [of being the authority], but oftentimes, teachers look to leaders, like "what should I do? Tell me which one I should do?"

- …if all the participants can decide what they want to say, then the discussion will become a mess. However, facilitators must have this ability to steer or control the discussion. Here I mean they need to control the space of discussion, the dimensions of thinking. If they control too much, then teachers will not have too much space to voice their ideas; if they set the discussion too loosely, then teachers will talk about whatever they want. Therefore, controlling is a hard act to perform.

- There are teachers who often rely on staff developers to give them suggestions on how to teach. For these teachers we often ask them to think and figure things out themselves. Our teachers are quite dependent. They want you to explain everything to them. They want you to explain to them step by step, and in every detail.

Cross-cultural conversation

- As opportunity to make cultures visible
- As opportunity for participants to directly question each other (altering researcher role)
- As opportunity to explore ideas of
  - Shared larger community of mathematics education?
  - Shared identities as "professional developers"?
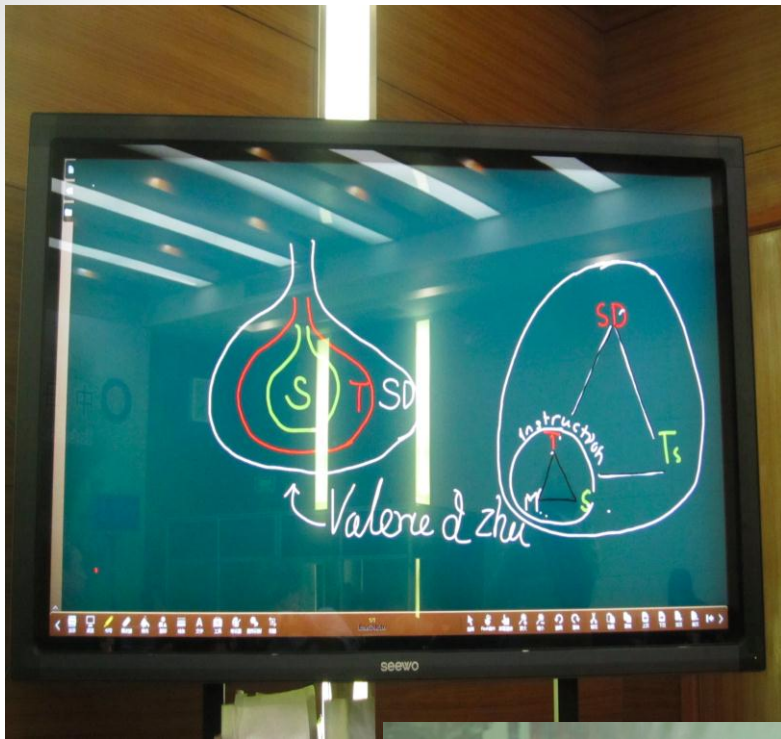 - Distinct national cultures?

Recognizing cultures, doing culture

- Culture as implicit:

  "trying to see something we can't see" (Mr. Sato, a Japanese staff developer)

- Professional culture:

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- Embodied culture: Going to the board

Comparison

- "Shared" terms and code ("NCTM")
  - "more in common than different" (Vicki, a US staff developer)

- Surface transnational teaching culture, masking differences within
  - The importance of triangles in each mapping:
    Theories of learning, of curriculum, of teaching (Prof. Gu)
  - Chinese and Japanese SD "very focused on how to do", the US more emphasis on what the SD "should possess" (Mr. Zhao, a Chinese staff developer)

Reflections through cross-cultural dialogue

- Teacher learning is "very contextualized", and math is one context

- Knowledge as iceberg
  - Only the tip is observable
  - "the Way that can be named is not the Way"

Importance of seeing the intellectual challenges in supporting focused lesson inquiry

- "I didn't realize how complex this work is" (Molly, US staff developer)

Thank you!

Lynn Paine   painel@msu.edu