

# TRANSITION IN LIMBO: HOW COMPETING PROFESSIONAL OBLIGATIONS CAN LEAD TO PEDAGOGICAL INERTIA

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*We describe a high school geometry teacher who perceives a need for change, expresses a desire to change, and yet finds herself struggling to enact change in her practice. Rather than focusing on beliefs or knowledge, we examine the professional obligations underlying her expressed intentions, and suggest that competing obligations made it difficult for her to make progress towards her expressed goals. We share implications for professional development.*

Keywords: Teacher Change, Practical Rationality, Teacher Goals, Teacher Beliefs

## **Purpose**

The purpose of this case study is to examine the factors that make transitions in teaching difficult, focusing particularly on the professional obligations inherent in the position of high school mathematics teacher.

## **Framework**

The difficulties surrounding teacher change are often explained as resulting from deficiencies in mathematical knowledge or divergence in beliefs about teaching (e.g., Manouchehri & Goodman, 2000; Wilson & Lloyd, 2000). These explanations have been problematized by the notion that teachers do not operate as free willing individuals; they take *positions* in systems and take on *roles* which come with constraints, often tacit, on possible actions that they are able to take (Herbst, 2010; Herbst & Chazan, 2003). This perspective emphasizes that the decisions and actions of teachers are driven not only by their personal beliefs and knowledge, but also by the rationality demanded by the practice of teaching itself. This *practical rationality* consists of deeply ingrained norms of teaching and obligations to stakeholders such as the student(s) in the classroom, the institution (school), and the discipline of mathematics (Herbst, 2010; Herbst & Chazan, 2003). Obligations in particular present dilemmas for teachers, as teaching actions often favor one obligation at the expense of another, resulting in dilemmas of practice (Ball, 1993).

## **Methods**

### **Participants and Context**

This ongoing study is being conducted through a professional development project involving two high school teachers, a university professor (the lead author), and a graduate student (the second author). The professional development is being provided as a follow-up to a two-week long summer institute which included over 60 K-12 science and mathematics teachers. The follow-up professional development involves a series of meetings in which the two participating teachers are asked to make explicit their goals for teaching and examine their practice in light of those goals through the analysis of video captured in one of their classes (van Es & Sherin, 2010). The role of the professional development leaders is to elicit teachers' beliefs and goals, facilitate discussions, and provide the teachers with exposure to research related to a self-identified "performance gap." During the first meeting, the teachers were asked to create a "goals mapping" where they identified what was "closest to the heart" of their teaching (Herbel-

Eisenmann & Cirillo, 2009). Afterwards they shared and described this mapping with the rest of the group. During the second meeting, the teachers had a chance to revise their goals mapping and reflect on their current teaching practices with respect to their self-identified performance gap. Then the teachers were asked to share a lesson plan for an upcoming lesson, which was discussed in the group in an effort to support each teacher in addressing her performance gap.

The teachers both worked a suburban school on the East Coast of the United States. The teacher featured in this article, Becky (a pseudonym), chose to study her practice in a self-contained special education geometry class with twelve students.

### **Data Analysis**

In this paper we examine transcribed audio recordings of the first two meetings with the teachers. We used a grounded theory approach (Corbin & Strauss, 2008) to code and analyze the data. After an initial pass through the data, we separated initial codes into emerging theoretical categories: goals, previous experiences, teaching moves/norms, and obligations. “Goals” consisted of utterances where Becky described what she wanted to achieve with her teaching (but not necessarily what practices would achieve these goals). “Previous experiences” consisted of utterances where Becky described a specific past episode or gave a general description of typical experiences from past teaching. “Teaching moves/norms” consisted of utterances where Becky self-identified with, expressed appreciation for, or implied that she would engage in a particular teaching practice. “Obligations” consisted of utterances where Becky either justified a teaching action or described a constraint on her teaching by explicitly or implicitly appealing to duties derived from her position as a mathematics teacher. In some cases, Becky voiced obligations that we considered to be inherent to the profession of teaching mathematics, such as helping students understand mathematics. In other cases, obligations were inferred from the use of the words “have to” or “need to” with respect to a particular teaching practice.

Subcodes within each of these categories were established through a constant comparison process (Corbin & Strauss, 2008). Multiple codes were allowed for the same utterance; in some cases a single utterance was considered to represent both a goal and an obligation (it is reasonable that teachers, who choose their own profession, will have many goals which coincide with their obligations). Each author separately coded the data. Codes were refined through discussion, a portion of the data was recoded separately (inter-rater reliability was .66), and remaining discrepancies were resolved through discussion.

### **Results**

The goals, experiences, teaching moves/norms, and obligations we inferred from Becky’s statements are provided in Table 1. (The limited number of disciplinary obligations voiced by Becky may be attributed to the fact that during the second meeting Becky was discussing a particular geometry lesson that emphasized mathematical vocabulary).

One can see the conflicts among and within the categories. Becky’s performance gap, as she described it, was “to do less talking and repeating myself and I want them to do more talking.” She expressed the goal of engaging her students in active learning: “I want my classroom to be a place where learning is not just jammed down their throat. I want them to be active in their learning.” However, in her previous experiences, she saw students as not wanting to talk about math (“If I am not talking everyone will just sit there and stare”).

Becky’s described obligations also appeared to make it difficult for her to put her goal of promoting active learning into practice. In the second meeting, Becky brought a plan for an upcoming lesson on parallel lines crossed by a transversal. Prior to describing the lesson, Becky referenced experiences in which students struggled with vocabulary: “words like adjacent,

supplementary, complimentary, linear pair, vertical, they are just in a cloud in their brain.” She also expressed a disciplinary obligation for teaching those words, saying, “They have to be able to use big-people words, grown up words.... They can’t just say ‘across from,’ ‘next to.’” She struggled to envision a lesson in which students could engage in active learning and still learn the standard mathematical terminology. When asked why the students could not use “across,” Becky hesitated and said, “I don’t think I’m allowed,” a statement that suggests that teaching the standard terminology was an obligation that did in fact guide her instruction.

**Table 1: Subcodes in each theoretical category**

Goals	Previous experiences	Teaching Moves/Norms	Obligations
<ul style="list-style-type: none"> <li>• Promote active learning</li> <li>• Promote interaction</li> <li>• Reach all students</li> <li>• Motivate students</li> <li>• Make students comfortable</li> <li>• Learn to get better through experience</li> </ul>	<ul style="list-style-type: none"> <li>• Explaining and repeating isn’t working</li> <li>• Students <b>do not</b> understand math terms or notation</li> <li>• Students <b>do</b> understand angle measurement</li> <li>• Students do not like to talk about math</li> <li>• Students are confused with multiple terms for the same idea</li> </ul>	<ul style="list-style-type: none"> <li>• Use nonstandard terms</li> <li>• Give specific instructions on process</li> <li>• Scaffold if necessary</li> <li>• Connect nonstandard and standard terms</li> <li>• Use multiple representations</li> <li>• Keep it simple (only explain one way)</li> <li>• Activate prior knowledge</li> </ul>	<p>To school:</p> <ul style="list-style-type: none"> <li>• Cover material (ensure mastery)</li> </ul> <p>To students:</p> <ul style="list-style-type: none"> <li>• help them make sense of ideas</li> <li>• make them comfortable</li> <li>• do not confuse them</li> <li>• provide a safe/respectful environment</li> <li>• prepare them for citizenship</li> </ul> <p>To discipline:</p> <ul style="list-style-type: none"> <li>• teach standard terms</li> </ul>

In response to Becky’s expressed desire to turn over more of the math talk to her students, the university professor described a research project where elementary students collectively defined “even numbers” through a nonlinear class discussion (Ball, 1993). This discussion involved the use of nonstandard terms but also actively engaged students in the mathematical act of defining a new set of numbers called “Sean Numbers.” Becky did not seem to appreciate the impact of the approach on the active learning of the students and instead appeals to disciplinary obligations: “Well, I would want them to know [the definition of even numbers].... ‘Cause they are important.” Becky maintained that multiple terms for the same concept would be confusing, and that allowing the students to come up with nonstandard terms “doesn’t seem helpful” and would interfere with learning the standard terms later.

In these statements, we see an obligation that recurred in both meetings: an obligation to not confuse her students. For example, Becky wanted to minimize variation in explanations, saying, “I think about the type of kids these are, if I say something differently it might confuse them.” This obligation, coupled with the obligation to teach standard terminology, made it difficult for Becky to enact practices that might have led to attaining her goal of promoting active learning.

### **Discussion**

We believe that the tensions between the different obligations described by Becky present obstacles to substantial changes in her practice. While she wants to promote active learning and

provide more opportunities for students to talk, she doubts whether her students will be capable of negotiating the different meanings and terms that might arise if they are allowed more freedom. She is bound both by the obligation not to confuse them and her disciplinary obligations to teach the standard terminology (see Pimm, 1987, for a description of tensions surrounding the development of a mathematics register). These are not unlike the tensions described by Ball (1993) in the Sean Numbers episode, and show that Becky's conflict comes not from a deficiency of knowledge or a lack of appropriate goals for her students, but from the competing obligations she perceives as inherent in her practice.

Becky's case is valuable because it shows that changes to instruction are not likely to result from changes in knowledge and beliefs alone. Becky has goals that she is unable to enact. Understanding the constraints implied by the practical rationality of teaching is important because "durable change in instruction will need not only to provide new and better resources but also to be able to deal with the inertia and possible reactions from established practice" (Herbst, 2010, p. 50). Professional development must anticipate these reactions.

For example, while there is much research which describes the necessity of confusion and struggle in the learning process (Hiebert & Grouws, 2007), Becky seems to operate within the obligation that the teacher should not confuse students. This is an obligation which has value and cannot simply be dismissed, but it can also be understood to operate at different levels and time frames. It may be acceptable for a teacher to introduce confusion if she is reasonably confident that the confusion will be temporary and will ultimately help meet her other obligations. Likewise, allowing students to initially invent their own terms before providing the conventional terminology might help promote active learning, but Becky was unsure whether this was "allowed." She needed reassurance that this strategy would not conflict with obligations to teach the standard terms and to help students make sense of ideas. The ongoing challenge for us as professional development providers is to help teachers like Becky explore paths of transition in her teaching while still honoring her perceived professional obligations.

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