

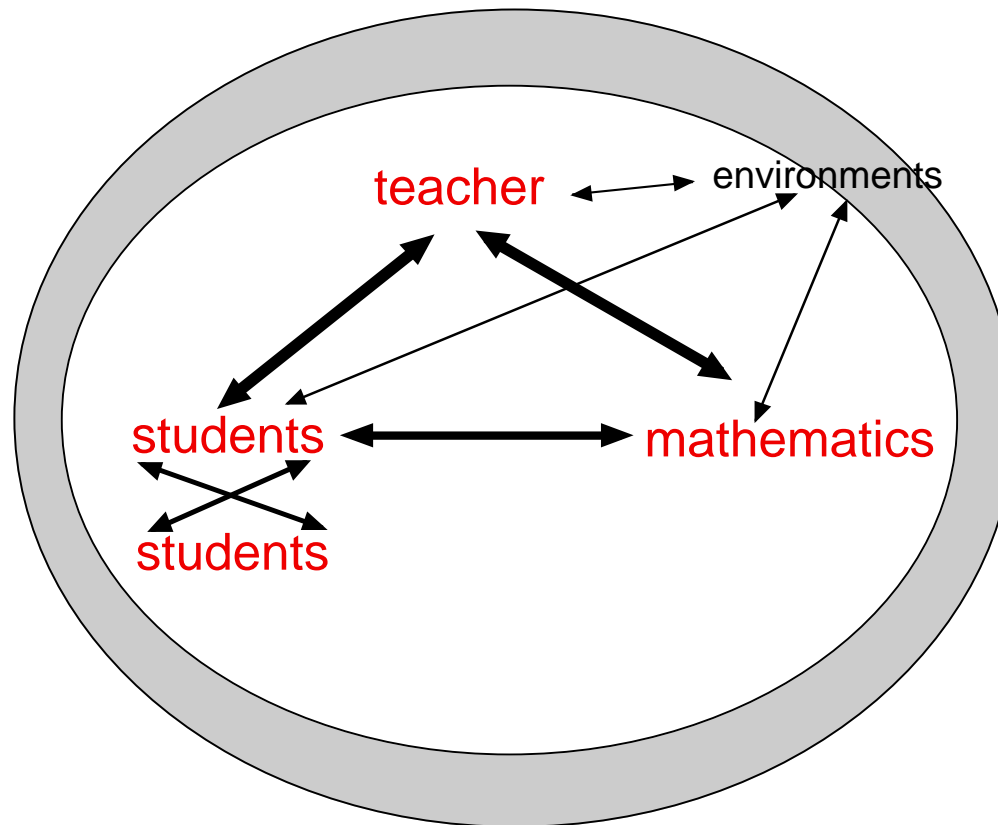
# Studying Practice to Learn in and From Experience

**Deborah Loewenberg Ball**  
University of Michigan

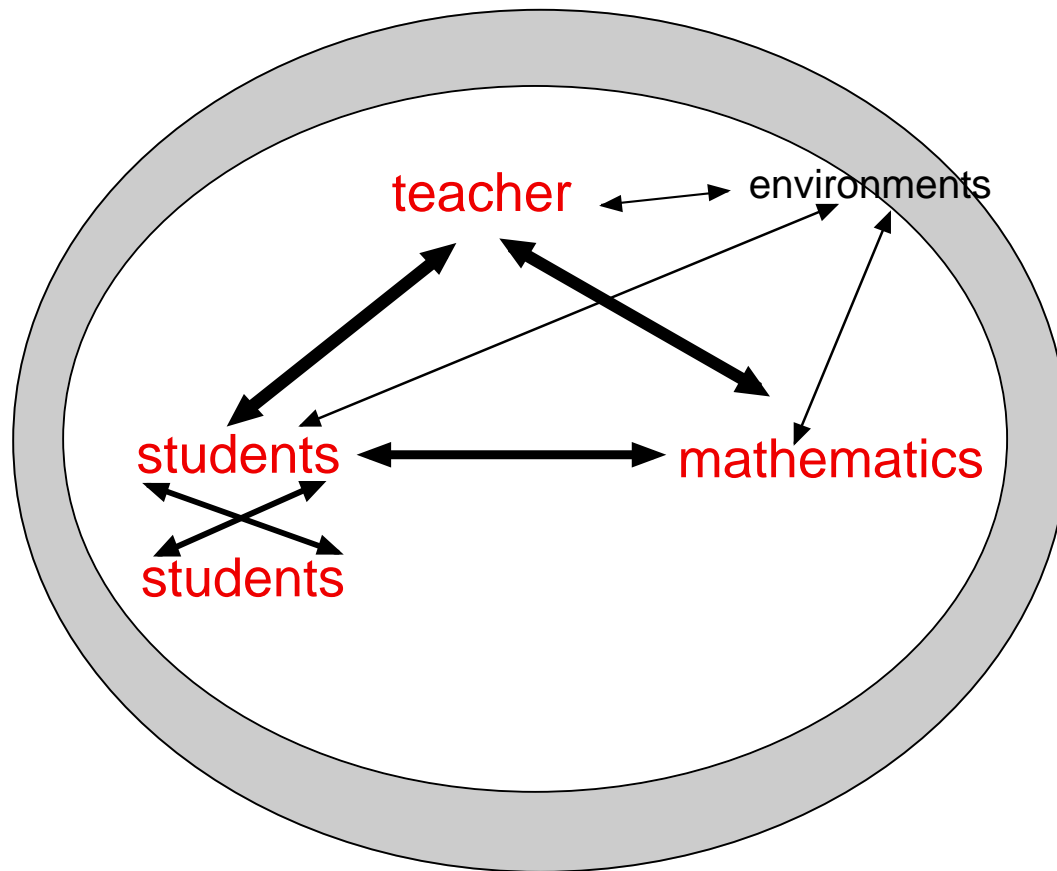
# A set of premises about learning to teach

- Learning to teach occurs mostly from experience.
- Experience is often a poor teacher.
- Teaching is a practice, not a domain of knowledge.
- Teaching is a complex practice.

# Teaching is a complex practice



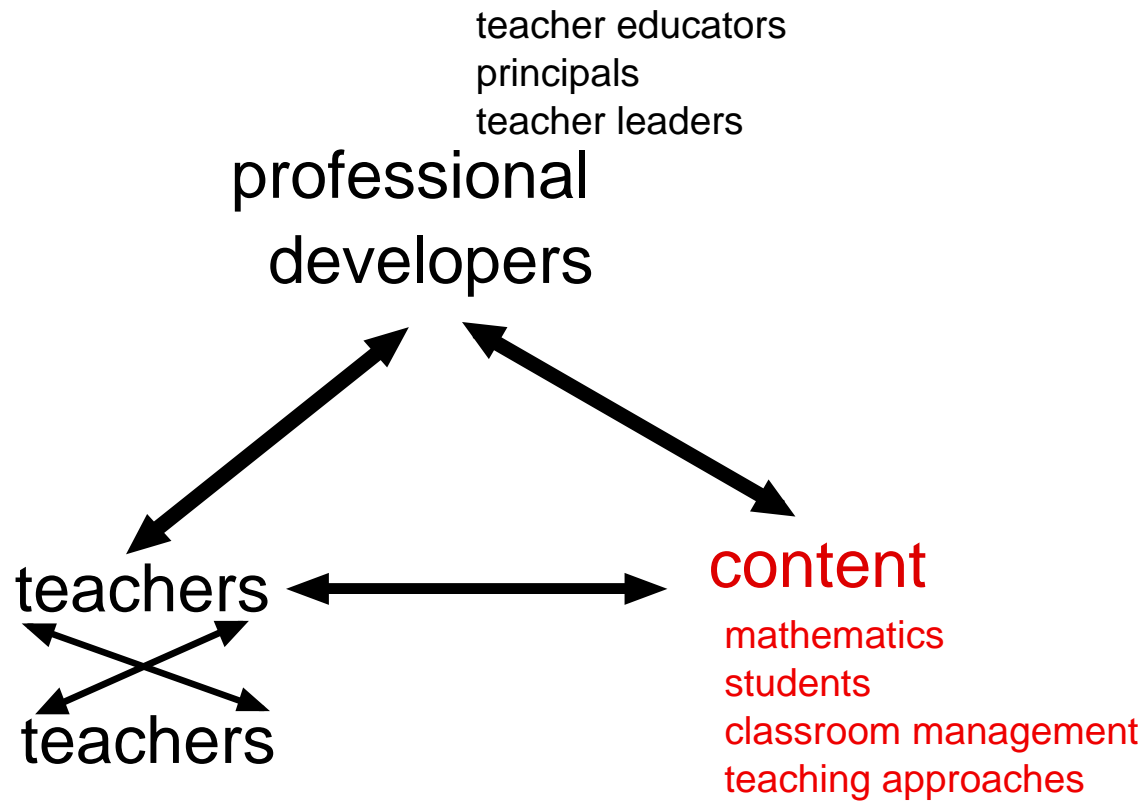
Write number sentences for 10.



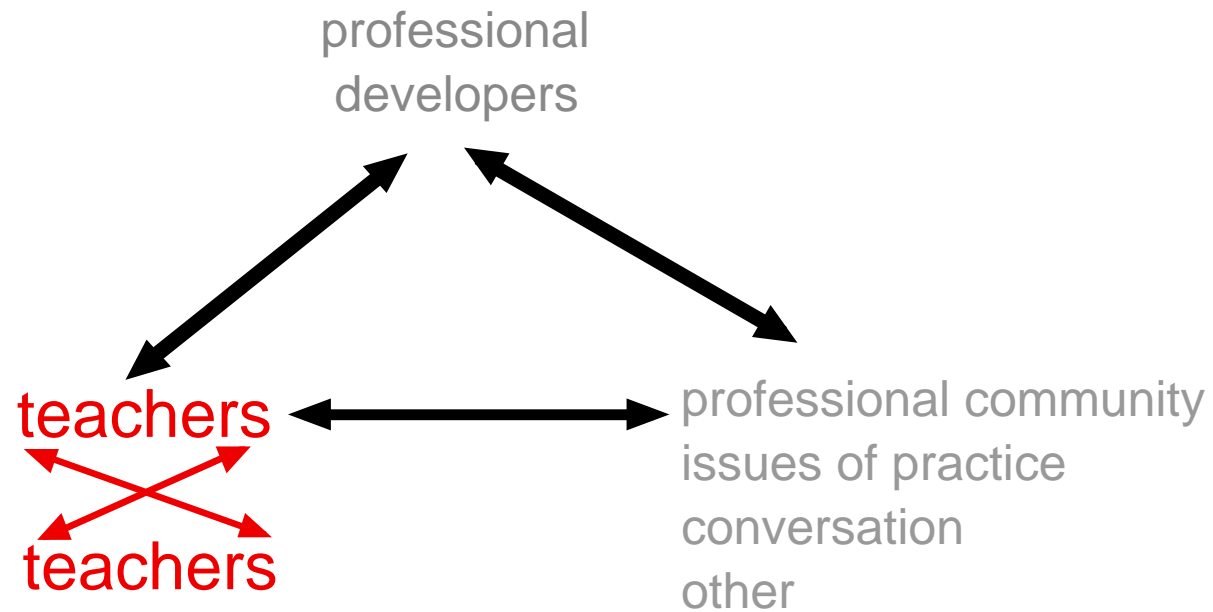
# What are problems that teachers have to solve in the course of their work?

- What do teachers have to manage in order to teach?
- What kinds of mathematical knowledge, skills, and sensibilities are entailed by the work of teaching?
- What do teachers have to be able to do?

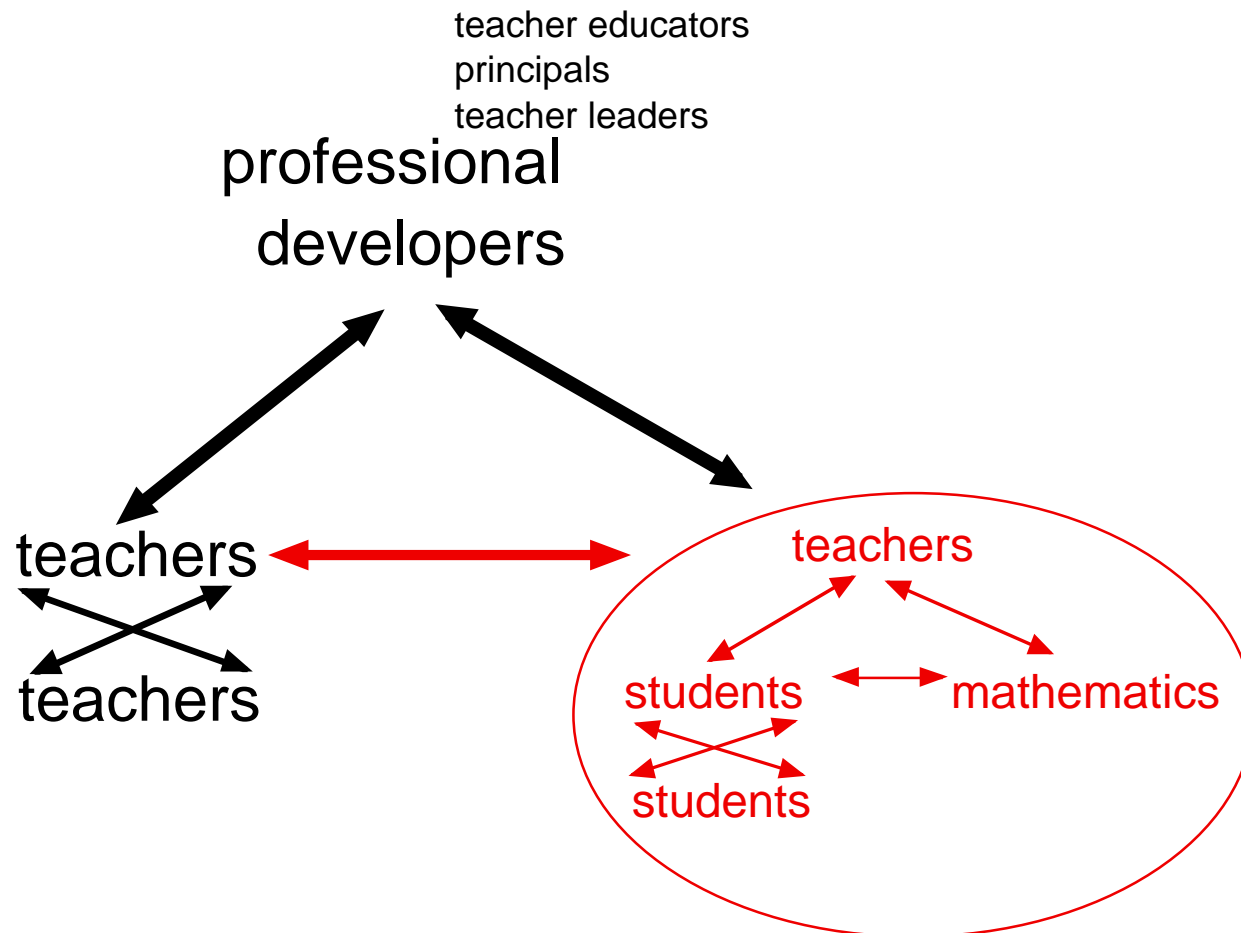
# Three perspectives on teachers' professional learning



# Learning by acquiring new knowledge



# Learning through collegial interaction



## Learning in and from practice

# How can practice be used as a site for professional learning?

# Learning teaching by learning to solve problems of practice

- Choosing and using representations
- Responding to students' mathematical ideas
- Managing discussions of mathematics
- Designing lessons

# Example #1:

## MANAGING A CLASS DISCUSSION

### Multi-Digit Subtraction And Mathematical Reasoning

# Example #2:

## MODELING THE MEANING OF ALGORITHMS

### Multi-Digit Subtraction

**Use concrete materials to show children why a traditional algorithm for subtraction works.**

$$\begin{array}{r} 307 \\ - 168 \\ \hline \end{array}$$
$$\begin{array}{r} \overset{2}{\cancel{3}} \overset{9}{\cancel{0}} \overset{1}{7} \\ - 168 \\ \hline 139 \end{array}$$

# **Example #3:**

## **RESPONDING TO STUDENTS' MATHEMATICAL IDEAS**

### **Alternative Methods for Multi-Digit Subtraction**

# Two students propose alternative ways

$$\begin{array}{r} \text{29 } \overset{1}{\cancel{307}} \\ - 168 \\ \hline 139 \end{array}$$

$$\begin{array}{r} 307 \\ - 168 \\ \hline 2-6-1 \\ \hline 14-1 \\ \hline 139 \end{array}$$

# What are different forms in which practice can be harnessed for professional learning?

- Case studies
- Video records
- Students' work
- Lesson study

# What is involved in making practice educative?

- Records
- Problems or questions
- Language for distinguishing practice
- Frameworks for practice
- Stance of inquiry toward practice
- Norms for the collective study of practice

# What is afforded by cases?

## What are possible pitfalls?

- Specific controlled content or examples
- Reduced complexity -- greater focus
- Opportunity to make or study commentaries
- Lack of vividness
- Disconnect from teachers' own classrooms
- Can become academic rather than practical

# What is afforded by video?

## What are possible pitfalls?

- Access to other than verbal channels
- Capturing of the dynamic
- Possibility of repeated viewing and study
- Multiple uses -- different goals
- Large demand to make “curriculum”
- Disconnection from teachers’ own classrooms
- Dismissal
- Lack of “realism”

# What is afforded by lesson study?

## What are possible pitfalls?

- Direct engagement in making and studying practice
- Based on organic unit of practice
- Integration of information about mathematics, student thinking, and lesson design
- Opportunity to design, analyze, redesign
- Work on enactment

- Small coverage over time
- Superficial enactment (form over intent)
- Intensive time demands
- Risk
- Big demand on leadership to develop “curriculum”

# Next steps

- Development of ideas and materials that can support a systematic “curriculum of practice”
- Studies of what teachers learn from different modes of studying practice
- Ways to track teachers’ learning validly and reliably
- Opportunities for the development of teacher leaders