Studying Practice to Learn in and From Experience

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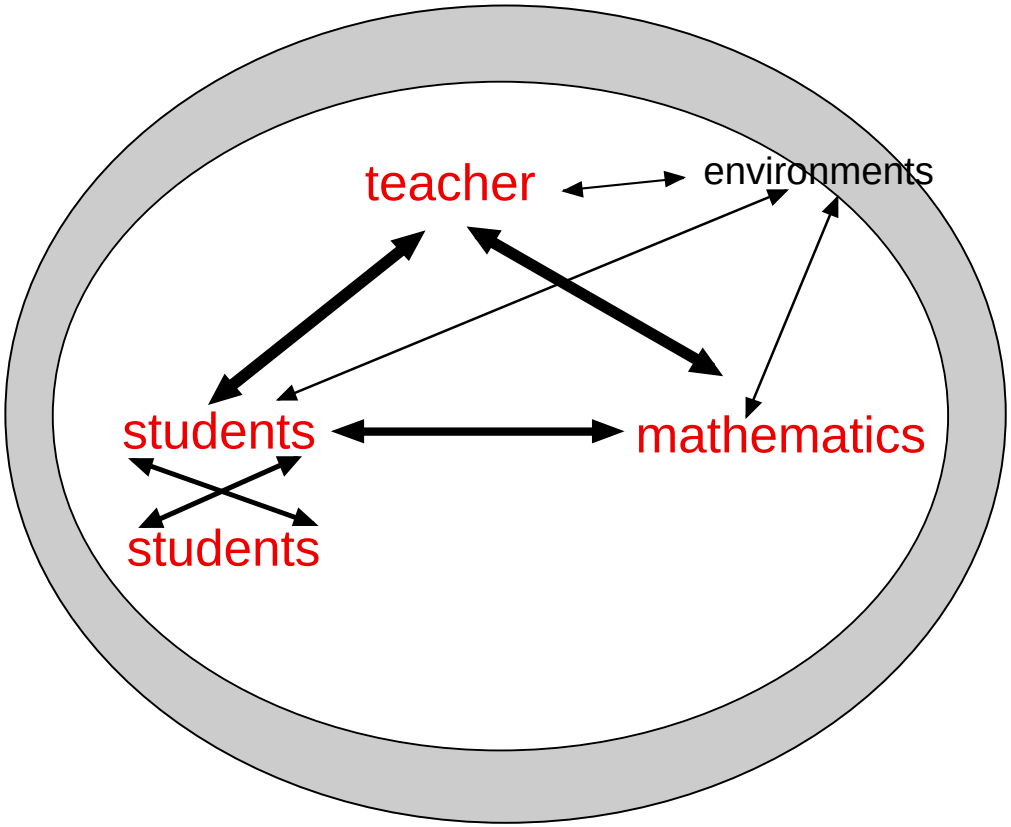
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A set of premises about learning to teach

- 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.

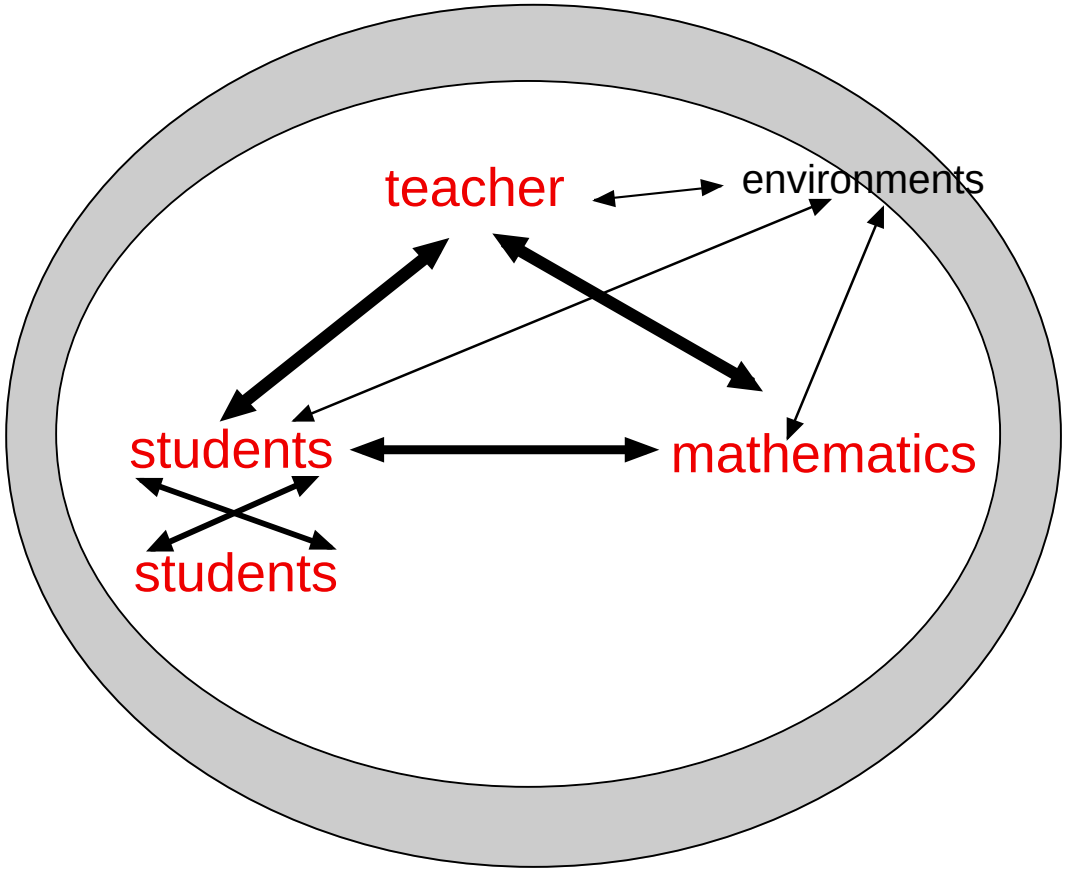
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Teaching is a complex practice



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Write number sentences for 10.



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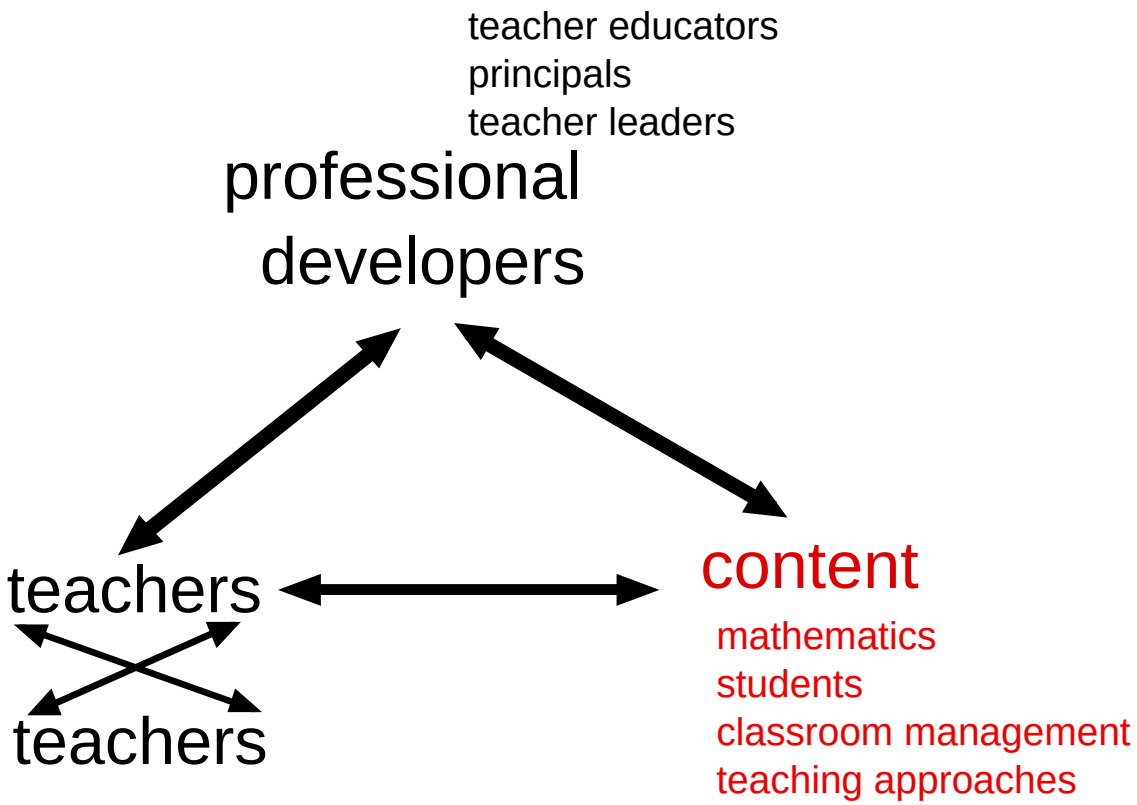
What are problems that teachers have to solve in the course of their work?

- 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?

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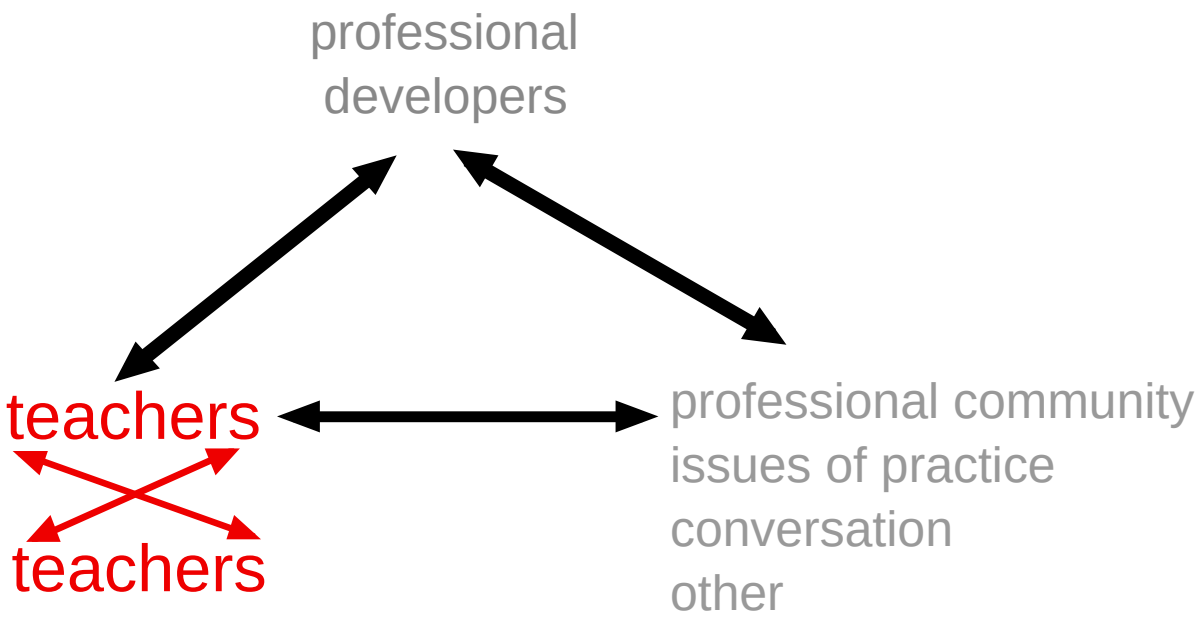
Three perspectives on teachers' professional learning

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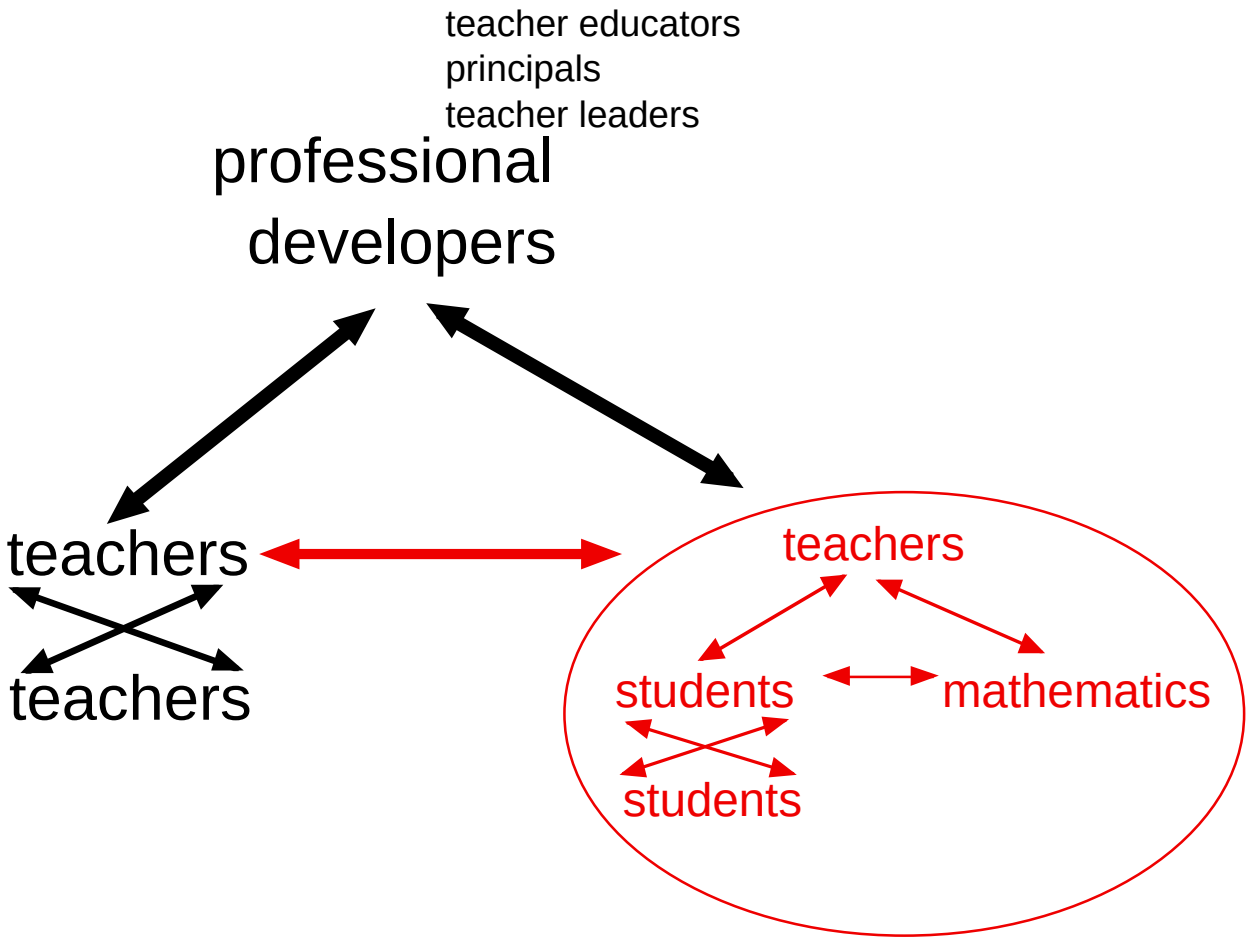
Learning by acquiring new knowledge

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Learning through collegial interaction

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Learning in and from practice

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

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Learning teaching by learning to solve problems of practice

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

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Example #1:

MANAGING A CLASS DISCUSSION

Multi-Digit Subtraction And Mathematical Reasoning

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Example #2:

MODELING THE MEANING OF ALGORITHMS

Multi-Digit Subtraction

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

$$\begin{array}{r} 307 \\ -\ 168 \\ \hline \end{array}$$

$$\begin{array}{r} {\scriptstyle 2}\ {\scriptstyle 9}\ \ {\scriptstyle 1} \\ 3\,\not{0}\,\not{7} \\ -\ 1\ 6\ 8 \\ \hline 1\ 3\ 9 \end{array}$$

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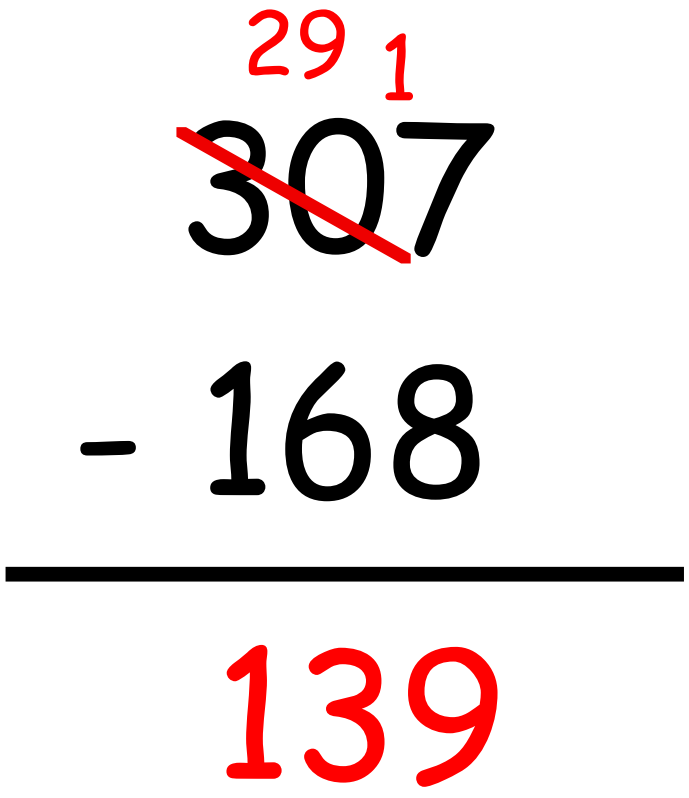
Example #3:

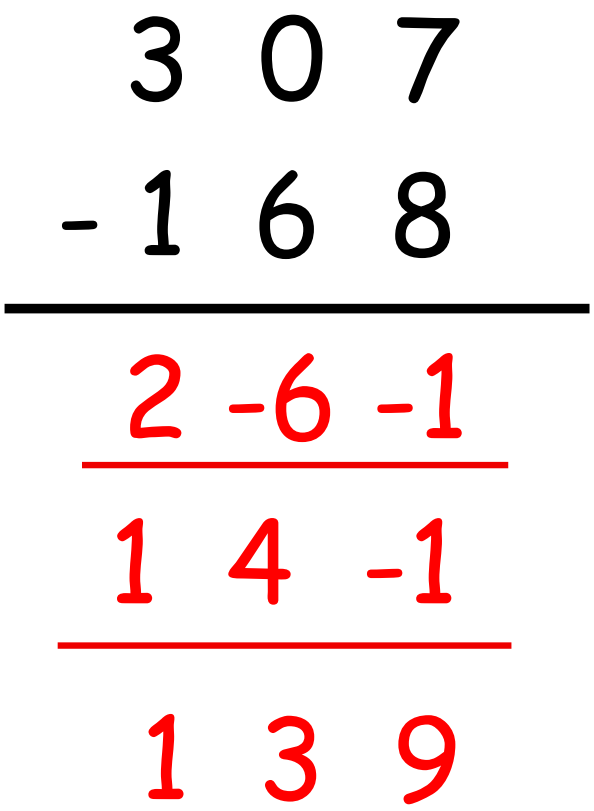
RESPONDING TO STUDENTS' MATHEMATICAL IDEAS

Alternative Methods for Multi-Digit Subtraction

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Two students propose alternative ways





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

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

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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

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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

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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”

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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

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

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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

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