Learning to Teach: The Critical Role of Videotaping and Analyzing Instruction in Understanding and Enacting Ambitious Teaching

Dr. Charalambos Y. Charalambous
Department of Education
University of Cyprus

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Overview of the Presentation

- The complexities of (ambitious) teaching
- What can be learned from analyzing and reflecting upon videotaped lessons?
  - What teaching is and what does it entail?
  - How can teaching contribute to student learning?
  - How ambitious teaching looks like?
  - Can ambitious teaching be learned? How?
- Cultivating a culture of learning through analyzing and reflecting upon videoed lessons

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Teaching: A Complex Work

- “He who can, do; he who cannot, teaches” (George Bernard Shaw, *Man and Superman*)

vs.

- “Those who can, do; those who understand, teach” (Aristotle; Shulman, 1986)
Teaching: A Complex Work

- Teaching is a particularly complex work:
  - It requires that many decisions be made rapidly and in situ (Leinhardt, 1993; Schoenfeld, 2008)
  - It involves a lot of dilemmas (cf. Ball, 1993, Lampert, 2001)
  - It aims toward human improvement: teachers “work directly on other humans in efforts to better their minds, lives, [and] work” (Cohen, 2011, p. 4)
  - But, it success depends on its clients: students (Fenstermacher & Richardson, 2005)
Ambitious Teaching

- **Ambitious teaching** refers to “work with students that is intellectually demanding, attentive to students’ work, conducted in thoughtful conversation, and thus usually requires considerable training” (Cohen, 2011, p. 47)
Teaching that aims to:

- Engage all students (and, therefore, is calibrated to what particular students are able to do—or not do)
- Help students develop in-depth knowledge of subject matter and higher-order thinking skills
- Help students become able to apply what they know to real-life situations
- Create an environment where students are willing and motivated to take the risks that intellectual performance entails

(Lampert et al., 2011, 2013)
A Critical Question

How can we, as scholars and teacher educators, help pre-service and in-service teachers gradually develop the tendency and the capacity to enact ambitious teaching in their work?
Main Thesis

- Teaching might be a particularly demanding and complex work, but it can be learned
- To learn how to teach, we first need to understand what teaching is and what it entails
- Videotaped lessons can help unpack and understand what teaching is, and consequently, help teacher educators scaffold prospective and in-service teachers’ learning to teach
The Critical Role of Videotaping and Analyzing Instruction

A. What teaching is and what does it entail?
B. How can teaching contribute to student learning?
C. How ambitious teaching looks like?
D. Can ambitious teaching be learned? How?
A. What Teaching Is and What Does It Entail?

- Despite decades of work on understanding teaching, the field still lacks a comprehensive framework for teaching.

- Such a framework would help unpack the different components of teaching and provide the grammar and lexicon for discussing them (Grossman & McDonald, 2008).

- Analyzing videotaped instruction can help unpack, decompose, and start understanding teaching and its entailments.

- This work can help start developing a theoretical framework for teaching.
A. What Teaching Is and What Does It Entail?

- **Example: Using and Linking Representations in Mathematics**
  - What is the teacher doing while interacting with students and the content?
  - Selecting representations that lend themselves to explaining a mathematical procedure
  - Connecting mathematical symbols and cubes: Using multiple representations to help students make sense of the underlying meaning of the procedure
  - Employing appropriate mathematical language and notation

(Mitchell, Charalambous, & Hill, 2014)
A. What Teaching Is and What Does It Entail?

- **Example:** Demonstrating a motor skill in Physical Education
  - What is the teacher doing while interacting with students and the content?
    - Showing and telling
    - Emphasizing learning cues (critical elements of a movement skill or task)
    - Conveying only a small number of learning cues
    - Pointing to acceptable and unacceptable performances

  Rink (2006)
B. How Can Teaching Contribute to Student Learning?

- Despite decades of scholarly work on teaching and learning, a core question in educational research remains partly addressed: What is it about teaching that influences student learning? (Hiebert & Grouws, 2007)

- Once we unpack and understand what teaching entails, we need to explore if and how these different teaching components contribute to student learning
B. How Can Teaching Contribute to Student Learning?

- Combined with data on student learning, videotaped lessons can be a significant asset in this context, because they enable multiple views of lessons, each time using different perspectives/lenses.

- Videotape ... suspends the action and holds it still long enough for it to be examined. This medium has made possible a certain kind of iterative analysis in that one can play and replay the moment of classroom action captured by the camera (Lewis, 2008, p. 7).
B. How Can Teaching Contribute to Student Learning?

An example of combining different lenses to study teaching and its contribution to student learning:

- **Generic teaching practices**: practices that cut across different subject matters (e.g., structuring, orienting, posing questions, providing feedback)

- **Content-specific teaching practices**: practices that are more important for/more pertinent to teaching specific subject matters:
  - Using and connecting representations in Mathematics
  - Connecting multiple solution approaches

(see Charalambous, Komitis, Papacharalambous, & Stefanou, 2014)
B. How Can Teaching Contribute to Student Learning?

□ Why working at the intersection of both types of practices?

- Scholars who have worked with either generic or content-specific teaching practices have suggested also considering the other type (e.g., Brophy, 1986; Grossman & McDonald, 2008)
- Recent meta-analyses have shown either type of practices to contribute to student learning (Hattie, 2009; Kyriakides et al., 2013; Seidel & Shavelson, 2007)
- Recent secondary analyses of TIMSS 2007 and 2011 data have shown both types of practices to explain a larger proportion of variance in student learning compared to that explained when using only one type of practices (Charalambous & Kyriakides, 2014)
Other more technical issues that also need to be addressed:

- How many lessons should we observe per teacher to get a reliable estimate of the quality of his/her work?
- How many coders need to observe these lessons?

Analyzing videotaped lessons can be a significant asset in answering such measurement questions.

Drawing on videotaped lessons and using Generalizability theory, scholars have outlined different optimal combinations of lessons and raters that can yield reliable estimated of teaching quality for a given observation system (e.g., Hill, Charalambous, & Kraft, 2012; Praetorius, Pauli, Reusser, Rakoczy, & Klieme, 2014)
C. How Does Ambitious Teaching Look Like?

- How does providing a student-comprehensible and disciplinary-acceptable explanation in mathematics look like?
- How can primary and secondary resources be used to understand an historical event and to support decision making in a history lesson?
- How can effective classroom routines be established (across subject matters) to enable smooth transitions between instructional activities and maximize instructional time?
- ...
C. How Does Ambitious Teaching Look Like?

- Videotaping can help develop “libraries” of teaching
- Such libraries can not only provide existence proof (“it can be done”) but can also help us unpack and understand how it can be done
- An example: Providing explanations that are “loyal” to the discipline and comprehensible to students

Explaining what it means to form equivalent fractions in mathematics
C. How Does Ambitious Teaching Look Like?

- These video segments constitute representations of practice/teaching (Grossman et al., 2009): they can make several aspects of teaching visible to (novice) teachers.
- As such, they can create a platform for learning to enact ambitious teaching.
D. Can Ambitious Teaching Be Learned? How?

Cycle of Enactment and Investigation (Lampert et al., 2013)
D. Can Ambitious Teaching Be Learned? How?

An example:

- Working with a group of pre-service teachers during their fieldwork placement
  - Teaching classroom routines to students to establish effective classroom management
  - Time management skills
  - Getting to the “main” point of the lesson/meeting the basic learning objectives (cf. Sleep, 2012)
D. Can Ambitious Teaching Be Learned? How?

Rehearsing

Classroom enactment

Widening the lens...

Reflecting on practice
The Work of Videotaping and Its Predicaments

- Working in an educational context in which observing each other is the exception rather than the rule...
- Working during an era of increased accountability pressures, which accentuate the concerns about how videotaped instruction is going to be used...
The Work of Videotaping and Its Predicaments

- Significant work needs to be done to cultivate a culture that supports videotaping and critically analyzing videotaped instruction
- Requires patience and persistence
- But above all, it requires following and doing what we preach
- G. B. Shaw: “You imagine what you desire, you will what you imagine and at last you create what you will”
Contact information:
Charalambos Y. Charalambous

cycharal@ucy.ac.cy
Selected References

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