Design Problems in Practice-Focused Teacher Education

Francesca Forzani and Deborah Loewenberg Ball

AACTE Annual Meeting • Atlanta, GA • February 20, 2010





This work is licensed under the Creative Commons Attribution-Noncommercial-No Derivative Works Version 3.0 United States License: http://creativecommons.org/licenses/by-nc-nd/3.0/us/

© 2010 Mathematics Teaching and Learning to Teach • School of Education • University of Michigan • Ann Arbor, MI 48109 • mtlt@umich.edu

Acknowledgements

Bob Bain
Hyman Bass
Tim Boerst
Tabbye Chavous
Betsy Davis
Donald Freeman
Lauren McArthur Harris
Teresa McMahon
Vicki Haviland
Pat Herbst
Joe Krajcik
Pamela Moss
Annemarie Palincsar
Cathy Reischl
Lesley Rex
Laurie Sleep

This work is licensed under the Creative Commons Attribution-Noncommercial-No Derivative Works Version 3.0 United States License: http://creativecommons.org/licenses/by-nc-nd/3.0/us/
© 2010 Mathematics Teaching and Learning to Teach • School of Education • University of Michigan • Ann Arbor, MI 48109 • mtlt@umich.edu

The problem

- Calls for teacher education to be more focused on practice an increasingly common refrain
- Some work underway to identify focal practices for teacher education, in general and in specific subject-areas, and to design TE around them
- But to date, we have not created a common language for talking about the core elements of the work of teaching or focused TE on that work in detail
- Little knowledge exists about what the challenges of this kind of design work would be

This work is licensed under the Creative Commons Attribution-Noncommercial-No Derivative Works Version 3.0 United States License: http://creativecommons.org/licenses/by-nc-nd/3.0/us/
© 2010 Mathematics Teaching and Learning to Teach • School of Education • University of Michigan • Ann Arbor, MI 48109 • mtlt@umich.edu

Our goal for today:

To identify what is involved in trying to design a teacher education curriculum centered on the practice of teaching

This work is licensed under the Creative Commons Attribution-Noncommercial-No Derivative Works Version 3.0 United States License: http://creativecommons.org/licenses/by-nc-nd/3.0/us/

© 2010 Mathematics Teaching and Learning to Teach • School of Education • University of Michigan • Ann Arbor, MI 48109 • mtlt@umich.edu

Overview

1. A short exercise: What is challenging about trying to identify focal practices for teacher education?
2. Five problems inherent in making practice the centerpiece of teacher education
3. An example: Identifying "high-leverage" practices at the University of Michigan
4. Additional problems

This work is licensed under the Creative Commons Attribution-Noncommercial-No Derivative Works Version 3.0 United States License: http://creativecommons.org/licenses/by-nc-nd/3.0/us/
© 2010 Mathematics Teaching and Learning to Teach • School of Education • University of Michigan • Ann Arbor, MI 48109 • mtlt@umich.edu

Consider some of the foci of pilot training:

- Conducting a preflight inspection
- Glassy-water approach and landing
- Normal and cross-wind approach and landing
- Straight turns and climbing turns
- Effective visual scanning
- Runway incursion avoidance
- Crossed control stalls
- S-turns across a road

This work is licensed under the Creative Commons Attribution-Noncommercial-No Derivative Works Version 3.0 United States License: http://creativecommons.org/licenses/by-nc-nd/3.0/us/
© 2010 Mathematics Teaching and Learning to Teach • School of Education • University of Michigan • Ann Arbor, MI 48109 • mtlt@umich.edu

. . . or of medical training

e.g., Conduct a chest examination:

- Observe respiratory efforts and note presence/ absence of respiratory distress
- Confirm midline tracheal position with gentle palpation anteriorally
- Percuss the chest on left and right
- Ascultate the chest using using the diaphragm of the stethoscope on both right and left sides

This work is licensed under the Creative Commons Attribution-Noncommercial-No Derivative Works Version 3.0 United States License: http://creativecommons.org/licenses/by-nc-nd/3.0/us/
© 2010 Mathematics Teaching and Learning to Teach • School of Education • University of Michigan • Ann Arbor, MI 48109 • mtlt@umich.edu

. . . or of training for the clergy

- Presiding at life-cycle events (bat and bar mitzvah, funerals, christenings)
- Counseling parishioners
- Homiletics (developing and delivering a sermon)
- Reading for preaching

This work is licensed under the Creative Commons Attribution-Noncommercial-No Derivative Works Version 3.0 United States License: http://creativecommons.org/licenses/by-nc-nd/3.0/us/
© 2010 Mathematics Teaching and Learning to Teach • School of Education • University of Michigan • Ann Arbor, MI 48109 • mtlt@umich.edu

No equivalent in teaching

- Objectives for coursework and for student teaching and other clinical experiences lack similarly precise professionally-determined and agreed-upon learning objectives
- Performance expectations for graduates of teacher education underspecified and weakly assessed (e.g., reflects on lesson, manages the classroom effectively, delivers clear instruction

This work is licensed under the Creative Commons Attribution-Noncommercial-No Derivative Works Version 3.0 United States License: http://creativecommons.org/licenses/by-nc-nd/3.0/us/
© 2010 Mathematics Teaching and Learning to Teach • School of Education • University of Michigan • Ann Arbor, MI 48109 • mtlt@umich.edu

What teaching practices
are the most essential for beginning teachers to be able to perform competently?

What would you say?

This work is licensed under the Creative Commons Attribution-Noncommercial-No Derivative Works Version 3.0 United States License: http://creativecommons.org/licenses/by-nc-nd/3.0/us/
© 2010 Mathematics Teaching and Learning to Teach • School of Education • University of Michigan • Ann Arbor, MI 48109 • mtlt@umich.edu

The challenge

Professionals working toward practice-focused teacher education would need to manage at least five inherent problems:

1. Specify and develop consensus around the core tasks and activities of teaching
2. Choose the elements of practice most necessary for entrants to the profession
3. Articulate those elements at an effective grain-size
4. Manage the general and subject-specific aspects of teaching practice
5. Manage the context-specific nature of practice

This work is licensed under the Creative Commons Attribution-Noncommercial-No Derivative Works Version 3.0 United States License: http://creativecommons.org/licenses/by-nc-nd/3.0/us/
© 2010 Mathematics Teaching and Learning to Teach • School of Education • University of Michigan • Ann Arbor, MI 48109 • mtlt@umich.edu

1. Specifying and developing consensus around core tasks and activities of teaching

- Absence of robust professional knowledge base
- Link between particular teaching practices and student achievement not always clear
- Weak common language for describing and studying teaching

This work is licensed under the Creative Commons Attribution-Noncommercial-No Derivative Works Version 3.0 United States License: http://creativecommons.org/licenses/by-nc-nd/3.0/us/
© 2010 Mathematics Teaching and Learning to Teach • School of Education • University of Michigan • Ann Arbor, MI 48109 • mtlt@umich.edu

2. Choosing elements most important for competent beginning practice

- Given vast scope of teaching practice and brevity of professional training, what is most important?
- Are some aspects of practice fundamental to more advanced elements?
- Are there elements of practice that are best or only learned through formal training (rather than experience)?
- What makes a "safe" beginner?

This work is licensed under the Creative Commons Attribution-Noncommercial-No Derivative Works Version 3.0 United States License: http://creativecommons.org/licenses/by-nc-nd/3.0/us/
© 2010 Mathematics Teaching and Learning to Teach • School of Education • University of Michigan • Ann Arbor, MI 48109 • mtlt@umich.edu

3. Articulating core practices at an effective grain-size

- How to decompose the intricate practice of teaching into parts that are small enough to be learnable but are still meaningful?
- Does it matter if core practices are of different "grain-sizes"?
- What to do about practices that cut across multiple elements of instructional work?

This work is licensed under the Creative Commons Attribution-Noncommercial-No Derivative Works Version 3.0 United States License: http://creativecommons.org/licenses/by-nc-nd/3.0/us/
© 2010 Mathematics Teaching and Learning to Teach • School of Education • University of Michigan • Ann Arbor, MI 48109 • mtlt@umich.edu

4. Managing the general and the subject-specific aspects of teaching

- How does the work of teaching differ from one subject to the next?
- Are there practices that all elementary teachers, all secondary teachers, or all K-12 teachers need to be able to do, independent of their field?
- What are the subject-specific practices that are most important for beginners?
- How can we manage with the lack of a common K-12 curriculum in the U.S.?

This work is licensed under the Creative Commons Attribution-Noncommercial-No Derivative Works Version 3.0 United States License: http://creativecommons.org/licenses/by-nc-nd/3.0/us/
© 2010 Mathematics Teaching and Learning to Teach • School of Education • University of Michigan • Ann Arbor, MI 48109 • mtlt@umich.edu

5. Managing the context-specific nature of instructional practice

- How does context interact with a given teaching practice?
- How can we account for that interaction in teacher education, particularly given the diversity of instructional contexts in the United States?

This work is licensed under the Creative Commons Attribution-Noncommercial-No Derivative Works Version 3.0 United States License: http://creativecommons.org/licenses/by-nc-nd/3.0/us/
© 2010 Mathematics Teaching and Learning to Teach • School of Education • University of Michigan • Ann Arbor, MI 48109 • mtlt@umich.edu

An example: Identifying high-leverage practices at the University of Michigan

At UM, we have tried to manage the first three of these problems by:

- Enlisting the experience and imagination of a broad range of practitioners and researchers to create a comprehensive "map" of the work of teaching
- Specifying and using criteria for identifying those aspects of the work that are the most "high-leverage" for beginners
- Deliberately choosing tasks and activities at grain sizes useful for a curriculum of learning to teach

This work is licensed under the Creative Commons Attribution-Noncommercial-No Derivative Works Version 3.0 United States License: http://creativecommons.org/licenses/by-nc-nd/3.0/us/
© 2010 Mathematics Teaching and Learning to Teach • School of Education • University of Michigan • Ann Arbor, MI 48109 • mtlt@umich.edu

"High-leverage" practices

- Have significant power in teaching because they:
  - Are central to the daily work of teaching
  - Make much more likely that teaching will be effective for students' learning
- Essential; if teachers cannot discharge them well, they will face significant problems
- Fundamental to the development of more complex practice

This work is licensed under the Creative Commons Attribution-Noncommercial-No Derivative Works Version 3.0 United States License: http://creativecommons.org/licenses/by-nc-nd/3.0/us/
© 2010 Mathematics Teaching and Learning to Teach • School of Education • University of Michigan • Ann Arbor, MI 48109 • mtlt@umich.edu

Considerations for identifying "high-leverage" practices

- Drew on research on teaching
- Drew on recent design work in teacher education, most of it in specific school subject-areas (Ball, Sleep, Boerst, & Bass, 2009; Franke & Chan, 2009; Hatch & Grossman, 2009)
- Created and vetted our own list

This work is licensed under the Creative Commons Attribution-Noncommercial-No Derivative Works Version 3.0 United States License: http://creativecommons.org/licenses/by-nc-nd/3.0/us/
© 2010 Mathematics Teaching and Learning to Teach • School of Education • University of Michigan • Ann Arbor, MI 48109 • mtlt@umich.edu

Examples of considerations

Considerations central to the practice of teaching:

- High probability of making a difference in teaching quality and effectiveness
- Effective in using and managing differences among pupils
- Useful broadly across contexts and content

Considerations central to teacher education:

- Can be assessed
- Can be taught to beginners

This work is licensed under the Creative Commons Attribution-Noncommercial-No Derivative Works Version 3.0 United States License: http://creativecommons.org/licenses/by-nc-nd/3.0/us/
© 2010 Mathematics Teaching and Learning to Teach • School of Education • University of Michigan • Ann Arbor, MI 48109 • mtlt@umich.edu

Identifying high-leverage practices

- Used considerations to identify list of 88 potential HLPs
- Bundled or further decomposed items to achieve a shorter list that highlights a range of crucial features of the work of teaching

This work is licensed under the Creative Commons Attribution-Noncommercial-No Derivative Works Version 3.0 United States License: http://creativecommons.org/licenses/by-nc-nd/3.0/us/
© 2010 Mathematics Teaching and Learning to Teach • School of Education • University of Michigan • Ann Arbor, MI 48109 • mtlt@umich.edu

Examples of high-leverage practices

- Explaining ideas and processes
- Choosing and using representations, examples, and models of core content
- Setting up and managing small-group work
- Recognizing and identifying common patterns of student thinking in a content domain
- Selecting and using specific methods to assess students' learning on an on-going basis
- Conducting a meeting with a parent or caregiver

This work is licensed under the Creative Commons Attribution-Noncommercial-No Derivative Works Version 3.0 United States License: http://creativecommons.org/licenses/by-nc-nd/3.0/us/
© 2010 Mathematics Teaching and Learning to Teach • School of Education • University of Michigan • Ann Arbor, MI 48109 • mtlt@umich.edu

Next steps

- Choose content for learning the HLPs, given that the U.S. has no common curriculum
- Incorporate attention to cross-cutting issues such as equity, language, and learning
- Determine the specific kinds of instructional activities and clinical settings will help novices learn the HLPs?
- Designing assessments of novices' ability to perform the HLPs
- Validating the HLPs (and assessments) against students' learning gains

This work is licensed under the Creative Commons Attribution-Noncommercial-No Derivative Works Version 3.0 United States License: http://creativecommons.org/licenses/by-nc-nd/3.0/us/
© 2010 Mathematics Teaching and Learning to Teach • School of Education • University of Michigan • Ann Arbor, MI 48109 • mtlt@umich.edu

Thank you!

dball@umich.edu

fforzani@umich.edu

www.soe.umich.edu/tei

This work is licensed under the Creative Commons Attribution-Noncommercial-No Derivative Works Version 3.0 United States License: http://creativecommons.org/licenses/by-nc-nd/3.0/us/

© 2010 Mathematics Teaching and Learning to Teach • School of Education • University of Michigan • Ann Arbor, MI 48109 • mtlt@umich.edu