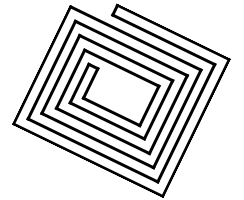


Teacher Education in View of the Common Core

21 – 23 March, 2012

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Mathematical Sciences Research Institute
 Ninth Critical Issues in Mathematics Education Workshop
 Berkeley, California



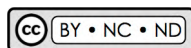
Organizers: Dave Auckly, Hyman Bass (Chair), Amy Cohen-Corwin, and William McCallum

Workshop sponsored by
 Mathematical Sciences Research Institute, National Science Foundation, Math for America

21 March, 2012



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MSRI Education Advisory Committee

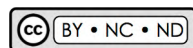
Michèle Artigue, David Auckly, Deborah Ball* (Chair),
Hélène Barcelo*, Hyman Bass, Sybilla Beckmann,
Robert Bryant (Director), Herb Clemens,
Amy Cohen-Corwin, Ricardo Cortez, Ted Courant,
David Eisenbud*, Roger Howe, Maria Klawe*,
Tom Leighton*, Jim Lewis, Robert Megginson,
Robert Moses, Alan Schoenfeld, Katherine Socha,
Hung-Hsi Wu

*Trustee



The First Eight CIME Workshops

1. [Assessing Students' Mathematics Learning: Issues, Costs and Benefits](#)
March 7-10, 2004, at MSRI
2. [The Mathematical Knowledge for Teaching \(K-8\): Why, What and How?](#)
May 25-28, 2005, at Asilomar, CA
3. [Raising the floor: Progress and setbacks in the struggle for quality mathematics education for all](#)
May 7-10, 2006, at MSRI
4. [Critical Issues in Education: Teaching Teachers Mathematics](#)
May 30- June 1, 2007, at MSRI
5. [Critical Issues in Education: Teaching and Learning Algebra](#)
May 14-16, 2008, at MSRI
6. [Critical Issues in Education: Teaching Undergraduates Mathematics](#)
May 11-13, 2009, at MSRI
7. [Reasoning and Sense-Making in the Mathematics Curriculum](#)
June 07, 2010 to June 09, 2010, at MSRI
8. [The Mathematical Education of Teachers](#)
May 11, 2011 to May 13, 2011, at MSRI



Framing Questions of the Workshop

1. *Curriculum change*: How does the addition of mathematical practices as an explicit part of the K-12 curriculum change the mathematical scope of the curriculum? What is meant by each of the *mathematical practices* and how are these interwoven into mathematical topics?
2. *Implications for and demands of practice*: How does the Common Core affect the work of teaching? What is entailed for instruction to meet the goals of the CCSS?
3. *Teachers' education*: How can teachers' professional training support their command of the mathematics of the CCSS and their ability to work on it effectively in practice?
4. *Infrastructure*: What infrastructure can support broad development and implementation of teacher training and support that is aligned with the Common Core?

Session and Time	Theme	Participants
0. Wed. 5:00-6:40	Opening. Introd. to the Workshop and the Common Core	
1. Wed. 6:50-7:50	Hopefully and Hopelessly American: The Challenge of the Common Core	Deborah Ball
Part 1: Mathematical Practices: How do they affect the curriculum? What do they mean? How are they interwoven with topics? Introd. Thu. 8:30 – 8:45		
2. Thu. 8:45 – 9:45	What are mathematical practices? Disciplinary perspectives; curricular precursors; what is distinctive about mathematical practices in the Common Core?	Phil Daro (mod) Deborah Schifter Hyman Bass
3. Thu. 9:45-11:00	Mathematical practices in action: View and discuss records of practice. (A selection of MPs, topics, and levels)	Jo Boaler (mod) Patricio Herbst Sarah-Kate Selling
4. Thu. 11:20-12:30	Breakout Sessions on different clusters of MPs: Their use/role in teaching	Group Leaders: Pablo Mejias, Deborah Schifter, Susanna Epp, Sol Garfunkel, Hy Bass, Cody Patterson, Farshid Hajir, Mark Thames
4+ Thu. 1:30-2:30	Reports from the Breakout Groups	
Part 2: How does the Common Core affect the work of teaching? What is entailed for instruction to meet the goals of the Common Core? Introd. Thu. 2:30-3:00		
5. Thu. 3:00-5:30	Examples from classrooms: Implications of the Common Core for the work of teaching. Presentations – “Fishbowl” discussion – Plenary Q&A	Deborah Ball (mod) Elham Kazemi Judith Jacobs Rheta Rubenstein
Thu. 6:30-7:30	Dinner (@ MSRI)	All
6. Thu. 7:30-9:00	Panel (post dinner): How are concerns for equity affected by the Common Core, in particular its focus on mathematical practices? Specifically, how do these influence attention to issues of language and diversity?	Jo Boaler (mod) Megan Franke Imani Goffney Alan Schoenfeld
Part 3: How can teachers’ professional training support their command of the mathematics of the CCSS and their ability to work on it effectively in practice? Introd. Fri. 8:30-8:45		
7a Fri. 8:45-10:15	Developing PD materials to integrate MPs and content	Elham Kazemi (mod) Meghan Shaughnessy Kara Suzuka Cathy Fosnot
7b Fri. 10:45-12:15	MET 2 The IM&E “Toolkit” DIMACS Teacher Resources	Amy Cohen (mod) Ellen Whitesides Bob Megginson
7c Fri. 1:15-2:45	A system for accessing records of practice The Illustrative Mathematics Project	Jo Boaler (mod) Deborah Ball Meghan Shaughnessy Bill McCallum Kristin Umland Ashli Black
Part 4: What infrastructure can support broad development and implementation of teacher training and support that is aligned with the Common Core?		
8. Fri. 3:15-5:00	Panel: Infrastructure needed to help support the productive use of the CCSS to create a common curriculum and much better outcomes for students?	Deborah Ball & Bill McCallum (mods) Wade Ellis Paola Sztajn Brian Cohen
Fri. 5:00-6:00	Closing session. Reflections on the workshop	Deborah Ball (mod)

**Part 1: Mathematical Practices: How do they affect the curriculum?
What do they mean? How are they interwoven with topics?**

Thursday, 22 March

Part 1: Mathematical Practices: How do they affect the curriculum? What do they mean? How are they interwoven with topics?		
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4. Thu. 11:20-12:30	Breakout Sessions on different clusters of MPs: Their use/role in teaching <ul style="list-style-type: none"> - Reasoning & proving - Mathematical language, definitions, precision - Representing & modeling - Looking for mathematical structure, generalizing - Sense making; understanding conditions of a problem 	<u>Group Leaders:</u> <ul style="list-style-type: none"> - Pablo Mejias & Deborah Schifter - Susanna Epp, - Sol Garfunkel, - Hy Bass & Cody Patterson - Farshid Hajir & Mark Thames
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Thursday, 22 March

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Thu. 6:30-7:30	Dinner (@ MSRI)	All
6. Thu. 7:30-9:00	Equity Panel (post dinner): How are concerns for equity affected by the Common Core, in particular its focus on mathematical practices? Specifically, how do these influence attention to issues of language and diversity?	Jo Boaler (mod) Megan Franke Imani Goffney Alan Schoenfeld

Part 3: How can teachers' professional training support their command of the mathematics of the CCSS and their ability to work on it effectively in practice?

Friday, 23 March

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Friday, 23 March

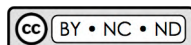
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What brought us here?

The Common Core

Bill McCallum

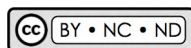
- University of Arizona
 - University Distinguished Professor
- Department of Mathematics
 - Chair
- Institute of Mathematics & Education
 - Director and Founder
- CCSSM
 - Lead Author & Perpetrator



Hopefully and Hopelessly American: The Challenge of the Common Core

Deborah Loewenberg Ball

- University of Michigan
 - Dean, School of Education; William H. Payne Collegiate Professor; Arthur F. Thurnau Professor
- TeachingWorks
 - Founder and Director
- MSRI
 - Trustee; Chair Educational Advisory Committee
- Spencer Foundation
 - Chair, Board of Trustees
- Elementary School Teacher
 - 15 years
 - And continuing



TeachingWorks

**“Our mission is to raise the standard for
classroom teaching practice
by transforming how
teachers are prepared and supported.”**