

Leading the Learning: Transforming the Teaching of Mathematics Through Book Study

National Council of Supervisors of Mathematics

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"It is good to host a dynamic speaker or a stimulating, thought provoking presentation for the entire faculty. It can be mind opening and exciting.

But, unless and until there is skilled follow up and continued nurturing of the energy and small and large steps of courage, little changes."

Why Professional Development Fails

J. Berkowicz and A. Myers

Education Week Blog, Jan. 14, 2018

What are the qualities of high-level professional learning?

- needs-based
- grounded in theory, but practical
- interactive
- reflective
- ongoing (multiple experiences with a common link)

Why Book Study?

- Gets teachers talking to each other
- Allows teachers to share their ideas about practice, respecting their knowledge
- Promotes reflection as teachers consider and debate the thoughts of the author
- Infusion of new ideas and perspectives (research, theory, insights, tasks)
- Opportunity to mull over concepts (ongoing over time)
- Introduces teachers to new books and authors and allows them to reread and continue to explore when study is done
- Opportunity to try ideas and reflect on their own practice

Benefits of Book Study for Facilitators

- Don't have to know everything
- Provides the time and structure for focused conversations with teachers about practice
- Gives us the forum to nurture reflection about practice
- Allows us to talk as colleagues with teachers about content and practice
- Provides background, theory, research to support the changes we are promoting

Choosing a Book

Meet the needs of your teachers.

- Is math still taught in traditional ways? Do they need to reflect on teaching math for understanding?
- Do they fully understand standards/progressions?
- Would they benefit from a greater understanding of certain math topics (e.g., fractions, number sense, math facts)?
- Which instructional strategies are important in your school/district plan (e.g., more math talk, formative assessment)?

Books to Consider

Accessible Mathematics, Steven Leinwand (Heinemann, 2009)
Balancing the Equation, Matthew Larson and Timothy Kanold (Solution Tree, 2016)
Becoming the Math Teacher You Wish You'd Had, Tracy Johnston Zager (Stenhouse, 2017)
Children's Mathematics, Thomas Carpenter, E. Fennema, M. Franke, L. Levi, S. Empson (Heinemann, 2014)
The Formative Five, Francis Fennell, Beth Kobett, Jonathan Wray (Corwin, 2017)
Introduction to Communication, Susan O'Connell (Math Process Standards Series, Heinemann, 2007)
Introduction to Problem Solving, Susan O'Connell (Math Process Standards Series, Heinemann, 2007)
Math in Practice: A Guide for Administrators, Susan O'Connell and John SanGiovanni (Heinemann, 2016)
Math in Practice: A Guide for Teachers, Susan O'Connell (Heinemann, 2016)
Mathematical Mindsets, Jo Boaler (Jossey-Bass, 2015)
Number Talks, Sherry Parrish (Math Solutions, 2014)
Powerful Problem Solving, Max Ray. (Heinemann, 2013)
Principles to Actions, National Council of Teachers of Mathematics (NCTM, 2014)
Putting the Practices into Action, Sue O'Connell and John SanGiovanni (Heinemann, 2013)
Teaching Student-Centered Mathematics, John Van de Walle, K. Karp, L. Lovin, J. Bay-Williams (Pearson, 2013)
Thinking Together, Rozlynn Dance and Tessa Kaplan (Heinemann, 2018)

Exploring the Book

1. Read and reflect on your reading (maybe complete brief reflection sheets)
2. Come ready to discuss (preview the discussion questions)
3. Try ideas between sessions and bring samples to the group if you have any

Role of the Facilitator

Highlight important ideas

- What does the author say?

Promote reflection

- What do you think?

Link implementation to discussions

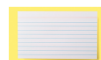
- What will you try? How did it go?

Getting Discussions Started

- A quote or insight
- An introductory activity to do and reflect on
- Watch a brief video and reflect on the math or teaching
- Share something tried with students
- Share sample student work

Sharing Insights/Questions

- Have 2 colors of sticky notes available.
- Teachers record an insight and/or question from their reading.
- Teachers post the notes and the session begins with a discussion about them.



Sharing Cards

- Have each teacher bring an index card to the session.
- The card should have a quote on one side and a comment or question on the other.
- At the meeting, have partners share their cards and discuss.

Book Study Reflection Sheet

Title _____ Chapter _____

Quote from Text	My Thinking About the Quote (Insight? Question?)

May be photocopied for classroom use. © 2016 by Susan O'Connell and John SanGiovanni from *Math in Practice: A Guide for Administrators*, Portsmouth, NH: Heinemann.

Book Study Reflection Sheet

Title _____ Chapter _____

Complete at least 3 of the 4 prompts below.

I agree that...
I disagree that...
I am going to try...
A new insight I had...

May be photocopied for classroom use. © 2016 by Susan O'Connell and John SanGiovanni from *Math in Practice: A Guide for Administrators*, Portsmouth, NH: Heinemann.

Book study reflection sheets and other book study tools are available in online resources of *Math in Practice: A Guide for Administrators*

General Questions to Keep Discussions Flowing

- *What do you agree/disagree with?*
- *What have you tried that is similar to this?*
- *What have you noticed from your students?*
- *How is this different from how you learned math or what you currently do?*
- *How might this look different at different levels or with different students?*
- *What are the benefits of this strategy?*

Summary/ Closure

- *What is something that struck you from today's discussions?*
- *What will you try with your students?*
- *What could we bring back to share (artifacts)?*

Discuss and list *Takeaways and Goals*

Gathering Feedback

What feedback will help you plan for the next book study?

- Duration of the book study?
- Duration of sessions?
- Length of reading assignments?
- Location of meetings?
- Number of participants?
- Tasks associated with the sessions?
- What would you like to study next?

What feedback will help you assess the value of the book study?

- What insights did you have?
- What did you learn?
- What did you try with your students? How did it go?
- What do you do differently as a result of this book study?

Book Study on Social Media

Twitter Book Chats

- Online for a designated number of consecutive weeks (e.g. 4-6 weeks)
- A designated weekly time set for the chat (be sure to designate time zone)
- About 6-8 questions posted over the course of an hour (or 3-4 questions for a half-hour chat)
- Questions focused on a specific chapter
- Teachers read the chapter prior to the session and then join in the chat

Facebook Slow Chats

- Host the chat on a Facebook site
- Designated a book and duration (e.g. 4-6 weeks)
- Voluntary participation from teachers across the country/world
- Questions posted once or twice per week and teachers post their responses and reflections about their reading
- Teachers access, read, and respond to the questions at any time during the week

Pitfalls

- Making the time for meetings
 - During professional learning days or school days (faculty meeting times or release with substitutes)
 - After school (voluntary)
 - Social Media (Twitter, Facebook)
- Teachers' participation (being prepared)
 - Brief, but powerful, reading assignments
 - Reflections to bring to meetings
- Loss of interest
 - No need to read every word – select readings
 - Revisit, but don't rehash – something new in each session
- Teachers expect to "sit and get"
 - Establish group norms at first session
 - Our Goals...
 - In order to accomplish our goals, we will...

What might be possible?

All teachers in a school

- Professional learning days across the year
- Monthly meeting time; all teachers go to their book study (may be several going on at same time)

A designated grade-level

- During grade-level meeting time

A group of interested teachers

- Before/after school or during school with class coverage

Teachers across schools

- Collaboration between schools

What would you do differently? (Insights from book study leaders)

- Shorten reading assignments.
- Select powerful parts of the book to read rather than trying to read it all.
- Integrate some twitter or Facebook meetings to reduce the number of face-to-face meetings

- Allow teachers to weigh in on the logistics (where, when, food...) – give them some say in the structure of the meeting.
- Encourage teachers to keep a journal.
- Include video clips to watch and discuss.
- Align questions to upcoming curriculum so teachers see how they can immediately use the ideas.
- Allow teachers to pair and visit each other’s classrooms.
- Not stress if there isn’t time to discuss every question.
- Allow time for teachers to share with others who were not part of the group.

Join us for a Facebook Book Study this summer

Just join the Math in Practice Facebook group and you are ready to go!

Book: Math in Practice: A Guide for Administrators

Weeks of June 4 – July 6

Slow chat for 5 weeks

Questions posted each week on *Math in Practice* Facebook site; respond when you can

- Week 1: Leading for Change
- Week 2: What to Look For in Math Classrooms
- Week 3: Analyzing Data and Student Work
- Week 4: Professional Learning Options
- Week 5: Parents as Partners

Later in the summer, we will do another slow chat about the *Math in Practice Guide for Teachers!*

Book: Math in Practice: A Guide for Teachers

Weeks of July 16 – August 24

Slow chat for 6 weeks

Questions posted each week on *Math in Practice* Facebook site; respond when you can

- Week 1: Why change?
- Week 2: Step back and let them think
- Week 3: Make connections
- Week 4: Make math visual
- Week 5: Get them talking and writing
- Week 6: Listen and adjust

“You cannot teach a man anything; you can only help him find it within himself.”
Galileo

Keep in touch!

@SueOConnellMath

Facebook – like Quality Teacher Development

www.qualityteacherdevelopment.com

Join the *Math in Practice* Facebook group!

Then vs. Now: Examining Our Beliefs about Mathematics

My Ten Misinformed Beliefs about Math	Did you believe it then?	What happened in your math classroom to contribute to that belief?	Do you believe it now?
1. Practice makes perfect!			
2. Mastering calculations is the ultimate goal of mathematics.			
3. Math is about getting the right answer.			
4. Mathematics is a series of isolated skills.			
5. You must know basic skills before you can learn to solve problems.			
6. The first one finished wins!			
7. The best mathematicians can work calculations in their heads.			
8. The teacher's job is to tell us how to do math.			
9. Math is done in math class.			
10. Some people are good at math and some aren't.			

Teacher Resource Books by Sue O'Connell
Published by Heinemann (www.heinemann.com)

Math in Practice (www.mathinpractice.com)

This series is filled with lesson ideas, instructional strategies, practice tasks, and many online printable resources to make teaching K-5 math more meaningful and more fun. There is a book for each grade level K-5 that contains a wealth of grade-specific activities, as well as a *Guide for Teachers* filled with instructional strategies to support greater understanding of math concepts. A *Guide for Administrators* offers tips and strategies for math coaches/administrators. Visit the website at www.mathinpractice.com to view samplers, see videos, and learn more about the series.

Putting the Practices into Action - Implementing the Common Core Standards for Mathematical Practice K-8

Sue O'Connell and John SanGiovanni

The Standards for Math Practice are the heart and soul of the Common Core State Standards. This book explains each standard in teacher-friendly terms and highlights practical activities to make the standards come alive in classrooms. It contains PLC study group questions and online resources.

Mastering the Basic Math Facts for Addition and Subtraction

Mastering the Basic Math Facts for Multiplication and Division

Sue O'Connell and John SanGiovanni

Through investigations, discussions, visual models, children's literature, and hands-on explorations, students explore the math operations, and through engaging, interactive practice achieve fluency with basic facts. A teacher-friendly CD filled with customizable activities, templates, recording sheets, and teacher tools simplifies your planning and preparation. Over 450 pages of reproducible forms are included in English and Spanish translation.

The Math Process Standards Series (O'Connell et al)

Each book in this series is a practical guide for helping students refine their skills in the highlighted math process (problem solving, communication, reasoning, representations, connections). You will find specific teaching strategies and tips to help all students strengthen their skills. Included with each book is a CD filled with teacher tools and customizable student activities to allow you to change names, data, or spacing for a quick way to differentiate instruction within your classroom.

Introduction to Problem Solving

Introduction to Communication

Introduction to Representation

Introduction to Reasoning and Proof

Introduction to Connections

All books in this series are available for Grades PK-2, Grades 3-5, and Grades 6-8.

Now I Get It: Strategies for Building Confident and Competent Mathematicians, K-6 Sue O'Connell

Good teaching is the critical factor that helps students "get" math. This book is a practical handbook for the teaching of mathematics, with chapters addressing the teaching of problem solving, the use of manipulatives, differentiating instruction, effective teacher questioning, increasing math talk, and much more. The book includes a CD with over 100 pages of resources to support teachers including manipulative templates, math facts game templates, a bibliography of math-related literature, center ideas, math websites, problem-solving and writing tasks, and a variety of other practical resources.

For additional resources, visit www.qualityteacherdevelopment.com

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Join our Math in Practice Facebook group!