Building Teacher Confidence and Camaraderie Through Math Coaching
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“Building Teacher Confidence and Teacher Camaraderie Through Math Coaching”

Expert Presenters:

Joanna Burt-Kinderman
Instructional Coach
Pocahontas County School District
Buckeye, W.Va.

Laurel Dilley
Math Teacher
Pocahontas County High School
Dunmore, W.Va.
An on-demand archive of this webinar will be available at www.edweek.org/go/webinar in less than 24 hrs.
Pocahontas County Math

The story of one promising approach to math improvement in West Virginia
radical equations

Civil Rights from Mississippi to the Algebra Project

Robert P. Moses

and Charles E. Cobb, Jr.
Joanna’s journey

- 5 years private schools; K-12 dept. chair
- Park City Math Institute
- 2 years teaching community college math
- 3 years abroad, babies
- 1 year, WVU teacher prep
- 8 years, instructional coach
Laurel’s voyage

• Good at math/family of teachers–decided to become a math teacher

• Uncertainty throughout college and early career: feeling like I should have pursued engineering or medical school

• 2 years: Morgantown High School–Morgantown, WV

• Moved to Pocahontas County–still heading towards early burnout/dissatisfaction

• Joined in the revolutionary changes/met Joanna

• Starting my 9th year–love my job:
  • Excited, passionate, interested, motivated, pride in my job
Teaching matters

How do we get better at it?

How does getting better become part of our culture?
Barriers to continuous improvement

- Closed Doors
- Limited (Genuine) Discourse
- Culture of Good vs. Bad
- Lack of Focus
- Needed a Leader
- I thought I was doing fine...
What we do

DEVELOP CLASSROOMS WHERE STUDENTS DO THE ‘ACTION’ OF MATH

TEACHERS DIAGNOSE PROBLEMS, DESIGN, TEST AND IMPROVE SOLUTIONS
Where and how

In and out of classroom

Co-teaching, planning, after school, summer

Math and pedagogy

Model and give feedback to one another
Secondary Math in Pocahontas County

- Grades 6-12 in 2018: 65% increase in pass rate compared to state average (Collectively Problematizing Math Teaching for the last 7 years)
- Grades 3-5 inclusive PC scores between 4% and 9% BELOW state average (just getting started)
High Stakes Assessment Comparison

- WesTest, 2012-2014
- SBAC, 2015-2017
High Stakes Assessment Comparison

- WesTest, 2012-2014
- SBAC, 2015-2017
- Only 11th tested 2017
What it’s like to be coached

Awkward at first: Getting past your ego, not a judgment, but what’s best for students

Having a team—camaraderie

Coach models her own failure and learning—she’s honest about her faults and is inviting

NOT a directive: We pick what we want to work on!

Our coach models—she's not sitting watching us teach

As a teacher you still have a teacher: We are students again.
Part of a bigger movement
Struggle that’s worthwhile
Kids can persist
Math is kids’ favorite
Retention has improved
Kids talk about math
Perspective shift
Our jobs are more fun/rewarding
What’s different?

Didn’t start with everything we have now...

Meaningful, useful, used every day

This is not an "expert" coming in

There is follow through

It is engaging

More useful than evaluation–admin don’t have our background

Teachers actually want this–different than many PLCs
Problematizing Math Teaching

WHAT “BUGS” YOU IN YOUR CLASSROOM?

COLLABORATIVE WORK TO DEVELOP POSSIBILITIES FOR MAKING THINGS BETTER

HOW WILL WE KNOW IF IT’S “BETTER”—WHAT WILL ”BETTER” LOOK LIKE?

Was it “better”?
A few change themes

- **Communication**
  - Rubrics to assess oral response (CRAVE)
  - Role cards

- **Persistence**

- **Grade what you want to grow**

- **Spiraling practice**

- **Problem-based**

- **Cooperative classrooms**
<table>
<thead>
<tr>
<th>An Oral Assessment Rubric: CRAVE</th>
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<tbody>
<tr>
<td><strong>Complete</strong></td>
</tr>
<tr>
<td>C: Answer with complete sentences</td>
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<tr>
<td><strong>Refer</strong></td>
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<tr>
<td>R: Refer to the question</td>
</tr>
<tr>
<td><strong>Answer</strong></td>
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<tr>
<td>A: Answer the question correctly</td>
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<tr>
<td><strong>Vocabulary</strong></td>
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<tr>
<td>V: Use appropriate and proper mathematical vocabulary</td>
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<tr>
<td><strong>Explain</strong></td>
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<tr>
<td>E: Follow up with additional sentences to extend and explain your reasoning.</td>
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The CRAVE Process

• Begin with a problem on the board, and an appropriate amount of **individual think time** set on a timer/clock

• Groups **discuss** solution pathways; **prepare everyone** to be ready to speak through rehearsing responses (prep your rep). Remind students of the standards CRAVE for a perfect response.

• Draw a **random** student. (S)he presents.

• Feedback is **explicit** teacher gives praise and feedback on which components of CRAVE were/(not) adequately met ... “If I were to grade this response ...”
The Crave Effect

- Kids talk (pretty darn well) in math
- Cross-curricular benefits
- Expectations grow with students
- Kids are not afraid to “talk math” with their peers
What’s Next?

• Don’t leave the classroom to advance the work and your career: Mountaineer Master Mathematics Teachers (M3T)

• Last year, PC teachers opened their classrooms to 45 teachers and admin from 13 districts (over 25% of WV districts)

• 2019-2020 Small-scale pilot expansion to Hardy, Fayette, Mineral, Randolph, Gilmer school districts in WV

• 2020+ Hopeful to further scale and network learning
A student-centered focus is key:

LEARNER-CENTERED INSTRUCTION MAXIMIZES PROBLEM-SOLVING GROWTH.

STUDENTS MUST EXPLORE, REASON AND COMMUNICATE.
Effective coaching mirrors effective teaching. Be teacher-centered.

- Teachers are learners with parallel needs:
  - Safe space, respectful community in which to explore
  - Support and input
  - Challenging problems posed
  - Praise balanced with suggestion
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Suggested Reading From *Education Week*:

**Making an Art Out of Teaching Math**
Teaching math should empower teachers and students alike, says Joanna Burt-Kinderman. The instructional coach in Pocahontas County, W.Va., is one of our 2019 Leaders To Learn From.

**Want to Improve Math Teaching? Try Coaching the Coaches**
An instructional program in Tennessee uses a continuous-improvement process to try to help math coaches do their jobs better.