

EDUCATION WEEK WEBINAR

# Building Teacher Confidence and Camaraderie Through Math Coaching





## Sarah Schwartz

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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.



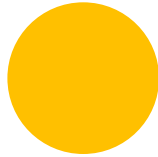
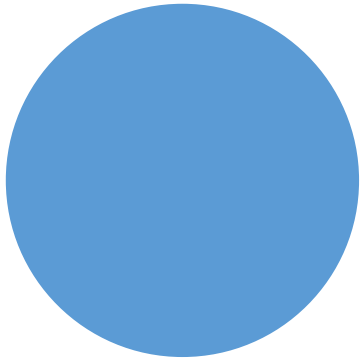
**Laurel Dilley**  
Math Teacher  
Pocahontas County High School  
Dunmore, W.Va.

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webinar will be available at  
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@Ms\_JBK

[problematizingmathteaching.com](http://problematizingmathteaching.com)



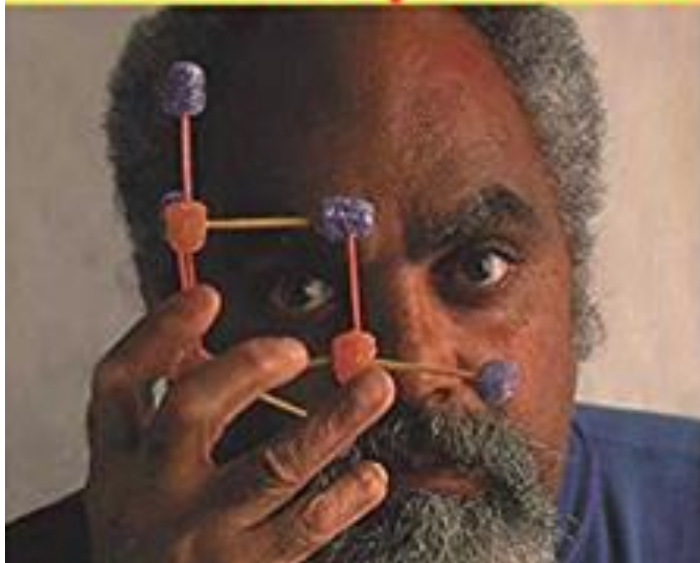
# Pocahontas County Math

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



"Robert Moses is the towering activist/intellectual of his generation—a grassroots freedom fighter of quiet dignity and incredible determination." —Carmel West

# radical equations



Civil Rights from Mississippi  
to the Algebra Project  
**Robert P. Moses**  
and Charles E. Cobb, Jr.



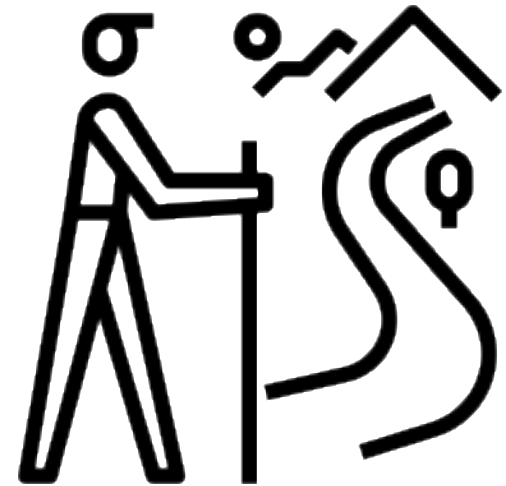
# Joanna's journey

- 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 9<sup>th</sup> 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

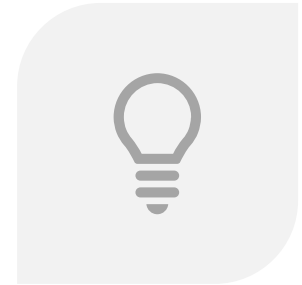


I THOUGHT  
I WAS  
DOING  
FINE...

# 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



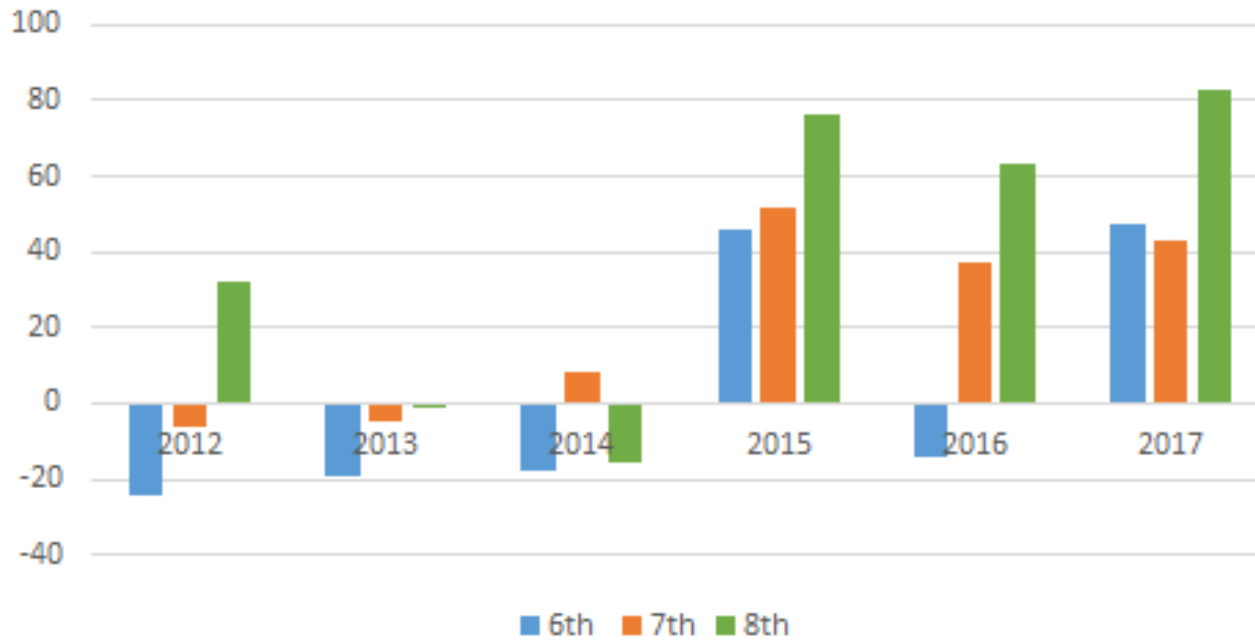
Model and give feedback  
to one another

# 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)

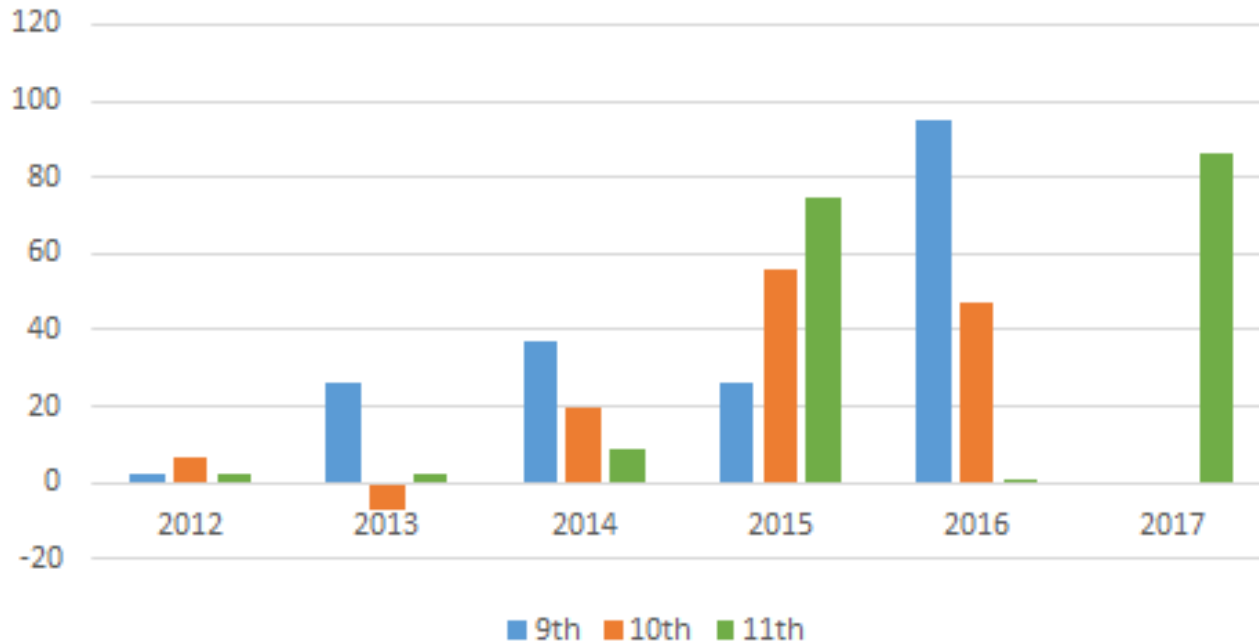
Percent Difference Compared to State Average



## High Stakes Assessment Comparison

- WesTest, 2012-2014
- SBAC, 2015-2017

Percent Difference Compared to State Average



## High Stakes Assessment Comparison

- WesTest, 2012-2014
- SBAC, 2015-2017
- Only 11<sup>th</sup> 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—is 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.



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Part of a bigger movement

---

Struggle that's worthwhile

---

Kids can persist

---

Math is kids' favorite

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Retention has improved

---

Kids talk about math

---

Perspective shift

---

Our jobs are more fun/rewarding



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

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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

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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

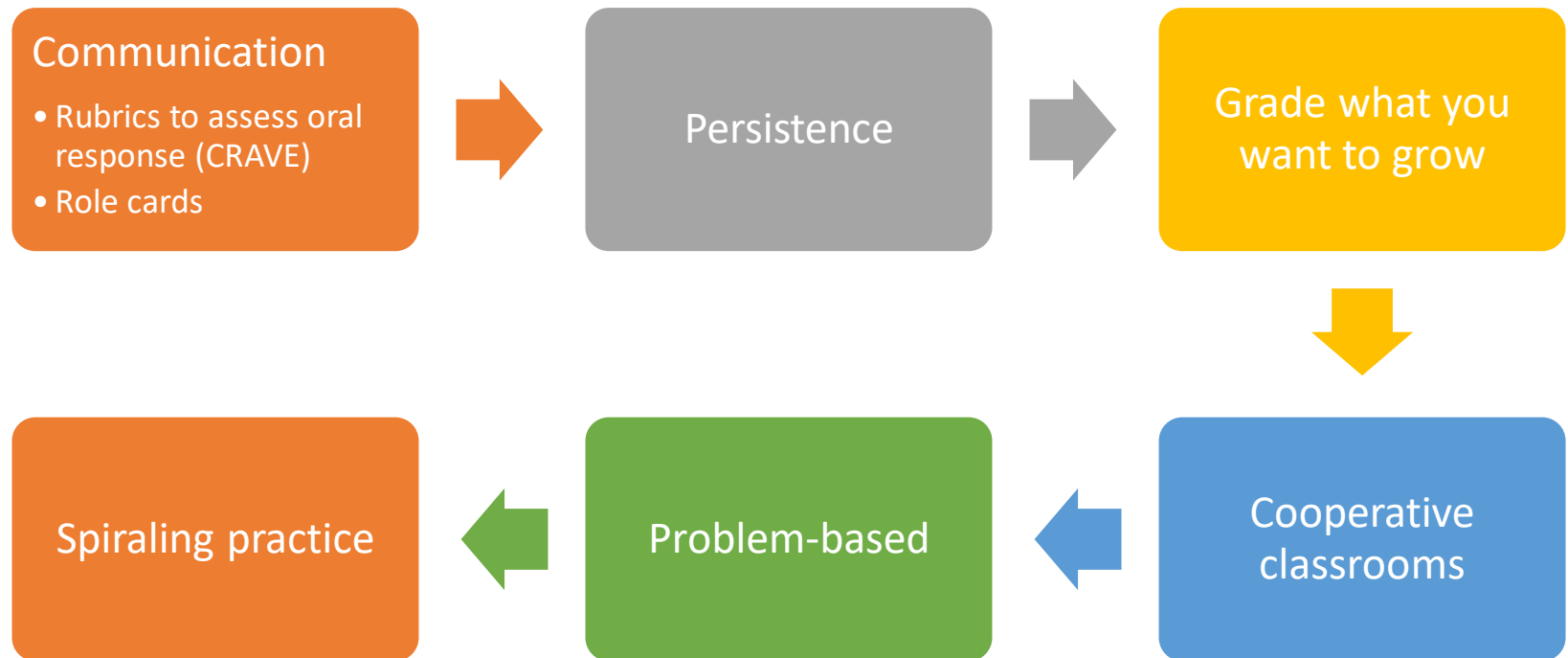


HOW WILL WE KNOW IF  
IT’S “**BETTER**”—WHAT WILL  
”BETTER” LOOK LIKE?



WAS IT “BETTER”?

# A few change themes



An Oral  
Assessment  
Rubric:  
CRAVE

Complete	C: Answer with complete sentences
Refer	R: Refer to the question
Answer	A: Answer the question correctly
Vocabulary	V: Use appropriate and proper mathematical vocabulary
Explain	E: Follow up with additional sentences to extend and explain your reasoning.

# 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

**m<sup>3</sup>t**

**mountaineer  
mathematics  
master teachers**

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

Q & A

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

### 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.