

Student Success in Mathematics Partnership Meeting

Virginia Student Success in Mathematics Partnership
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VA Student Success in Mathematics Partnership: REL AP Staff



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Welcome and meeting overview

Dr. Pam Buffington, SSM partnership lead, Education Development Center (EDC)

Meeting agenda

- Welcome and overview
- Update on available research on accelerating Algebra 1 course taking
- Understanding and using practical measures in PLMs
- Closing

Update on available research on accelerating Algebra 1 course taking

Dr. Pam Buffington, SSM partnership lead, EDC

Ask A REL

- What are the outcomes for students who take Algebra I in grades 5, 6, or 7 compared with students who take Algebra I in grades 8 or later?
 - Do the earlier Algebra I takers
 - take more mathematics courses?
 - have similar affective outcomes (persistence, problem-solving, and/or confidence) in mathematics?
 - have similar or different academic outcomes in mathematics courses in high school?

Key findings

What questions do these research findings raise for you?

- Literature presents **mixed results** across academic, affective, and course-taking outcomes
 - Increased enrollment but impacts on student achievement mixed
 - Increased overall algebra credit accumulation, but increased failure rates across ability groups
 - Promise for Alg. 1 by Gr. 9 for under-prepared students with proper support for instruction
 - In the long term, double-dose strategy yielded positive effects on ACT performance, high school graduation, and college entrance
- Some published findings - small sample sizes and not consistently disaggregated by race or class
- No clear relationship between math sequence and likelihood of being ready for college math, after controlling for Grade 5 math achievement and race/ethnicity

Understanding and using practical measures in PLMs

Dr. Jill Neumayer DePiper, SSM partnership member, EDC

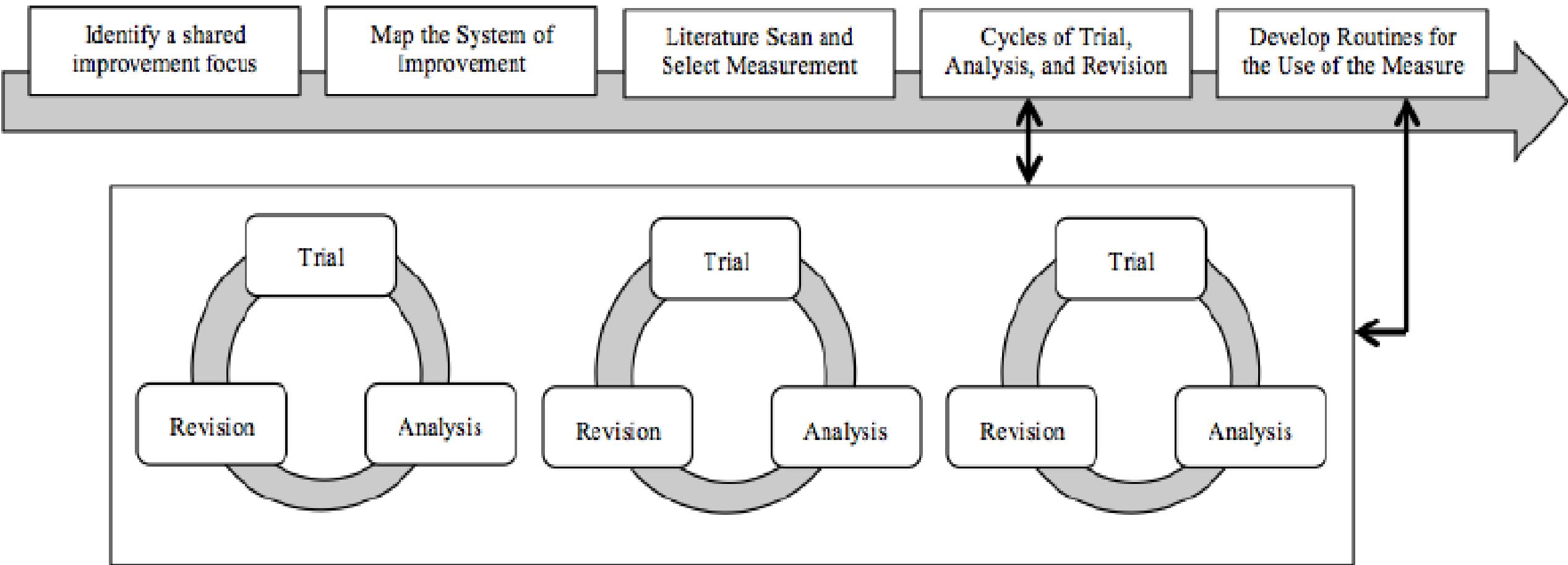
“We cannot improve at scale what we cannot measure.”

(Bryk et al., 2015, p. 112)

Practical measures

- Designed to provide administrators and leaders “with frequent, rapid feedback that enables them to assess and adjust their practices during the process of implementation.” (Jackson, Henrick, Cobb, Kochmanski, & Nieman, 2016, p. 2).
- Specific to an improvement goal; used for improvement, not accountability.
- Embedded in routines and use language that is meaningful to teachers.

How to design practical measures



(Kochmanski, Henrick, & Cobb, 2015)

Process of reviewing practical measures

- Pilot measures in authentic and diverse contexts
- Collect data
- Review meaning of data related to PLM and improvement goals
- Review data and reflect on how the measure worked
- Refine measure as needed
- Repeat

Questions to use to review your practical measures

- Is the measure aligned to high-leverage improvement goals that are compelling to both you and teachers?
 - Does this measure have the potential to have **face-value** with teachers?
 - Would improvement on this measure **increase student learning** opportunities?
 - If not, how can you revise the measure to **align to a high-leverage improvement goal**?
- Can you, a teacher, or school-based personnel collect and analyze these data quickly and easily given time and resource constraints?
 - Is the measure **feasible** to use at scale given school and district capacity?
 - If not, what could make the measure **easier to use**?
- Does the measure focus educators on specific aspects of their instruction or the classroom learning environment that is associated with student learning?
 - If not, how can it be revised to **focus on teacher practice**?

Example

Teacher Self-Assessment & Reflection

Name: _____

Date: _____

Consider the following questions:

- How are students using representation to model and interpret the mathematics being presented?
- What do the representations that a student is using tell about that student's understanding of the mathematics?
- What do students provide when asked to use diagrams, sketches, or equations to explain their solution to a problem or task?

(Fennell, 2006)

Summarize the current use of visual representations in the classroom:

Questions to consider

- Aligned to high-leverage improvement goals?
 - Potential face-value with teachers?
 - Related to student learning opportunities?
- Easy to use to collect and analyze data?
 - Feasible at scale?
- Focus educators on specific aspects of their instruction?

	Mathematical representations	Note evidence
Level 0	Representations are missing, or teacher shows them to students.	
Level 1	Students learn to create math drawings to depict their mathematical thinking.	
Level 2	Students label their math drawings so that others are able to follow their mathematical thinking.	
Level 3	Students follow and help shape the description of others math thinking through drawings and may suggest edits and other's math drawings.	

(Hufferd-Ackles, Fuson, & Sherin, 2004)

Discussion

- What additional supports are needed to help you:
 - Refine your data collection measures?
 - Enhance your data collection and use of data?
- What are you still wondering about related to measuring teachers' professional learning or data practices?



References

- Bryk, A. S., Gomez, L. M., Grunow, A., & LeMahieu, P. G. (2015). *Learning to improve: How America's schools can get better at getting better*. Cambridge, MA: Harvard Education Press.
- Fennel, F. S. (2006). Representation: Show me the math! *NCTM News Bulletin*, p. 1.
- Hufferd-Ackles, K., Fuson, K. C., & Sherin, M. G. (2004). Describing levels and components of a math-talk learning community. *Journal for Research in Mathematics Education*, 35(2), 81-116.
- Jackson, K., Henrick, E., Cobb, P., Kochmanski, N., & Nieman, H. (2016). *Practical measures to improve the quality of small-group and whole-class discussion* [White Paper]. Retrieved from <http://www.education.uw.edu/pmr/files/2016/09/White-Paper.pdf>
- Kochmanski, N. M., Henrick, E. C., & Cobb, P. (2015, October). On the development of content-specific practical measures assessing aspects of instruction associated with student learning. Presentation at the National Center on Scaling Up Effective Schools Conference. Nashville, TN.

Closing

Dr. Pamela Buffington, SSM partnership lead, EDC

Closing

- Next meeting: March 3, 2020, 9 a.m. – 2 p.m. in Harrisonburg, VA
 - Amy Brodesky, mathematics instructional design expert and professional development specialist, with extensive experience in mathematics instruction for struggling learners and students with learning disabilities
 - Opportunities to provide input

Closing

- Next steps:
 - Coaching calls scheduled for February
 - Please be in touch with any questions or needs.
- Resources: [Noticias de TODOS: Mathematics for All](#)



THANK
YOU!

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