The Mathematics Studio Program
Applying Lessons Learned from the Oregon Mathematics Leadership Institute (OMLI) Partnership

**Defining Student Success**

All students engage meaningfully in mathematical practices used by successful mathematicians.

**High Achievement** by all students on standardized state measures

**Equity in Achievement for all subgroups of students**

**Increased Participation and Success in Advanced High School Math Courses**

**CHALLENGE: Professional Learning for Student Success**

- OMLI evaluative research revealed that the degree to which schools implemented certain student-based professional learning practices were a significant positive predictor of student performance and beyond what can be explained by conventional measures.
- Most schools reported well-defined structures that support the "sbdl model," where student-centered mathematics and their math lessons are implemented in a regular and ongoing basis in which they have continuous impact on all teachers’ mathematics instructional and all students’ mathematics learning.

**Identifying And Addressing Key Challenges**

- Early formative evaluation data revealed a need to explicitly address with teachers and students what constitutes a justifici- tion and generalization, especially the difference between students explaining how and justifying why.

**Addressing the Challenge:**

- We expanded the OMLI model to create the Mathematics Studio Program, whose tools, structures, and activities incorporate the specific professional learning practices that were determined to be significant positive predictors of student performance.
- The Studio model is making a difference in high schools, for example:
  - One day of one-to-one coaching for selected teachers or coaches from the school.
  - 5-day of one-to-one leadership coaching for Studio principal as the building’s “lead learner.”
  - One day of additional one-to-one coaching for selected teachers or coaches from the school.
  - A year-end event for all school leaders, math specialists, or coaches.

**Defining Student Success**

- Student success is defined as the degree to which students used higher-level mathematical practices, all teachers engaged in that level of teaching, and each student engaged in that level of learning.

**CHALLENGE: Student Mathematical Discourse**

- Our research in discourse focuses on a taxonomy of student discourse based on the notion of cognitive demand, with simple responses at the lowest cognitive level and justification and generalization at the highest level.

**Our evaluation research indicates that regular use of profes- sional learning tasks and teaching that center on productive, high-cognitive student mathematical discourse is positively correlated with students’ math achievement.** The studio model attends relatively with teachers, students, and administrators to the quality and quantity of student mathematical discourse.

**Evaluating the Effectiveness of the Studio Model**

- Our evaluation research indicates that regular use of profes- sional learning tasks and teaching that center on productive, high-cognitive student mathematical discourse is positively correlated with students’ math achievement. The studio model attends relatively with teachers, students, and administrators to the quality and quantity of student mathematical discourse.

**Our Continuing Challenges and Questions About Student Success**

- In terms of student learning, how do we determine the “key ingredients” of this studio model? What features do we focus on?
- What are the highest leverage (i.e., most mathematically productive) instructional and leadership practices?
- What are the highest leverage instructional practices (i.e., student habit-of-mind)?

What are the most affordable, rigorous, scalable, and reliable tools/strategies for measuring implementation of students’ mathematical practices, teachers’ instructional practices, and administrators’ leadership practices?

**Our Partners and Their Roles in Student Success**

- Teachers Development Group
  - Focus, development, leadership, and delivery of the professional development model, tools, and practices

- Oregon State University & Portland State University
  - Host site for a curriculum and professional development development

- Reed High School District
  - Red, Oregon

- Highline School District
  - Burien, Washington

- Medford School District
  - Medford, Oregon

- Roosevelt School District
  - Yakima, Washington

- Sherwood School District
  - Sherwood, Oregon

- Portland Public Schools
  - Portland, Oregon

- Linn-Benton Education to Lifelong Collaborative
  - Salem, Oregon

- Educational Supports, Inc. & RMC Research, Inc.
  - Evolviture & Research