Extreme Makeover: Doing the Math in Dual Language Immersion

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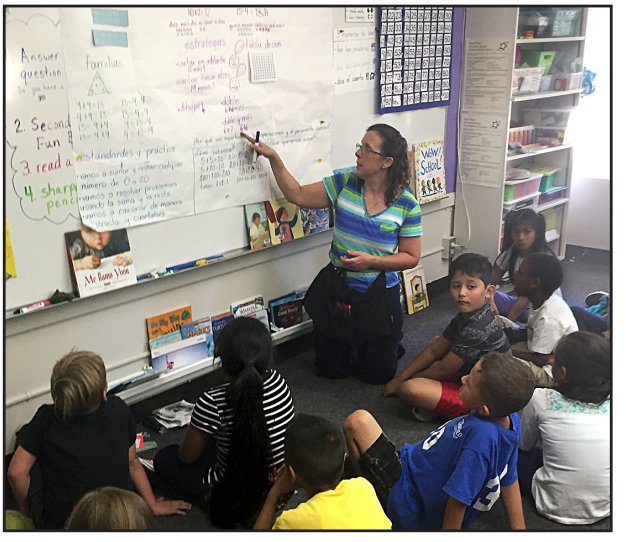
Introduction

The first phase of our "makeover" at El Camino del Río began two years ago, when Joel Lavin, our new principal, and the teaching team focused on bringing the dual language immersion (DLI) program into alignment with the *Guiding Principles for Dual Language Education* (Howard, Sugarman, Christian, Lindholm-Leary, & Rogers, 2007)—being purposeful about the proportion of instruction in each language and adhering to a strict separation of languages. El Camino del Río (ECDR) is a small dual language school with 370 students in Eugene, Oregon. ECDR provides a 50-50 program to students in kindergarten through fifth grade who come from English-at-home and Spanish-at-home backgrounds, with some students who speak both languages at home. Seventy-five percent of the students are eligible for Free and Reduced Price Lunch, and mobility is relatively high at 29%.



Jamie Jones and students process Compendium content that supports the day's lesson.

Identifying Next Steps

Our ECDR Dual Language Study Team was made up of the instructional coach and three classroom teachers from different grade levels. The team was charged with determining which program model would best fit the needs of the students and community and align with the guiding principles. After studying various models, a 50-50 model was proposed with Spanish as the language of instruction in math; the Spanish version of *Investigations* (Pearson) was purchased since it matched the district adoption. As our realignment began in Fall 2014, the Dual Language Study Team merged with the ECDR Leadership Team, which steers school improvement efforts. The Leadership Team includes our principal, instructional coach, classroom teachers representing grade bands, Title I teacher, and counselor.

Prior to bringing the DLI program into alignment, our students had experienced inconsistencies in language and content area instruction. Our first round of testing following realignment showed a weakness in math achievement that could have been influenced by the fact that math instruction was being provided exclusively in Spanish for the first time. Our Leadership Team examined data from *easyCBM*™ (Houghton Mifflin Harcourt) and curriculum measures and determined that professional development (PD) in math was needed to develop effective instruction, build math language, and strengthen teachers' skills in teaching and sheltering math in Spanish.

Developing the Plan

We are fortunate in the Eugene School District to have both a math director and a math specialist to support instruction. They learned of Achievement Inspired Mathematics for Scaffolding Student Success (AIM4S^{3}™) at an annual National Council of Teachers of Mathematics conference. They were aware that Hillsboro, a neighboring district, was already implementing AIM4S^{3}™ as a way to organize standards-based instruction and use sheltering strategies to build academic math language. Our principal and Karen Ramírez Gutierrez, our instructional coach, along with several classroom teachers and the district Title I director, were able to visit classrooms and talk with building administrators in Hillsboro. Our group was impressed with the Compendium, a large resource chart created with students that provides the "big picture" for the unit. The team also appreciated the student-centered instruction, observing as teachers guided students to build their mathematical understanding in a shared, inquiry-based process.

Our staff determined AIM4S^{3}™ to be the best professional development opportunity, since the AIM4S^{3}™ framework addresses standards-based unit development, builds math strategies in a student-centered manner, and strengthens the math language of both students and staff. The AIM4S^{3}™ framework is a also a good fit with our district-developed

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professional development program, *Foundations*, which provides training in math best practices and math progressions. The ECDR Leadership Team committed to whole-staff, on-site AIM4S³™ training scheduled at intervals throughout the year. The cost was covered by our School Improvement Grant and support from Title I and Title II funds. Sessions included formal training with guided practice, work sessions, and in-class demonstration teaching.

Implementing AIM4S³™—August & September 2015

The AIM4S³™ team, Lisa Meyer and Evelyn Chávez from Dual Language Education of New Mexico, launched the professional development with a one-day overview in August, focusing on the following:

- Key Instructional Principles: Teacher Mechanics and Delivery, Student Output, Positive Classroom Culture, Sheltering and Scaffolding, and Continuous Feedback; and
- Framework Components: Focus and Motivation, the Compendium, Unit Lessons, and Closure and Goal Setting (Mayer & Meyer, 2014).

In September, the AIM4S³™ team provided a third-grade classroom demonstration in Spanish. Staff members observed and discussed features of the lesson, teaching moves, and student participation. Grade-level teams also had the opportunity to reflect on math strategies and develop a Compendium and PDSA (Plan, Do, Study, Act). The AIM4S³™ team encouraged conversations in Spanish to promote teachers' academic math language.

From October through December, we provided guided practice for teachers between AIM4S³™ sessions. Early release time on Wednesdays was used to collaborate on unit planning, including the Framework Components and Compendium development, with guidance and support from Reid Shepherd, our district math specialist; Karen, our instructional coach; and Joel.

Implementing AIM4S³™—January & March 2016

Learning walks (a practice similar to DLeNM's VISITAS™) by Joel, Karen, and our school improvement coach, Kathy Larson—along with teacher input—indicated a wide range of implementation and the need for explicit PD around the Compendium development process. For learning walks, an AIM4S³™ VISITAS™ form was adapted to gather data on key components being implemented in classrooms and used as a way for teachers to self-evaluate classroom implementation. School leaders conferred with the AIM4S³™ trainer and included a "ghost walk" as a means for the instructional team to assess progress, set goals for broader implementation, and identify needed support. A ghost walk is a classroom walk-through when students are not present and no subs are required, in which participants observe each other's structures and features of instruction and organization. Some teams had developed and fully implemented the Compendium, while others were using the PDSA to set classroom learning goals in math. Grade-level teams were in different stages of implementation, and goals were tailored to meet the needs of each team.

The ghost walk helped teams learn from each other's work and share ideas for further implementation. Lisa Meyer also provided additional PD regarding components, and, through a lesson on fractions, teachers experienced the AIM4S³™ Key Instructional Principles and the Framework Components from a student's perspective. Lisa assisted with planning a process to set goals and monitor implementation. On the next early release work session, our instructional coach led the grade-level teams in developing an "adult level" PDSA, following the process used with students. In the "Do" component, teachers identified the support they needed from the instructional coach and district math specialist, as well as the commitments teams were making to Compendia development. The instructional

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Teachers' reflections on learning walks and PD experiences at ECDR

❒ This has had a great impact on making our math learning more visual and organized.

❒ I feel more confident about teaching difficult concepts in Spanish; I feel like the language is less of a barrier and is now a tool. I am excited about math and enjoy the planning pieces even though it's time consuming this year.

❒ Most challenging? Time management. The framework is very rich. I have trouble incorporating/implementing all of the aspects of the framework and still following our math pacing guide.

❒ I can see the importance of what we are doing for language acquisition by seeing language production in 5th grade. ... I need to remain purposeful in my expectations for language production. I need to keep encouraging and expecting students to speak the target language at the appropriate times.

❒ I can now see that I am providing the Compendium the way it's intended and can focus in on fine-tuning and creating more robust Compendia for next year.

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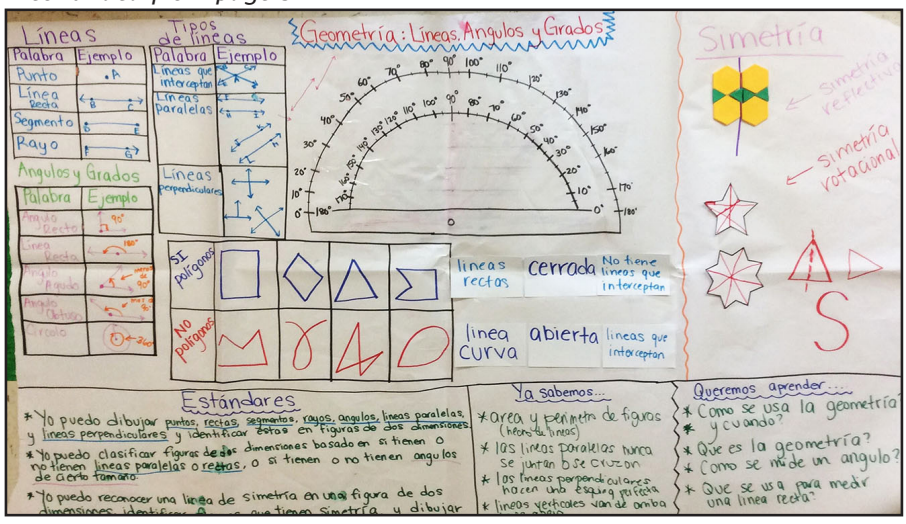

Fourth grade Compendium based on CCSSM Geometry standards and built with students to support language and content development.

coach posted the PDSA and invited teachers to update based on progress.

Prior to the March follow-up, learning walks served as a way to share instructional practice in reading and math. During the work session, the AIM4S^{3}™ trainer assisted teams in developing and refining Compendia. Following the March PD, Joel and the district math specialist led a series of observations and debriefs for each grade-level team. The purpose was to learn, share, and target next steps. Teams used an AIM4S^{3}™ observation form that featured key components of the Compendium and unit-planning process.

Implementing AIM4S^{3}™—May 2016

In May, Lisa Meyer and school leadership planned another ghost walk to observe the use of Compendia and PDSAs. Explicit PD continued with Compendium components, expanding the conversation to include "bridging" as a purposeful strategy for language transfer. Several members of our Leadership Team, along with Kathy Larson and Erin Reckers, were exploring bridging with teachers after participating in a training with Karen Beeman and Cheryl Urow (Beeman & Urow, 2013).

This ghost walk was done on the last day of AIM4S^{3}™ PD for the year and included all classroom teachers and the Leadership Team. It was a celebration of the staff's work and yielded rich conversations regarding how to build Compendia and manage the inquiry process with students. Topics ranged from practical strategies for managing materials and supporting instructional delivery to specific strategies for encouraging students to use more than one way to express a solution. This discussion informed decision making for the coming school year.

Results, Reflections, and Next Steps

Data from *easyCBM*™ showed growth over scores from fall and previous years. Analysis of both *easyCBM*™ and preliminary Smarter Balanced Assessment Consortium scores showed that students have developed skill in fluency and operations, but they still need improvement in problem solving and justification in more complex operations. Learning walks and classroom artifacts showed that AIM4S^{3}™ implementation is in place and will be strengthened with further guided practice and collaboration.

In 2016-2017, we will continue work with fluency and operations and use the district Common Formative Math Assessments to gauge student progress, sharing and scoring student work in teams. The AIM4S^{3}™ PD will provide teachers with strategies to build problem-solving skills and continue to strengthen academic math language in the context of math work. Lisa Meyer will also help staff develop bridging strategies to ensure effective transfer of math language and skills from Spanish to English. Further follow-up from AIM4S^{3}™ will include work sessions with each team, as well as whole-staff PD informed by observations and conversations with teams and school leaders.

Our overall reflection is that the success of this project was due to high quality professional development tailored to meet the specific needs of our teachers in the context of our dual language program. The on-going support of the district math specialist was critical in providing technical assistance to teaching teams between PD sessions—sustaining engagement, accountability, and expectations. The leadership and support of the principal and the instructional coach served to stay the course and "keep the dream alive."

References

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