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PARTNER SPOTLIGHT

Amplifying the Academic Rigor in Math Classrooms: Butler Area School District's Journey

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Getting students to think deeper about the content takes intentional choices and instructional moves on the part of teachers and administrators. One of our partners, Butler Area School District in western Pennsylvania, has worked this year to increase the academic rigor in their mathematics classrooms.

The district has worked in several arenas in order to focus the work. Teachers and administrators have worked on curriculum mapping in all areas so that content and standards are linked. Through a partnership, the Institute for Learning (IFL) has provided professional development. The PD focused on the use of high-level tasks in math classes, teacher questioning to press on deeper student thinking, and how to engage students in *Accountable Talk* practices. As a result of the PD, the district is working to include high–cognitive-demand tasks in the curriculum map for every grade level. Data is being collected as an indicator of the effectiveness of the curriculum maps.

Victoria Bill, math fellow with the IFL, has been working with Butler Area School District. She reflects on the impact of the PD in the district: "Teachers recognized that their students were not getting enough opportunities to think and reason deeply about mathematics. Teachers worked together to identify the high-level tasks or to modify tasks to increase the demand of tasks. All the teachers in the districts used the high-level tasks identified, thus giving students opportunities to problem solve and to reason about mathematics."

The district made the strategic decision to roll out their work in mathematics: Last year they focused on Grades 3–5 and this year added Grades 6–8. This allows a continuum of learning for students. Administrators were also included in the PD, both with the teachers and with sessions focused specifically on how administrators support math instruction in their buildings.

The instructional coach for mathematics developed an implementation checklist for use by administrators and teachers. These checklists set clear expectations for *Accountable Talk* practices and the other components of instruction and act as framing tools to aid administrators and teachers in identifying the assets as well as next steps when conducting walk-throughs, peer observations, and even in self-assessment.

Julie Hopp, the Director of Curriculum, Instruction, and Professional Development, and Karen Robb, Instructional Coach for Mathematics, discussed what had the greatest impact on moving the district towards an increased level of rigor. They named two specific experiences:

The learning labs had a major impact. They allow teachers to plan collaboratively and go through all of the steps of planning and implementation of lessons with the guidance of the IFL fellow. (Learning labs, because of the real-time execution of planning and executing a lesson, function as an example of learning by apprenticeship). Teachers who are hosting the lab are actively making choices in their lessons and marking them publicly in the debrief, and observing teachers have the opportunity to learn from the intentionality in their own district's classrooms. Students involved in the learning labs are also learning by apprenticeship as they engage in the lesson and as they see observing teachers take note of their mathematical thinking, thus instantiating the importance of expected level of effort, persistence, and communication needed in the implementation of high-level tasks.)

Math data meetings have just been implemented. The outcome of these meetings has been vertical discussion of content and standards across grade levels that has been very productive and has led to identification of redundancies and gaps.

Hopp and Robb also share that there are still areas of need. "One of our biggest struggles is having a large number of teachers across six buildings. This means that there are six

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Every Student Needs High–Cognitive-Demand Instruction

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curriculum and instruction is not an equitable education.

For decades, Resnick and others have advocated for thinking and problem solving to be the "new basics" of the 21st century. Still, the common idea that we can teach thinking without a solid foundation of knowledge has to be abandoned, as does the idea that we can teach knowledge without engaging students in thinking. Knowledge and thinking must be intimately joined. This implies a curriculum organized around major concepts in each discipline that students are expected to know deeply. In short, in every subject, at every grade level, the curriculum has to include a commitment to a knowledge core, high-thinking demand, and active use of knowledge.

Despite widespread support for disciplinary literacy, not all students have been given opportunities to achieve this high standard. Ramón Antonio Martínez (2018) believes that building on the assets students bring to school can support them in accessing and participating in a high–cognitive-demand curriculum. Changing how we view learners is also critical to improving the educational experience of students of color and those who are labeled upon their entry in school. When we view students as struggling or "at risk," we make assumptions that they are students in need of remediation. When we begin to see students' multilingualism as an asset and their use of multiple languages as tools to help them access high–cognitive-demand work, we can turn the dime on its head and make small modifications in learning plans that will enable emergent multilingual students to access complex text and engage in high–cognitive-demand activities.

Practitioners have made arguments that mediating instruction does not need to be labor-intensive; it is about making decisions while teaching a well-designed lesson. Teachers focus on the goal of the lesson and find ways for every student to meet that goal. Knowing and building on the students' assets should serve as a guide to making the small modifications to support students. Simple supports, such as offering a student the text in a language the student understands or allowing a student to write the argument about something familiar, are ways to make modifications that allow for access. We can begin by abandoning deficit thinking and keeping our minds open to see our students' situations as opportunities to try ways that will support them where they are and enable movement toward the goal.

Martínez (2018) argues that for emergent multilinguals, we may have to "learn to see students anew—to imagine them as competent readers and writers and to treat them accordingly." The labels students are given in school, more often than not, are not helpful. Martínez thinks that for us to "recognize the richness of bi/multilingual students' linguistic repertoires requires that we think beyond the convenient labels that serve to mask their brilliance, their competence, and their tremendous potential." Martínez's recommendation may serve us well once we decide that high–cognitive-demand work will be made available to every student.

In a similar vein to Gutiérrez and Martínez, Dr. David E. Kirkland reminds us "rigor in education cannot be about broken students but about supporting students who are vulnerable to broken systems." Before we can address the systems that support inequitable practices, we need to acknowledge systemic root causes: "Rigor often codes a set of hierarchal social and cultural values that reinforces a narrow concept of learning and achievement. Too often, rigor is about who is recognized and who is not. By flattening rigor in the image of the seen, a narrow version of us gets baked into educational success—a version that is incomplete, favoring an intersection of cis, heteronormative, White, abled, English-speaking, monied, and Judeo-Christian—or, put simply, privileged—identities. I've learned the farther away students are from this identity, the less likely they are seen to be 'rigorous,' the less likely the classroom works for them."

While being keenly aware of systemic disparities in equity and rigor, Kirkland aims for a hopeful solution: "…teaching and learning must be about preservation—the incredible acts that help people preserve our languages and cultures, to tell history on our terms, to preserve it too, to preserve ourselves by preserving the congregation of ideas that will make the world better, that will free our bodies and heal our souls. Thus, academic rigor comes close to equity when it connects teaching and learning to acts that are meant to sustain us."

Martínez, R. (2018). Beyond the English learner label: Recognizing the richness of bi/multilingual students' linguistic repertoires. *The Reading Teacher, 71*(5), 512-521.

Gutiérrez, R. (2018). The need to rehumanize mathematics. In I. Goffney, R. Gutiérrez, & M. Boston (Eds.). *Rehumanizing mathematics for Black, Indigenous, and Latinx students* (pp. 1-2). National Council of Teachers of Mathematics ▪

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different administrators who are supporting this work. Logistics, communication, and coordination are a big challenge. Our strategy for consistency has been to select high-level tasks that are integrated into the curriculum map. Every teacher at the grade level will complete the high-level tasks. Our hope is that this provides accountability for implementation."

That said, the district is already seeing the impact of their work both in the classroom and on high-stakes assessments. Hopp and Robb stated that the pedagogy studied in the IFL PD sessions "provides a basis for making our classrooms more student-centered. The use of *Accountable Talk* practices has increased the communication between students and enhanced their ability to discuss mathematical concepts." In addition, they share that there have been increases in assessment scores: "We have seen significant increases in our PVAAS (Pennsylvania Value-Added Assessment System) growth scores. We have also seen increases in most of our buildings in the number of students scoring advanced on the PSSAs (Pennsylvania System of School Assessment). We feel there is a direct connection between our work with IFL and these increases."▪