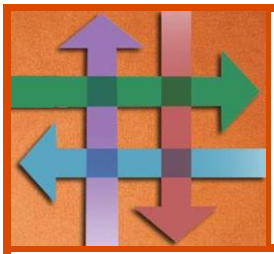

IT WORKED!

Inspiring a Growth Mindset: It Worked and is Still Working

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Even a team of really great math teachers face their challenges. Last year I had the opportunity to open up a new middle school in my district as the Math Instructional Support Teacher (aka Middle School Math Coach). Enter six math teachers who I affectionately now refer to as the "Dream Team." Our school was so fortunate to have these highly effective teachers, from all different schools with different backgrounds, serve as the foundation for our math department. This team immediately started collaborating on rigorous math tasks, developing common assessments, analyzing student learning, and adapting instruction to meet student needs. What a fortunate position I was in as a math coach!

However, a group of high-quality teachers faces challenges, as all teachers do. We noticed that many students were really struggling (and not in a productive manner) with higher-level-cognitive-demand mathematical tasks. There was the relentless hand raising or not even attempting the task at all. The question we were faced was: *How do we promote students to engage in a productive struggle with the belief that they can succeed in math?*

We decided to focus on two components:

1. Establishing and teaching students how the brain works and that all of them can succeed in math
2. Providing students the opportunity to engage in productive struggle with the focus on both teacher and student actions

Moved by Jo Boaler's session titled *Mathematical Mindsets: How to Inspire All Students with Open Math*, we decided as a team to open the current school year with a Week of Inspirational Math (WIM) available at www.youcubed.org. Over the summer, we met as a team and looked through the WIM resources and developed our plan to implement these lessons during the first week of school to set the tone for the school year. The week focused on inspiring students through open and creative math tasks that were accessible to all students while emphasizing the importance of valuing all ideas and learning from the mistakes we make in the classroom. The students were inspired and excited to come to math. Even parents mentioned how excited their child was about math during Back-to-School Night! When students were asked if their thoughts about math had changed, 7th grade student Brian summed up the week by saying, "Yes, my thoughts have changed because now I know how to work hard and it's okay to mess up." Teachers continued to do things to promote this growth mindset throughout the year, such as highlighting their favorite student mistakes and valuing all strategies.

Complementing the WIM was our really focusing in on how to support the productive struggle when students are engaging in rigorous and worthwhile math tasks. First, we took a step back to look at our tasks to ensure they were, in fact, worthwhile. We used the Worthwhile Math Task Evaluation in the *Field Experience Guide: Resources for Teachers of Elementary and Middle School Mathematics* (Bay-Williams and Van de Walle (2010)). Then we focused on two actions: 1) what teachers are doing to support the productive struggle and 2) what students are doing that exhibits this productive struggle. We referenced the teacher actions when using higher-level-cognitive-demand mathematical tasks effectively (High-Leverage-Teaching Action 6) from *Beyond the Common Core: A Handbook for Mathematics in a PLC at Work*. *Principles to Actions* (NCTM, 2014) provided insight into what students should be doing

while exhibiting the productive struggle. These teacher and student behaviors were pulled together in the attached document. As a math coach, I used this tool to provide feedback to teachers regarding their actions, and insights from evidence I collected from students engaging in the productive struggle.

We began to take the first steps in inspiring a growth mindset in not only students, but also teachers. Based upon our work on growth mindsets and productive struggle, one of the teachers came to the realization that she was regularly implementing higher-level-cognitive-demand mathematical tasks with her above-grade level math students, but only sporadically with the on- or below-grade level students. Her mindset has shifted this year; so, not only are her students given the opportunity to engage in a productive struggle, they are doing this successfully with the effective implementation and increased levels of student and teacher engagement.

While we are still working on creating a math culture of all students believing they can succeed in math and of all teachers promoting productive struggle, we have already noticed a shift in both student and teacher actions. So, while it will always be a work in progress, we know these strategies work, and are still working.

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