Is Intellectual Courage the Key to Great Teaching?

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In Washington, D.C., there is a school, Two Rivers Public Charter School, with a waiting list of over 2,000 families. In addition to having a school culture that celebrates inquiry, and joy in learning, Two Rivers also has remarkable academic results. Math achievement in 2013 was 24 percent above state average, and in every grade from kindergarten through eighth, math scores are strong and have shown consistent and significant growth.

What's going on here? Does this school have a knack for finding and recruiting math-smart teachers, or are they doing something different with the teachers they have - tapping into something new and powerful?

Not all teachers, particularly elementary teachers, feel sharp and deep in mathematics content and understanding. As someone who spent over 25 years as an elementary teacher and 20 years coaching elementary teachers, the number of teachers who have said to me, "I was never good at math," is alarming.

Two Rivers took this challenge head on. Over the course of four years, they transformed their faculty from one with typical weaknesses in mathematics instruction into a potent force. They asked their teachers to
step up with *intellectual courage*, and the teachers responded with uncommon risk-taking and personal growth.

Year One in the transformation was perhaps the most extraordinary. The entire faculty worked all year long on their mathematical proficiency. They did not work on *teaching math*; they worked on *learning math*. Let me repeat that: the work they did was not in direct service of classroom instruction; it was to strengthen their personal mathematical understanding. Teachers stepped up courageously to reveal their mathematical gaps. They worked openly and reflectively all year long and sought help from their peers and leaders.

Teachers began by writing, sharing and analyzing their personal "Math Stories"—their journeys through learning mathematics as students and later as teachers. Over the year, they engaged in seven, three-hour math workshops diving deeply into math content. These sessions were differentiated into three self-selected levels of complexity. Most importantly, they supported each other to maintain the personal courage to make their mathematical confusions and misconceptions public among their peers, to take the risk of struggling with difficult problems—even failing at first—with colleagues.

In Year Two, the faculty took on the challenge of planning for effective lessons. They reviewed math textbooks to analyze the ways in which the content was presented and explained. They experimented with new lesson structures. In Year Three, they worked as a faculty to become facile in a *problem-based* lesson structure. Applying this new knowledge, they introduced in every classroom a weekly problem-based lesson, often spanning two class periods.

During all of this time, they made their learning and growth—as mathematical teachers and thinkers—public. Teachers observed and critiqued each other's lessons, and collaborated to improve their instruction.

What better way is there to have students develop a growth mindset than having teachers model this—in every class, every day? The Two Rivers teachers modeled personal growth in two important ways: growth in mathematical understanding, and growth in academic mindset and courage. Their energy was infectious in the school, and students could not help but getting swept up.

Deeper Learning requires intellectual courage, which is rarely easy. Teacher Jess Ellis described her mathematical journey at Two Rivers: "At first I felt that this was impossible. Crazy even. I wanted my textbook back. Now we are using multiple resources and texts to plan lessons. By the end of the year, though, I felt that I could actually create these experiences for students. And the students' perceptions of math are transformed...they make it work with challenging material; they have new thinking routines."

Two Rivers has some advantages. They are part of the Expeditionary Learning network, which provides a framework and support for Deeper Learning. A school leader, Jeff Heyck-Williams, is a visionary math teacher. But it is important to recognize the advantages that they don't have. They are not a selective school: they have a typical urban population drawn from lottery. They don't have a big budget. They didn't purchase some magically effective math program. The uncommon success of Two Rivers is based primarily on one thing: the commitment, growth mindset and intellectual courage of its teachers.