

Title: “Educating Our Children to Succeed in the Global Economy”

What: HELP Committee Field Hearing on ESEA Reauthorization and STEM education

When: July 15th, 10:00 a.m. to Noon.

Where: Gilbert Heights Elementary School, 12839 SE Holgate Blvd, Portland OR 97236

Introduction

Good morning committee members. My name is Melinda Knapp and I teach 6th grade math at Sky View Middle School, in Bend, Oregon. Bend-La Pine Schools is the seventh largest school district in the state of Oregon. Nearly 16,000 students attend Bend-La Pine Schools. My Central Oregon district attendance area spans more than 1,600 square miles, with parts of the district being very rural.

I have been lucky enough to teach math for seven years at Sky View Middle School and have had the pleasure of teaching many hard working students over the years. I am also fortunate to work with many dedicated professionals who share my love of teaching and learning.

This past May I had the opportunity to spend a week, in Washington D.C., with the 85 winners of the 2010 Presidential Award for Excellence in Mathematics and Science Teaching (PAEMST). These were all highly competent, highly effective teachers who work tirelessly to improve themselves to ensure they are the best math and science teachers they can be. The goal of the award program is to exemplify the highest standards of mathematics and science teaching in the United States. As awardees, we are tasked to serve as models for colleagues, inspire our communities, and be leaders in the improvement of mathematics and science education. I take this task very seriously. I have the utmost respect for these teachers, who, collectively, had a wealth of experience, and many face huge challenges to ensure their students learn at high levels.

As I spoke with teachers from different states, some common themes emerged. I had many discussions about what high quality teaching should look and sound like. We spoke about the need for intensive, ongoing professional development and the need for more support from school and district leadership. Another common idea was the frustration about the over-emphasis on high stakes testing and how it was narrowing the curriculum.

All week long, we visited scientists and leaders from many agencies, including NASA, NSF and EPA. Each person stressed the importance of STEM education for our students’

future. They each described how a teacher had inspired them, and cultivated their love of science and math as they were growing up. This message echoed much of what I was hearing from the 85 teachers that week. It reminded me of the importance of a highly qualified, inspired teaching work force, particularly in the fields of math and science.

Because I am a classroom teacher, my perspective is grounded in my day-to-day interactions with my middle school students and the colleagues I work with. We see the impact of decisions that are made at a national, state, and district level. We, and by “we” I mean teachers and students, are impacted directly when funding is cut, days are cut, and we are constantly overwhelmed by initiative after initiative. My work over the past 5 years has been focused on mathematics professional development and leadership development necessary to move quality teaching and learning forward. My concentration on this work resulted from my own transformation about teaching and learning that allowed me to better understand the types of learning experiences we want for our students in STEM related courses. Because of my own experiences, I began to change my teaching practices. I now have the opportunity to work with other teachers to improve their teaching practices. Here are some examples of what you might “see and hear” in an inquiry-based mathematics classrooms where I work:

- Highly engaged students working in collaborative groups
- Students’ asking “why?”
- Students talking in groups, or during whole class discussions about their understanding or struggles with a particular concept or task
- Students providing justifications about why their idea works mathematically
- Students generalizing their mathematical ideas
- Students applying mathematical concepts in real life applications and problem solving
- Students at all levels of success contributing to the learning of all
- Students making sense of mathematics as a mathematician might. With “sense making” comes deep understanding

I have seen first hand the difference a highly effective teacher with a broad understanding of their content in an inquiry-based classroom can make for students. Students in these classrooms are more excited about learning, they understand more deeply, and they can apply their new knowledge in novel situations. They are true problem solvers. This is what our students need and what we need to do to help shape the problem solvers of the future.

It seems that in the reauthorization of ESEA, focusing on the area of STEM education, we need to have more support for the teachers who are currently in the classroom, and for educating and inspiring our future teachers to create the classrooms that our students need in order to be more successful. It is important that the measures established in ESEA stimulate the type of teaching and learning we wish for our students and that there are adequate resources to get there, particularly in STEM fields. I believe the following supports should be included in the reauthorization of ESEA:

1. We should provide quality, sustained professional development experiences for all K–12 science and mathematics teachers that will increase and deepen content knowledge, promote a variety of pedagogical approaches and develop questioning strategies, which will advance higher order thinking of all their students
2. We should encourage leadership that supports teachers improving their effectiveness as teachers in STEM fields
3. We should encourage higher education leaders to strengthen K–8 teacher education programs to provide a deeper understanding of the content knowledge necessary to teach mathematics and science
4. We should invest in research on teaching and learning that will better inform development of science and mathematics curricula and highly effective pedagogical approaches