

NCSM 2014 Reflection-Anne Kelly

When I attend a conference I try to select sessions that will provide a balance between practical ideas that I can use in my job of supporting mathematics teachers and inspirational ideas that will motivate me to remember why I chose the teaching profession as a career. The 2014 NCSM conference in New Orleans did not disappoint in either respect. I came away from every session with either an idea for supporting teachers or a reminder that we need to think of better ways to support students in learning mathematics.

In terms of providing support to teachers, I noticed that a common theme of several sessions I attended was how to provide professional development in the area of “number talks.” Effectively facilitating number talks is challenging. Teachers have to listen carefully to what students are saying and respond in the moment. Cathy Humphrey’s session included videos of pre-service teachers leading number talks with high school students. Two things stood out for me: the power of watching and analyzing videos in terms of improving teacher practice and the evidence that many high school students are not used to explaining their strategies. Cathy says that students have mostly been asked to memorize algorithms rather than understand and explain the procedures they use, so of course, they are not good at communicating their thinking. What the teacher discovers about student thinking in a number talk can be used formatively for immediate feedback or to inform the next day’s instruction/choice of number task. The power of number talks in improving teacher instructional and formative assessment practice and student flexibility with number is evident.

Many speakers repeated the message that mathematical talk is beneficial for student learning. Deborah Ball talked about the importance of teaching students how to have productive conversations for learning. We must spend time in the classroom showing students how to do the things we are “requesting” that they do. Margaret Heritage talked about teachers needing to probe student thinking to enhance deeper student learning on a cognitive, interpersonal and intrapersonal level. How can teachers assess this deeper learning and provide feedback during the learning process without having lots of student math talk in their classrooms?

Marilyn Burns repeated the message that students must be required to explain their thinking and strategies. How else will we know what the student misconceptions are and how to respond? Marilyn’s Math Reasoning Inventory is an online program which includes one-on-one interview questions designed to get at student thinking in the area of whole number, fractions and decimals. I was already familiar with the program as a

diagnostic tool. I came away from this session with a new appreciation for the value of the video interviews as a teacher learning tool in analyzing student thinking and using the information gained to inform teacher practice. One of the schools I support is already very excited about incorporating the student video interviews into their mathematics professional learning community work of using assessment information to inform next steps for students.

The ballroom was full to capacity for Dan Meyer's session. I think that every educator wishes they could be Dan Meyer or at least be a student in his class. There is so much excitement in the way Dan connects to our natural curiosity about the world and how mathematics can help answer questions we might really be interested in solving. For Dan, mathematics is not a spectator sport of practicing procedures. The "I do/we do/you do" model of memorizing procedures is not truly problem solving. Real life problem solving is messy and students must engage with a real problem to understand this. Math teachers can't get enough of Dan's previous blog offerings. The Great Modeling Tasks in Three Acts is a newly developed math modeling resource that will be offered free to NCSM members through collaboration with Dan Meyer.

Jo Boaler's session "Erasing Mathematics Inequality" made me truly reflect on how we can improve mathematics success for all students. Jo says that teacher belief that some students can't "do" math is really the "elephant in the room". The messages teachers send to students are critical. Jo talked about the importance of using "growth" versus "fixed" mindset language when giving feedback to students. Brain research says that being confident in your ability to do mathematics can create success. As a high school math teacher, I saw this first hand with my own students. Jo talked about the negative impact of several factors on mathematics success for all students. She says that the system of grouping students by ability leads to fixed mindset thinking that can be damaging to students in both higher and lower groupings. In higher tracks, students may not want to take risks because they don't want to take a chance on being wrong. She discussed the benefits of multi-dimensional math such as problem solving and other mathematical processes versus one dimensional math such as copying the teacher's method/procedural solution. Jo says that we should remove the focus on speed as an indicator of what it means to be "good at math" The top mathematicians are slow, deep thinkers. The focus on speed and working fast can lead to math anxiety. Jo also mentioned the importance of flexible sense making with number and how this could be improved by number talks. I found Jo's session made me want to know more about many of the topics she referenced. She gave lots of sources for additional reading or webinars on the issues she raised. I will have lots of professional learning going forward as I follow up on all of her recommendations.

I want to thank the NCSM and the Iris Carl Travel Grant Committee for helping me to attend the 2014 conference in New Orleans. I learned so much that I will be able to share with the teachers I support. The NCSM conference is an opportunity to receive the latest information about what is happening in the field of mathematical education, to learn from colleagues who support teachers, and to hear about programs that other jurisdictions are implementing to improve mathematics success for all. This is truly an international experience where attendees can hear from mathematical educators on a world class scale. Thanks to NCSM leadership for all of their hard work in organizing and implementing such a successful conference. Their dedicated work in all aspects of the conference from choosing the speakers to organizing the receptions and meals was so evident. Thanks for making this a valuable and fun experience for all who attended!