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Educational Background: I received my undergraduate education from the University of Nebraska in Lincoln, graduating with a bachelor's degree in Elementary Education in 2002. While there, I was fortunate enough to take part in the pilot program for "Math Matters," an attempt at creating an integrated math semester for pre-service teachers that focused on deeply understanding the mathematics we would be teaching, and making connections to the good pedagogy we would need to be successful in the classroom.

After graduation, I applied and was accepted to the CADRE program at the University of Nebraska Omaha (an accelerated 15 month masters program in Elementary Education), while starting my career as a sixth grade teacher for Omaha Public Schools. I taught sixth grade for five years, then moved to the computer lab to teach technology K-6 for two additional years. During those two years I applied and was accepted to UNL's "Math in the Middle" program, an intensive masters program at the conclusion of which I received a second masters degree, this one in Teaching Middle Level Mathematics.

In 2010, I took a year sabbatical from OPS to accept an externship through Northwestern University as part of their "teacher in residence" program, during which I worked in collaboration with NebraskaMATH and Northwestern to collect and analyze data related to their various projects. I returned to OPS in 2011 in the role of the district's first elementary mathematics coach, and was accepted to the doctoral program at UNL and the NebraskaMATH Noyce Master Teacher Fellowship.

School Background: Omaha Public Schools is the largest district in the state, serving nearly 50,000 students. Field Club Elementary is the second largest elementary school in the district, with nearly 750 students, over 60% Hispanic, 21% Caucasian, 8.5% African American and nearly 11% other minorities. Over 65% of our students receive free or reduced lunches, and we have a large concentration of the Somali-Bantu refugee population in the city.

One of the major challenges that I face at my school is working with a large and very diverse student population. At times, we have students who come to us not only with a language barrier, but with little to no formal education. The language and cultural differences can sometimes mask these deficiencies, and often students will slide along and "survive" for quite some time before anyone is able to focus attention on their mathematical learning. In particular I think of our Somali population- many of these students have had no formal education, and mathematics for them was related to trading and bartering...they had little to no need for proportional reasoning or formal algorithms in their world before moving to the United States. Understanding this background and adapting instruction accordingly presents a major difference- both cultural and conceptual barriers often rear themselves during instruction.

Unpacking Mathematics in UNL coursework: I felt fortunate to have gone through a program like Math Matters as part of my undergraduate experience. We did a lot of hands on, thought provoking activities centered on concepts that were pivotal for elementary teachers. In particular, I remember being in our pilot class of 16 and being asked to write a story problem to represent $\frac{3}{4} \div \frac{1}{2}$. We all ended up devising problems that actually represented $\frac{3}{4} \div 2$ instead, and quickly became frustrated with the activity. This problem was an eye-opener for me, however, in that I knew how to solve a problem involving division of fractions, but my understanding was only at a procedural level, which was insufficient if I wanted to teach intermediate level students for a living. I was appreciative of my exposure to learning the value of students sharing ideas, seeing and understanding alternative strategies, and experiencing the benefits of cooperative learning. In particular, my coursework was instrumental in helping me to understand the importance of using multiple representations and modeling with my students (after all, not all learners who walk into my classroom are in the same place...some are still very concrete and need physical models and representations, while some are working at various levels of abstraction), a practice that has become deeply embedded in my work with both students and teachers to this day.

The work I did with my peers also showed me that tackling a difficult problem can be overwhelming alone, but when done together can be not only manageable but enjoyable and beneficial for the whole group. I firmly believe, after having lived through such a model for pre-service education, that all teachers need to experience this type of learning to actually understand the value in it. Teaching in this way demands much on the part of the teacher- time, planning and a heavy cognitive load. They need to recognize the payoff of such an investment over time for their students before they will try to replicate such a model in their own classrooms. Students can deeply understand challenging mathematics if we help to set them up for success, but in order to do this we must first set our teachers up for success as well.

My experiences as an undergraduate at UNL helped me develop what has become today a very diverse network of teachers and resources. Through my work in various NebraskaMATH projects over the last 12 years, I have been able to meet other teachers in my own district as well as around and even outside the state. Unlike many teachers around me (both in my school and district), I feel that I have a strong support group who I can turn to when I need a resource- both my peers and the university faculty whom I have worked with along the way. This support system gives me strong confidence in my ability to work in the high needs environment within which I find myself.

One of the things I had wished for pre-service education was that *all* elementary teachers had received similar training to my own in our district, not only the select few who were fortunate enough to volunteer on their own to participate in NebraskaMATH or similar projects. As I became a new teacher, I also wished that the district had a more effective teacher mentoring model. As a brand new sixth grade teacher, my mentor was not only a teacher who did NOT work in my building,

but was an elementary art teacher as well. She was absolutely unable and unqualified to help me with my questions regarding the Science and Mathematics curriculum that I was trying to learn to teach for the first time. I wish that our district would find ways to pair new teachers with mentors who are not just willing, but who are experienced and highly qualified to support their mentees in the subject areas they are expected to teach.

Professional Development: In my district, the decisions about “required” professional development are made by (many) district level officials. Nearly always, these are individuals who have administrative degrees, and not necessarily any expertise in a particular subject area. Our district is given to doling out professional development that focuses on strategies and “neat” activities, rather than really digging into the meat of the content with teachers who desperately need it in order to teach the standards effectively. Often our professional development is unfocused—each curriculum day focuses on something different, and there is very seldom follow-up support for our teachers once they return to their classrooms. Teachers often feel overwhelmed by the barrage of new information constantly coming at us—our district tries to implement so many initiatives at once that at times it feels there is no time to focus on the actual content and instruction that our students need. (We have little time to master any of these initiatives before our district moves on to something else.)

There are some wonderful **optional** professional development opportunities being offered by UNL and UNO for teachers, but it requires them to give up free time on nights and weekends, and is not heavily endorsed by our district. Since it is optional, however, the teachers who most need this professional development are often *not* the ones who seek it out voluntarily. I feel that our district would strongly benefit from developing on-going, focused and supported PD that helps teachers to develop the deep content and pedagogical knowledge that they need to successfully teach in today’s schools. From my own experiences through Math in the Middle and the Noyce Master Teacher Fellowship, I feel that having the support of university faculty is key in creating successful and worthwhile forms of PD for our teachers that is content driven. I have been so impressed by the relationships that NebraskaMATH tries to build—connections between classroom teachers and knowledgeable professors, ones where teachers feel valued and supported. One major change I wish our district would make would be to promote collaboration between the K-12 professionals and those from higher education so that we can support one another more effectively to educate our children.

Summary: I feel so privileged to have been invited to speak as part of the panel for CBMS. It makes me feel encouraged to hear the conversations that are going on at the collegiate and national level regarding the future of mathematics education. I found that the other speakers, attendees and I all share similar concerns regarding the situation. My hope is that we can find a way for districts like mine to see and value a collaborative effort with the higher education institutions in providing support for both our pre-service and in-service teachers that is rich, meaningful, and sustainable. It is also imperative that all higher education institutions with teacher

preparation and on-going education programs are delivering quality content and pedagogical information to our future educators as well. A mathematical and teacher education and support network like the one I have received should be the norm, not an exception to the rule, for teachers across our country.