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Comments on the National Mathematics Advisory Panel Report release–March 13, 2008

It has, overall, been an honor to serve on this panel. I brought to the work of the Panel my several professional selves and expertise—experienced elementary school teacher, teacher educator, researcher in mathematics education and teacher education—– but, today, I'm speaking as the dean of one of the leading schools of education in the country. I have been thinking a great deal about the role of schools of education—together with schools, school districts, school leaders, as well as the rest of the universities they inhabit—in reading this report and taking action. I take my responsibility for this—and I'm sure my fellow deans do as well —very, very seriously.

I want to make three categories of comments briefly. One, I want to comment on the things that stand out most to me about our report. I want to comment briefly on things that will deeply disappoint me if they are the product of what we've done, and I want to comment about the things this report can enable.

The things that stand out to me about our report are, first, that when you look at the table and see the diverse people who populated this Panel, the fact that we've been able to vote unanimously to adopt that report and to reach the significant areas of agreement that we have is a remarkable feat and one that I think shouldn't be overlooked. I think, second, this report puts to rest some important myths that have plagued our efforts to make improvement in mathematics education. One important example is to argue over whether effective mathematics teaching is either teacher-directed or student-centered. As long as we reduce teaching to simple dichotomies such as this, we fail the children of this nation because we do not actually work on instruction; instead we simply argue about it in slogans. This accomplishes nothing. Instruction is unquestionably crucial to improving students' opportunities. The evidence is clear. But what exactly are the elements of skilled instructional practice deserves serious study. Finally, what stands out to me is that there is a pressing need to build on the agreements that this panel has forged, to develop the knowledge and the will and the action to actually make progress on mathematics education in this country to work on instruction, to work on the delivery mechanisms, and to equip our nation's teachers and those who work with them to use the knowledge that we've been able to identify about mathematics content and about learning.

Now, what would disappoint about me about our report? It would disappoint me deeply if this is reduced to yet another math wars story. This is <u>not</u> a math wars story. This is a story in 2008 about the areas of agreement that we are able to discuss based on the research that's been done up to this point. It would disappoint me if people spent their time looking for all the areas of disagreement among panelists. Certainly there were many, and if people spend all their time trying to dredge up the areas on which we didn't agree, we won't be able to use this report in the way it deserves and demands. It will disappoint me if the report is reduced to simplistic slogans or messages about calculators or teaching styles, and it will disappoint me if our report is not used to make progress, and I actually hold all of us as panelists and all the communities who have interest in math education accountable for doing the things I just said.

Finally, I'm going to comment on a few things I think this report can enable. First, I think it can enable the leveraging of collective will to begin building a much more common curriculum in this nation in mathematics. The founding creators of our school system—the common school reformers— hoped in the 1840s to build a common school system. We still haven't achieved that. In mathematics in particular, we have significant equity issues in our country, significant differences in opportunity to learn. Does anyone really believe that mathematics in Idaho is different than in Louisiana? We clearly—and I'm disappointed about this—are not yet ready to follow our colleagues in the rest of the world in building a national curriculum. But we could use this report to take the steps forward that would enable us to say that there is a common set of topics and skills that are foundational for kids' success and we're going to teach them to every child in every school, in every community, in every state, in this country. And as an elementary school teacher, I take as vitally important our identification of competence with fractions as being essential to students' progress. A second thing this report can enable is recognition of the central role of teachers. The report highlights the skilled professional work that teaching is. It makes clear that we need to take the report and work to build the kind of significant, disciplined knowledge about teaching practice that we need to have the effective educational system we so badly want. This can't be done without teachers, and without taking more seriously the intricate work that teaching is. This means we need to design and carry out major research on instruction. I'm struck by the need for us to develop understanding of the

instructional practices that enable teachers to teach complex mathematical ideas, skills, and practices to students, to build their confidence and study skills, and their interest. I was impressed by our failure to show what it takes to teach complicated mathematics explicitly to students. There simply wasn't the research base for us to do that. Of course, we also need similar research on teacher education. What, specifically, enables teachers to develop the knowledge and skills needed for their work? In no other field would we dare to think that common sense and a bit of being smart could enable you to do such skilled practice. We wouldn't think that about plumbing. We wouldn't do that in medicine. We wouldn't think that about hairdressing. And yet, somehow, in teaching, we continue to think we're going to solve the teacher quality problem by finding smart people and simply putting them with our nation's children. This notion undercuts teachers, but also students. This report makes clear and shows us the way that we're going to need to work to build the instructional methods and the methods of training teachers, 3.7 million of them, to be able to do that. Third, I think this report enables us to make fast progress on one of the most straightforward parts of the teacher quality problem, and that is teachers' mathematical knowledge. No one could disagree that teachers need mathematics to teach. How could they teach if they didn't know what they were teaching? But the report finally makes clear that it's not simply in the numbers of courses that elementary school teachers take that will enable them to be effective with students. They need knowledge of mathematics useful for the mathematically demanding work of teaching. Let's stop making a run at the wrong solution for a critical problem. Let's work with all deliberate speed toward ensuring that elementary school teachers have the mathematical knowledge they need to hear their students, to teach the content clearly, to be precise, to teach them to reason and to solve and to have the skills they need to do this with every one of their students. This is something you can read as agreed upon by this panel. And, finally, this report can be used to build the research capacity that we need around this country in schools of education, in research firms, in schools, that could enable the same kind of progress that we made in the medical profession almost a century ago. We need practice-based, practice-oriented, usable research that enables practitioners to actually have a repertoire of proven methods that reliably help students to learn and which they can use as appropriate in particular situations based on skilled professional judgment.

No report like this would have been possible without the leadership provided by our chair, co-chair, and executive director; I also want to acknowledge the amazing support we had from the consulting firms who worked with us. Some of us, most of us, actually, had day jobs during the last two years, and without the help we had, we would have had great difficulty in identifying the resources we needed to scrutinize and examine in order to reach the conclusions we have.