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STATEMENT ON THE NATION'S REPORT CARD:
NAEP 2009 High School Transcript Study

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I am pleased to be part of this panel to discuss the National Assessment of Educational Progress 2009 High School Transcript Study. I served as the mathematics curriculum specialist for seven years and taught math at the high school level for 32 years in the Milwaukee Public Schools. As a result, I have an obvious interest in seeing trends on some of the courses our nation's graduates have taken, and the grades and credits they have earned.

The report didn't necessarily surprise me. As someone who has taught advanced math classes, I know that a higher-level curriculum makes a difference, not just in students' NAEP scores but also in the ability to handle challenging coursework and to be better prepared for life after high school. This report made me think about the larger implications and challenges of providing this kind of curriculum.

First, I'm a firm believer that science and math are critical subjects in which students often need extra support throughout their high school experience. Background data on this report that can be found online bear this out. In 2009, students who took their last science course in 10th grade scored 11 points lower on NAEP than peers who took their last science course at 11th grade, and 27 points lower than peers who took science in 12th grade. Likewise, students who took their last mathematics course in 10th grade scored 8 points lower than peers who took their last math course at 11th grade and 24 points lower than peers who took math in 12th grade.

It is clear that students benefit from a more challenging curriculum. Although more advanced course taking is certainly a tangible goal in the endeavor to improve student performance, there are other important factors to be considered.

In my own area, Milwaukee, there are schools in the suburbs that consistently offer higher-level math and science classes. Good news. But two miles down the road in urban Milwaukee, there are schools with markedly fewer course offerings. Providing the opportunity for a course like calculus, with an enrollment anywhere from eight to 12 students, is definitely a challenge. Schools find it hard to justify offering a class for so few students, especially when funding cuts have to be made. Other options for meeting

the needs of students are available and have been attempted, including busing students from neighboring schools to consolidated classes and distance or online learning opportunities. However, these options also can be costly (e.g., transportation) and may not be suitable for all students. My hope is that we can continue to explore ways for equitable access to these important courses for students.

Access to challenging math and science courses is not enough. It's only part of the solution. The content in these courses must be delivered in an accurate and rigorous manner by trained and certified teachers. This is a great challenge for all schools, not just those in our urban areas. A real concern of mine is the current movement to incorporate algebra into the 8th-grade curriculum so those students can get a leg up on their math courses in high school. Quite a few states like California are pushing for it vigorously. The Common Core State Standards certainly calls for more algebra topics at the middle-grades level.

For these initiatives to be successful and equitable for all students, the mathematics background of 8th-grade teachers must improve to meet this challenge. This will require an investment in teacher training. If algebra is taught nationally at the 8th-grade level, middle-grade mathematics teachers' training and certification will need to include more algebra, and not just general middle-school mathematics. The University of Wisconsin at Milwaukee, a campus where I teach, offers a minor for middle-grade certification in mathematics with genuine, topic-specific courses. We're finding more and more teaching candidates are taking advantage of that opportunity. A similar offering is also designed in science. The bottom line is we need to increase the quality and rigor of teacher training.

For the class of 2009, there was a 36-point gap in NAEP mathematics scores between students who took algebra 1 in high school and those students who took algebra 1 before high school—a gap similar to what you saw in the 2005 scores. Early exposure makes a difference, but we must have targeted training to bring kids to the highest level possible.

Even with universal 8th-grade algebra, there will be students whose developmental needs will require additional algebra as they enter high school. We still have to provide multiple pathways for kids. I'm very much concerned about creating an environment that ultimately blocks many high school students from preparing for postsecondary education simply because they did not successfully complete a math curriculum that includes algebra in the middle grades. During the four years of high school, there is exciting potential and opportunity for our youth to achieve what we dream of in this country. There will be a need for high schools to help prepare kids for various paths—whether it's a four-year university, technical college, military service or employment—with appropriate rigor and substance.

The landscape in our schools is more complicated today. As I look back at my first years of teaching nearly 40 years ago, I sometimes reflect on how much simpler it was. There were only four or five math classes (algebra, geometry, advanced math and pre-calculus). Now I'm working part-time at Marquette University, regularly assisting students who are taking classes like statistics or the mathematics of finance who would have benefited from courses in these areas during high school.

This NAEP study makes me wonder if we're catching up with that landscape. Are we doing all we can to provide the best possible courses, instruction and learning? We certainly need to. Our students—and our future—depend upon it.