

STATEMENT OF CYNTHIA CLICHE
BEFORE THE U.S. HOUSE OF REPRESENTATIVES
COMMITTEE ON SCIENCE
APRIL 14, 2005
“PRESIDENTIAL AWARD FOR EXCELLENCE IN SCIENCE AND MATH
TEACHING”

Thank you for allowing me this opportunity to speak before the U.S. House of Representatives Committee of Science. Special thanks go to Chairman Sherwood Boehlert for his support and Ranking Member Bart Gordon, my representative from Tennessee. This is such an honor and I appreciate this committee's efforts in giving teachers time to discuss topics which are so important to our children's future.

My name is Cindy Cliche, and I teach first grade at Homer Pittard Campus School in Murfreesboro, TN. Campus School is the laboratory school for Middle Tennessee State University, and it allows me the unique opportunity to teach a math methods course and to work with pre-service teachers.

Our students benefit from the involvement of the pre-service teachers, and they, in turn, benefit by working with our children. For instance, several years ago my class, working with the Biology Department, five pre-service teachers, and parents, built an outdoor pond and butterfly garden to enhance our curriculum. The next year several EFG (Educating Future Generation) teachers including myself built an extensive nature trail with many more gardens and features around the school. This trail provides many opportunities to develop hands-on math and science lessons outside the classroom. It is this type of activity that can incorporate the National Council of Teachers of Mathematics (NCTM) principles for education and learning.

I believe the six NCTM principles—equity, curriculum, teaching, learning, assessment and technology provide a solid mathematical foundation for all students, and they should be emphasized, funded and applied in every classroom in the United States.

Equity sets high expectations for all students, regardless of gender, race, and ability. Every child needs to be given the opportunity to learn. Sometimes, so much emphasis is given to the lowest achievers that other children are allowed to plateau in their learning. Teachers need to provide enrichment opportunities for our higher ability students and implementing remedial strategies for our struggling students. We should never give up on any student!

The **mathematics curriculum** needs to focus on the five content standards: numbers and operations, geometry, data analysis and probability, measurement, and algebra. These standards provide the content for mathematical teaching. In addition, lessons need to be “hands on” and provide the opportunity for meaningful learning. Too many teachers use only a textbook in their elementary classrooms because the administration feels it is the easiest and most effective way to teach children. Years of research and experience, however, show that this is simply not true. Students need to use manipulatives and problem solving techniques to encourage active learning. Look into an effective teacher's classroom and the children are engaged, talking and learning. Long gone are the days of ditto papers and every child sitting quietly at a desk.

Teaching requires educators to understand what students know and how to challenge them to learn it well. Every child deserves a great teacher and a great teacher teaches the whole child. In addition, great teachers increase their learning of mathematics and

improve their ability to implement an effective curriculum in their classroom. They can do this by learning from students and colleagues and engaging in professional development and self-reflection. NCTM, as well as other national organizations, provides regional and national conferences to help achieve that goal. Often, it is extremely difficult for teachers to obtain funding to attend the professional conferences that keep them up-to-date with current teaching practices. Professional development needs to be encouraged and funded for all teachers. After twenty five years of teaching, it is apparent to me that there is still so much to learn. Our teachers, like our children, should be life long learners.

Emphasis also needs to be placed on creating a positive work environment for teachers. If a teacher feels appreciated and empowered to make decisions in his/her classroom, it will positively affect student achievement.

At the same time we need to make the teaching profession more attractive to our top students. As a university math methods instructor for the past fifteen years, I have seen the quality of teacher candidates decline. Teachers are being hired that would not have been given an interview ten years ago, and our brightest young adults are choosing careers with higher salaries and more benefits. My own niece wanted to be a teacher until she became a senior in high school. Now she intends to go into business so she can make a bigger salary. Young people want to be able to justify the cost of an education with the potential salary. As more of my teaching colleagues begin to look at retirement, this concern over the lack of quality, committed teachers becomes alarming.

Learning requires students to truly understand mathematics and to actively build knowledge from new and prior experiences. Materials and support are key to active learning, and our focus should be on understanding as well as procedural skills. Some of my proudest moments are when my students return to visit the classroom. They will remark about the physical features, such as: *how the room looks smaller* or *have you moved your desk*. Then they always reminisce about a special activity. It might be the “Measure Me” doll that they made which was their exact birth weight or the tree they planted along the nature trail. Active learning enables a child to develop a concept in a meaningful way.

Assessments should support the learning of important mathematics and furnish useful information to both teachers and students. Assessment should be ongoing throughout the school year and teachers should be using various forms of evaluation. A lot of attention and funding is focused on a standardized pencil and paper test given once a year, but teachers need to use a variety of tools such as journals, portfolios, and interviews to learn about their students.

Finally, **technology** is an essential tool in teaching and learning mathematics. Our children need to leave our classrooms technology literate. In fact, even my first graders have their calculators in their desks ready to tackle the “big numbers” that might occur while we are solving some higher level problems. They also have several opportunities

during the day to go online and work on web sites bookmarked to enhance their learning of mathematics. So many schools lack the funds to give their students this opportunity.

As lawmakers, the decisions you make will impact the future of our children. Thanks so much for your continued dedication in this area. With the challenges our Nation faces today, we need talented, well-educated children with the ability to solve the problems of tomorrow.