

Remarks for PAESMEM Awards Mentoring Strategies Session

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Thank you. It is a pleasure to be here this morning with this outstanding group of Presidential awardees, and have an opportunity to hear from you about mentoring strategies that work.

The White House, through the National Science and Technology Council (NSTC) and the Office of Science and Technology Policy (OSTP), has established the Presidential Awards for Excellence in Science, Mathematics and Engineering Mentoring (PAESMEM) program, which is administered by the National Science Foundation, to identify outstanding individual mentoring efforts and mentoring programs designed to enhance the participation of groups underrepresented in science, mathematics, and engineering.

In conjunction with conferring this award, we are excited to have an additional day to hear from the individuals who have demonstrated outstanding and sustained mentoring and effective guidance to a significant number of students at the K-12, undergraduate, or graduate education level, or have developed institutional programming that enables a substantial number of underrepresented students in science, mathematics, and engineering to successfully pursue and complete the relevant degree programs. The Presidential award is the highest honor bestowed by the U.S. government on outstanding science, mathematics, and engineering mentors.

Picasso once said that “Beginning Teachers Borrow and Experienced Teachers Steal.” Today each of you will have the opportunity to “steal”—I mean, share—each other’s techniques and experiences; what works in mentoring and, almost more importantly, what doesn’t work? Please! Share freely, and take what you learn home to your colleagues. You are all leaders in the national effort to more fully develop the Nation's human resources in science, mathematics, and engineering—who better to learn from?

I want to ask you to think for a minute about all the ways science and technology sustain innovation and drive our economy, and the global economy. We need a minimum-level public understanding of science for preparing citizens in all walks of life. Math and science education is crucial to enable our society to embrace rather than fear science and promote its use for the benefit of society, and we will need more students who are interested in math and science careers to meet the increasing demand for a skilled workforce in the future.

But we have a problem in this area.

I’m an optimist and I hate to use the word “problem,” but I make an exception when I talk about maintaining students’ interest in science and math. You may be aware of the statistic from the National Research Council’s “From Scarcity to Visibility” which reported in 2001 that, between 9th grade and entering college, the number of males interested in a science track drops by 50% while the number of females interested in the science track drops by 80%. The NSF Science and Engineering Indicators 2002 tell us that approximately 25-30 % of students entering college in the US intend to major in S&E fields...but there is a considerable gap between freshman intentions and successful completion of the S&E degree. Fewer than 50% of those who intend to

major complete an S&E degree within five years, and under-represented minorities drop out of S&E programs at a higher rate than other groups.

That's why I believe mentoring is so important. You are the people who can intervene in those critical periods where young people are become discouraged and risk losing their interest and enthusiasm for these critical disciplines. You might even convince some who never intended to study science that it's not nearly as bad as they thought. I, myself, began college convinced that I hated biology. However, a key teacher-mentor in my first college science class communicated the wonder of the subject to me so forcefully that I ended up choosing biology for my career.

Indeed, as William Butler Yeats tells us; "Education is not the filling of a pail, but the lighting of a fire."

Mentors light the fire, and they tend the flame. Your accomplishments at k-12, undergraduate, and graduate levels are exactly what we are trying to highlight across the Federal government, as we look for ways to maintain U.S. excellence in science and technology well into the future. Our global leadership in innovation and discovery depends on ensuring the participation of the full diversity of our population in our science, mathematics, and engineering workforce. This happens one student at a time, and depends on the personal interactions and encouragement that enable the student to achieve and keep her student interested and encouraged.

The impact that teachers and professors have as mentors is enormous. The programs and institutional practices that encourage and reward individual mentoring, and focus on ways to retain and support students, effectively multiply the impact of the dedicated individual mentors. Thus, it is indeed an honor welcome you to this important seminar. It is through your efforts to develop and share mentoring strategies that *work* that we will ensure the diverse science and technology enterprise that is critical for the future of our Nation.

I would like to conclude with two of my favorite quotes—from a Nobel Prize winning biochemist whose name I can't pronounce (but I have it written down right here, if you want to see me afterward – Albert von Szent-Gyorgyi). He said, "A discovery is said to be an accident meeting a prepared mind." He also said; "Discovery consists of seeing what everybody has seen and thinking what nobody has thought." In truth, he was honoring educators, particularly science educators and mentors who prepare their students to think creatively, see possibilities, and imagine.

Thank you.