John L Winn Testimony
Senate Committee on Commerce, Science, and Transportation
Hearing on America Competes Act
Wednesday September 19, 2012

Good afternoon, Mr. Chairman and honorable members of the committee. I am honored to be testifying before you today. I would like to say thank you for your support of innovation in STEM fields and would especially like to say thank you to Senator Hutchinson for her work to offer solutions to this nation's growing need to become more competitive in a highly technological world. We will certainly miss you.

Today I am testifying on behalf of the National Math and Science Initiative located in Dallas, Texas. Since its inception five years ago, NMSI has been replicating successful programs to transform STEM teaching and advanced learning. Our approach relies on public private partnerships, performance management of replication and continued guidance and support for public schools and universities that have a strong desire, not just to improve STEM learning, but to transform it in a way that is powerful and lasting.

One particular program is UTeach, a teacher preparation program first developed at the University of Texas at Austin. This program is highly innovative in that it offers service minded majors in math, sciences, and engineering an opportunity to earn a degree in their field of interest and become a highly competent teacher all within four years. Ninety percent of UTeach graduates go directly into teaching and 80 percent continue teaching five years later. Their trademark is a strong knowledge of their subject and four years of teaching practice before they enter classrooms.

UTeach requires a close and lasting partnership between colleges in STEM fields of study and colleges of education. Can you imagine a senior engineering professor teaching UTeach classes beside a master teacher or senior education professor? You don't have to. You can see it at the University of California Berkeley and other UTeach sites across the nation. We now have 33 universities replicating the UTeach program. I refer you to the map contained in my testimony. UTeach works in all types of universities: research, comprehensive, urban, and rural. These universities now have over 5,500 students actively enrolled and we project that over four million K12 students will have been taught by UTeach graduates by 2020.

How does this relate to the America Competes Act?

The Act authorizes a program at the National Science Foundation to "replicate and implement programs at institutions of higher education that provide integrated courses of study in science, technology, engineering, or mathematics, and teacher education…"

Subtitle B Section 551 states,

The purpose of this subtitle is to replicate and implement programs at institutions of higher education that provide integrated courses of study in science, technology, engineering, or mathematics, and teacher education, that lead to a baccalaureate degree in science, technology, engineering, or mathematics with concurrent teacher certification.

UTeach is just this type of program. We believe that there are unfulfilled opportunities to make this statute a reality.

The National Science Foundation rightly allocates funding to spur research and innovation. With the strong support of this committee and taking a broad view of these priorities, the UTeach program can be supported as described in this legislation.

Support for research and innovation does not have to be limited early development. If we truly want to build a top flight generation of scientists, mathematicians, researchers, inventors, etc., we must lay the groundwork now. UTeach students learn to bring research understanding and practice into the K12 classroom. How better can we prepare and inspire students to go into advanced STEM fields and further our strong competitive presence? The universities replicating UTeach are starting a new wave of faculty driven research into STEM teaching and learning. Therefore, support for expanding UTeach is expanding research without additional funding.

There is no doubt that UTeach is a remarkable innovation. But it is not a program that can be adopted in a flash. Success requires four years of continuous innovation within the replicating university. New curricula must be collaboratively developed, new approaches to recruiting STEM majors into the program must be created, as well as developing additional relationships that make the program work. Although replication includes core elements of success, these unfold in ways often unique to the university.

One thing we all know. We can and must do better.

I would like to end by relaying a situation that underscores the need to transform STEM teaching. In Florida, we could never set our science and math certification exam passing scores at the level recommended by our best teachers. The reason is simple; there would be far fewer candidates passing the higher qualifying score. This phenomenon is not limited to one state. It is pervasive and it stands as a reminder that we need a new generation of highly trained STEM teachers if we are to reach our goals.
.

Thank you for your attention.