

**Addressing *Rising Above the Gathering Storm* through Links to K-12 Education
by the Dwight Look College of Engineering at Texas A&M University**

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Abstract

The report *Rising Above the Gathering Storm* increased concern for keeping the U.S. economically competitive and placed attention on the role of K-12 education in emphasizing mathematics and science to produce quality students, well prepared for higher education, to supply the nations' growing need for engineers and scientists. To address the urgent need for more engineers and the lack of understanding by K-12 teachers about what an engineer does, the Dwight Look College of Engineering at Texas A&M University leveraged two National Science Foundation funded programs to provide engineering research and career information for high school science and mathematics teachers.

The College has NSF funding for a Research Experience for Teachers Site (RET) and a Science, Technology, Engineering, and Mathematics Talent Expansion Program (STEP). Though normally these two programs are worlds apart, the College leveraged the two to create the Engineering Teacher Outreach Program (E-TOP) which collaborates with teachers from targeted partner schools with large populations of first generation students who may not have had access to information on engineering as a possible degree or career choice.

The RET leadership partners engineering faculty, many of whom are NSF CAREER awardees, with grade 7-12 science and mathematics teachers for engineering research experiences. Teachers' summer on-campus experiences include working on a project associated with the research area of the engineering faculty member. They also work with a STEP engineering faculty member to develop an experiential learning project for their classrooms. The model of developing engineering projects to enhance student learning is used in the STEP and targeted at first-year engineering students.

This paper will outline the process for leveraging the two NSF-funded programs and present findings from evaluation conducted during and after the teachers' summer experiences. The pilot project will compare data collected with survey data from prior RET teacher participants.