Fueling New Jersey’s Economic Engine Through STEM Education

More than half of sustained economic growth in the last 50 years has resulted from just five percent of the workforce: the engineers, scientists, and technologists who innovate, invent, and create markets, jobs, and income. Despite their importance to our economic future, an alarming shortage of engineers and scientists persists. While the demand for scientists and engineers grew by 4.2% between 1980 and 2000, the number of students earning science and engineering degrees increased only 1.5%.

Stevens Institute of Technology’s Center for Innovation in Engineering and Science Education (CISEE) is addressing this challenge by working with K-12 educators throughout New Jersey to strengthen teaching and learning in science, technology, engineering, and mathematics (the STEM disciplines), and to foster increased engagement, persistence, and career interest in these disciplines. The results are clear:

- CISEE has bolstered teachers’ content knowledge and classroom practice in STEM by providing professional development and classroom support to more than 25,000 educators in elementary, middle, and high school classrooms across New Jersey and in six other states.
- Elementary school students in classrooms of CISEE-trained teachers achieved learning gains in science nearly two times greater than those of other students.
- Students from 36 schools throughout New Jersey showed significant learning increases in science and engineering concepts as a result of participation in an innovative underwater robotics project led by CISEE. Economically disadvantaged and female students in particular showed significant increases in enjoyment of science and in engineering career interest as a result of this underwater robotics project.

The National Science Foundation recently invested $2.5 million in expanding this project to four cities throughout the U.S. But the real assessment of Stevens’ contribution to education is best illustrated through its impact on students and teachers redefining their own potential and striving for higher goals:

“I cannot fully express how the Stevens underwater robotics program has changed our students. My students are excited with dreams and possibilities fueled by their new levels of confidence and focus. I have been able to introduce my students to a new world of goals and careers they never thought about or knew existed. I thank you and your program for helping me help my students look toward new challenges.”

Teacher Aynenoe White of Veteran’s Middle School in Camden, New Jersey

Education in engineering and science matters.

To learn more about Stevens Institute of Technology’s Center for Innovation in Engineering and Science Education, visit www.stevens.edu/ciise.

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