Despite a push to involve more women and minorities in science, technology, engineering, and math (STEM) fields, the STEM workforce is no more diverse now than it was in 2001, according to a 2015 article in U.S. News & World Report.

That topic has long been a passion of William Trent, a professor in the Department of Education Policy, Organization & Leadership at the University of Illinois at Urbana-Champaign. His passion led in part to a $1.99 million grant from the National Science Foundation to study the issue.

Trent, along with co-principal investigator Lorenzo Baber, has examined the matriculation, persistence, and degree attainment of women, students of color, and low-income undergraduate students in STEM fields. “Too few of those students have had the opportunity to develop their skills and talents in higher education, and within higher education, they have fewer opportunities to pursue fields for which there are high economic returns—STEM fields more generally,” he says.

Trent’s study was comprised of three components:

- Tracking enrollment, persistence, and completion data for underserved populations in STEM fields at a consortium of eight large, public universities
- Analyzing the interventions these universities used to enhance persistence and completion
- Understanding the student experience on campus, in the classroom, and with fellow students

Casey George-Jackson, project director, found that women are not leaving STEM fields, as originally thought. Rather, they are moving to adjacent STEM fields and graduating at high rates. Minority males, however, are likely to leave STEM fields altogether if they change their major.

The students are perfectly capable of doing the work. We just have to provide the opportunities for learning that can grow the number of students who are competing, and who are competitive, in these areas. — William Trent

Among the study’s findings:

- Early departure by women or minorities is often related to inadequate academic preparation
- Students who develop a science identity—who see themselves as successful scientists—are more likely to persist
- Underrepresented students need earlier exposure—in middle and junior high years—to higher-quality instruction and courses, and to conducting research
- Teachers need to communicate their belief in the students’ abilities and both mentor and advocate for them
- Universities need to develop and fully engage in interventions designed to enhance the persistence, retention, and graduation of underrepresented students
- Universities can make better use of the growing body of research in this area

“The students are perfectly capable of doing the work,” Trent says. “We just have to provide the opportunities for learning that can grow the number of students who are competing, and who are competitive, in these areas.”

To learn more about Trent’s study, please contact him at w-trent@illinois.edu.
INCREASING AND SUPPORTING UNDERREPRESENTED POPULATIONS IN STEM FIELDS

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