For girls in STEM, perception affects reality

Women who think math can be learned pursue more technical degrees

New research suggests that belief is the most important thing holding girls back from pursuing technically demanding degrees.

High school girls who believe they can handle challenging mathematics and think mathematical ability can be learned, as opposed to being inherent, are more likely to major in the physical sciences, engineering, mathematics or computer science. Therefore, schools, families and policymakers need to do more to change those misperceptions, as women who perceive their mathematics ability is strong and open to growth are more likely to pursue technical fields, said assistant professor Lara Perez-Felkner of Florida State.

Both in higher education and in industry, males dominate fields in science, technology, engineering and math (STEM). Perez-Felkner and doctoral students Samantha Nix and Kirby Thomas aimed to determine how gender and beliefs about ability influenced the choice of a college major.

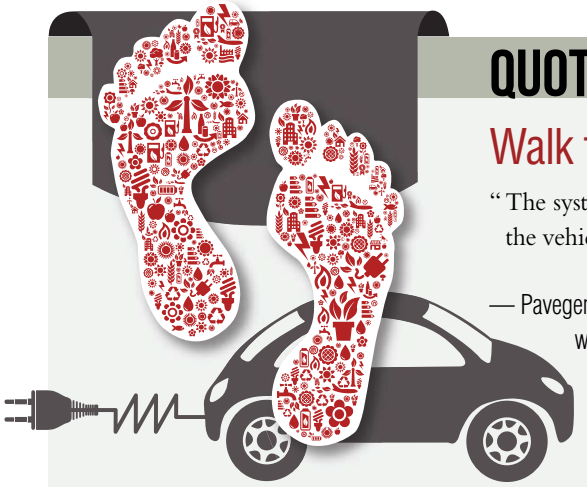
The results, which held true even after correcting for a number of factors, showed that 12th-grade girls who thought they could do difficult and challenging mathematics were about twice as likely to select a technical major. And 10th-grade girls who were confident that they could develop mathematical ability through learning also doubled their chances of selecting a math or science field.

Research by Lara Perez-Felkner (from left), Samantha Nix and Kirby Thomas revealed that the belief that mathematical ability is inherent rather than learned holds U.S. girls back from pursuing technical degrees.

Data from the study backed up the importance of a "growth mindset" among people attracted to technical fields. Girls and boys who had completed high school physics and chemistry courses were twice as likely to major in science, math or engineering.

Nix said it's important that students hear that problems with classwork are expected and normal, and they do not mean the girl or boy cannot become a successful scientist.

"In addition, instructors may want to ask themselves if they are giving the same feedback to young women and men who deal successfully with a difficult mathematics problem in class," she said.



QUOTE, UNQUOTE

Walk this way for electricity

"The system works, but we need several hundred thousand footsteps to allow the vehicle to drive 20 minutes within London's busiest streets."

— Pavegen CEO and founder Laurence Kemball-Cook about his company's collaboration with Tesla to collect footfall energy to charge electric cars. The 29-year-old industrial engineer was quoted June 23 on the website of PSFK Labs (*http://labs.psfk.com*).