

# Race matters when recruiting, retaining undergraduate women engineers

July 19 2011

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Attempts to recruit and retain more women in undergraduate engineering programs often lump all female students into a single group. At best, minority women as a group may receive special attention.

But a new study of female engineering students' perceived challenges finds significant differences between black, Hispanic, Native American, Asian-American and [white women](#). The findings by researchers at University of Washington could help institutions better retain particular underrepresented groups of [students](#).

"What we're finding is these women's experiences are different, which is why grouping all women together doesn't make sense," said co-author Elizabeth Litzler, research director at the UW's Center for Workforce Development. She recently presented the findings in Vancouver, B.C., at the annual meeting of the American Society for Engineering Education.

The study used data collected in 2008 by the Project to Assess Climate in Engineering survey, conducted by UW researchers and funded by the Alfred P. Sloan Foundation. Investigators distributed questionnaires and interviews to undergraduate engineering students at 21 U.S. colleges and universities that were interested in supporting diversity programs. The study received more than 10,500 responses, with higher than average numbers of women and [minority students](#).

"The study's size gave us a really great opportunity to talk about race, which is usually not possible in engineering," Litzler said.

The UW researchers looked at the aggregate findings to seek overall trends among the responses. Students were asked about such subjects as teaching, labs, student interactions, personal experiences and their perceptions of their major.

"We see important trends in our findings," Litzler said. "For example, [Hispanics](#) reported feeling like they were taken less seriously than other students. African-Americans, not at all."

However, black women reported higher instances of feeling singled out in the classroom because of their race than Hispanic, Native American and Asian-American women.

Another significant finding related to female students' comfort approaching their professors. Many female students said they were uncomfortable approaching professors with questions, but black women were significantly less likely to report this as an issue.

Native American women were the least likely to approach their professors individually.

"These findings advance our understanding of race and experience of undergraduate [engineering education](#)," Litzler said. "I don't think this suggest huge differences. But having a better understanding of where students may be coming from may be able to help us direct them, and give them suggestions that may lead to them staying in engineering."

The trends come from analyzing numerical scores on the questionnaires. Next the researchers will analyze the students' interview responses to better understand the reasons behind these trends.

The UW investigators also will continue with the larger PACE study. Researchers gave each school a summary of its students' responses as

well as recommendations for interventions that would improve the students' experiences, such as instituting diversity training for teaching assistants, or providing more mentoring opportunities for freshmen women. More than half the schools have since implemented at least three of the suggested interventions.

"You can't just attack retention by developing a bunch of interventions. Institutions need a strategic plan," said co-author Suzanne Brainard, UW affiliate professor of gender, women and sexuality studies and of human centered design and engineering and executive director of the UW's Center for Workforce Development.

A new grant from the Sloan Foundation will allow the center to follow up with the schools. Starting in September, UW researchers will go back and collect data to see whether the targeted interventions succeeded in retaining more [women](#) and minorities. Brainard said she is confident the data will show that retention rates have improved.

Students at the UW were not included in the study because it looked only at one-tier schools, where students enroll in an undergraduate engineering program directly from high school. However, the UW and other schools where not all [engineering students](#) are admitted in the freshman year could still benefit from the findings, the authors said.

Provided by University of Washington

Citation: Race matters when recruiting, retaining undergraduate women engineers (2011, July 19) retrieved 24 April 2024 from <https://phys.org/news/2011-07-retaining-undergraduate-women.html>

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