

Redefining Power in the Engineering Classroom | College of Engineering

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White House Honors USU Professor for Research into Hidden Curriculum

News Release — Oct. 25, 2019 — Secrets are not welcome in Idalis Villanueva's engineering classroom. She doesn't believe in withholding information or making assumptions about what students may or may not know. On day one, she asks students to refer to her as Dr. Villanueva or Dr. V; she clearly posts assignment due dates; she lists the objectives of each lesson; and she clarifies uncommon terms to make sure everyone is on the same page. This seemingly basic approach to instruction is nothing new, but emerging research suggests it is crucial to the success of would-be engineers.

The retention rates of engineering students is surprisingly low. Estimates suggest about half of first-year students drop out or change majors. Villanueva is looking at the problem in a whole new way, and her innovative research into the issue is drawing national attention. In July she received the Presidential Early Career Award for Scientists and Engineers, or PECASE, the highest honor awarded by the U.S. government to scientists. Villanueva is the first faculty from Utah State University to receive the award since it began in 1996, and she is the only 2019 award recipient in Utah.



Hidden Curricula refers to academic rules or social norms that are obvious to some but unknown to others. The effects of hidden curricula often impede the academic success of under-represented students.

A native of Puerto Rico, Villanueva studies and develops methods to improve educational opportunities of engineers from diverse social and cultural backgrounds. Her work is focused on revealing and eliminating hidden curriculum in the engineering classroom. The term hidden curricula refers to academic rules or social norms that are obvious to some but unknown to others. The effects of hidden curricula often impede the academic success of under-represented students.

"Engineering has a culture, it has norms — things that are assumed to be effective because they've always been that way. But the assumptions behind those norms are never questioned," she explained. "If you are a first-generation student or come from a different cultural background, you may not be aware of the resources and opportunities that will help you succeed as a student. Many students and faculty who come from non-traditional backgrounds often struggle with making sense of the university environment. They struggle to understand the predominant culture, perspective, and expectations. Without this understanding, how are they expected to succeed?"

Villanueva says inadvertently withholding information creates a power imbalance between student and professor. By revealing hidden curricula, knowledge becomes democratized and students know what is expected of them. "When hidden curriculum is revealed, it loses its power because it is no longer available among students or faculty who are in the 'the know,'" she said. Villanueva's work has the potential to reach hundreds of engineering faculty across the country and increase students' chances for earning their engineering degree.

"Engineering is a beautiful career," says Villanueva. "It's a needed career that has potential for enormous change. I see engineering as the next humanitarian career — one focused on collective impact and transformation."

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