



HENRY M. ROWAN
COLLEGE OF ENGINEERING

Revolutionizing Engineering Diversity (RevED)

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The Civil and Environmental Engineering (CEE) department at Rowan University is completing the second year of a National Science Foundation (NSF) Revolutionizing Engineering and computer science Departments (RED) program grant. Our focus this year was to examine all CEE courses and incorporate inclusive content. All CEE faculty participated in this effort with varying degrees of success. The research team also expanded their efforts to other departments in the Henry M. Rowan College of Engineering as well as to other departments within the institution.

An Online Presence



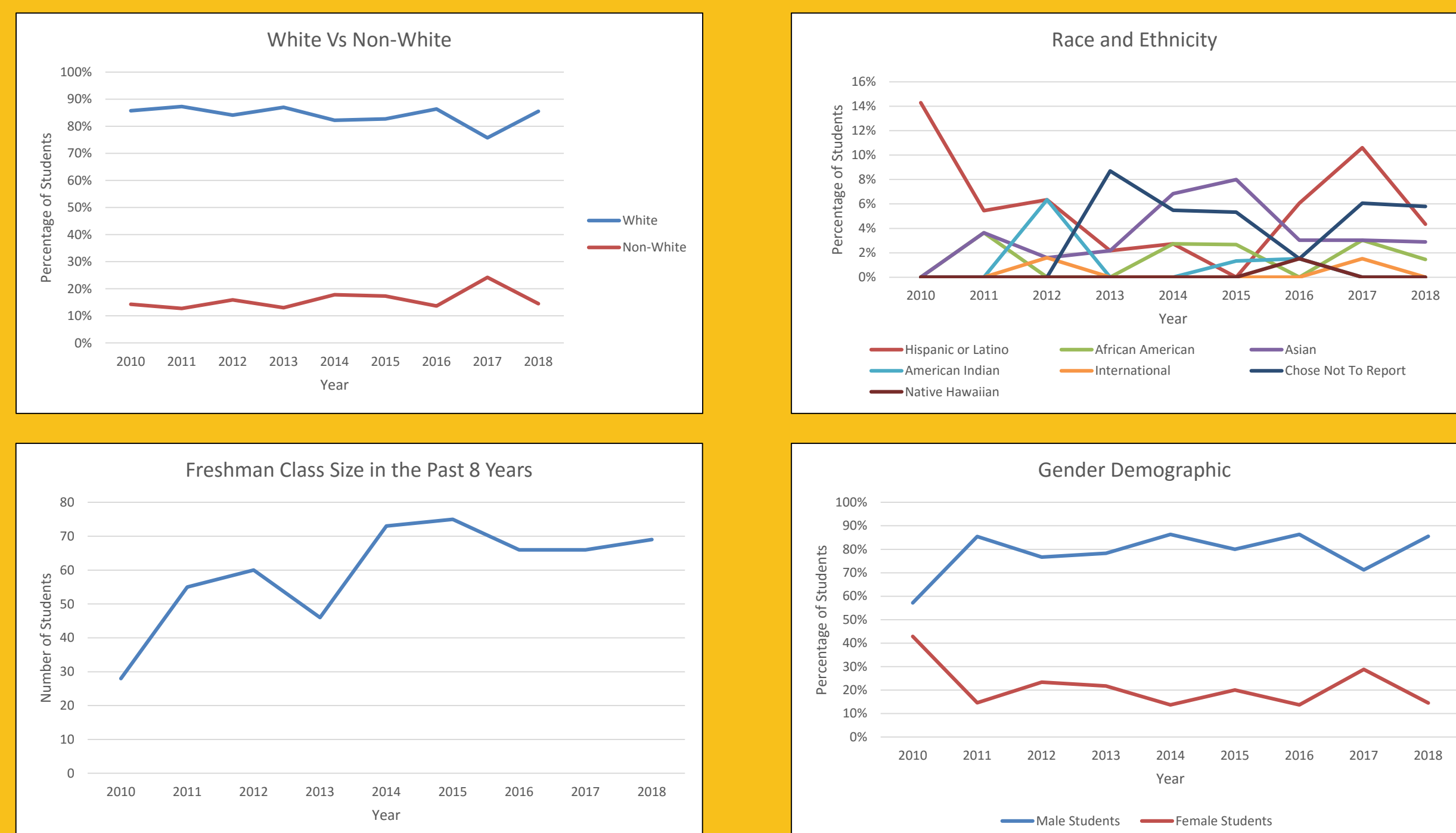
A new development for the second year has been the use of multiple online platforms to disseminate our diversity and inclusion efforts. The online social media platforms used include Twitter and Tumblr, and a fully dynamic website. The RevED team is able to regularly provide updates to a wider audience on all facets of the project including curriculum changes, diverse role models for students, alumni and mentoring spotlights and an interactive calendar of relevant events. There is also a continuously growing library of Civil Engineering projects and assignments that are available for any faculty to use.

Events and Guests

- Dr. Juan Lucena and Dr. Jessica Smith of Colorado School of Mines on contributions of low SES and 1st Gen students
- Rowan Alumnus panel featuring 3 former CEE students who currently are working in the Southern New Jersey Region
- Attending and supporting conferences on diversity and inclusion such as EESD at Rowan University, CoNECD, National Academies CWSEM Women of Color in STEM related workshop.



A Look at the Numbers

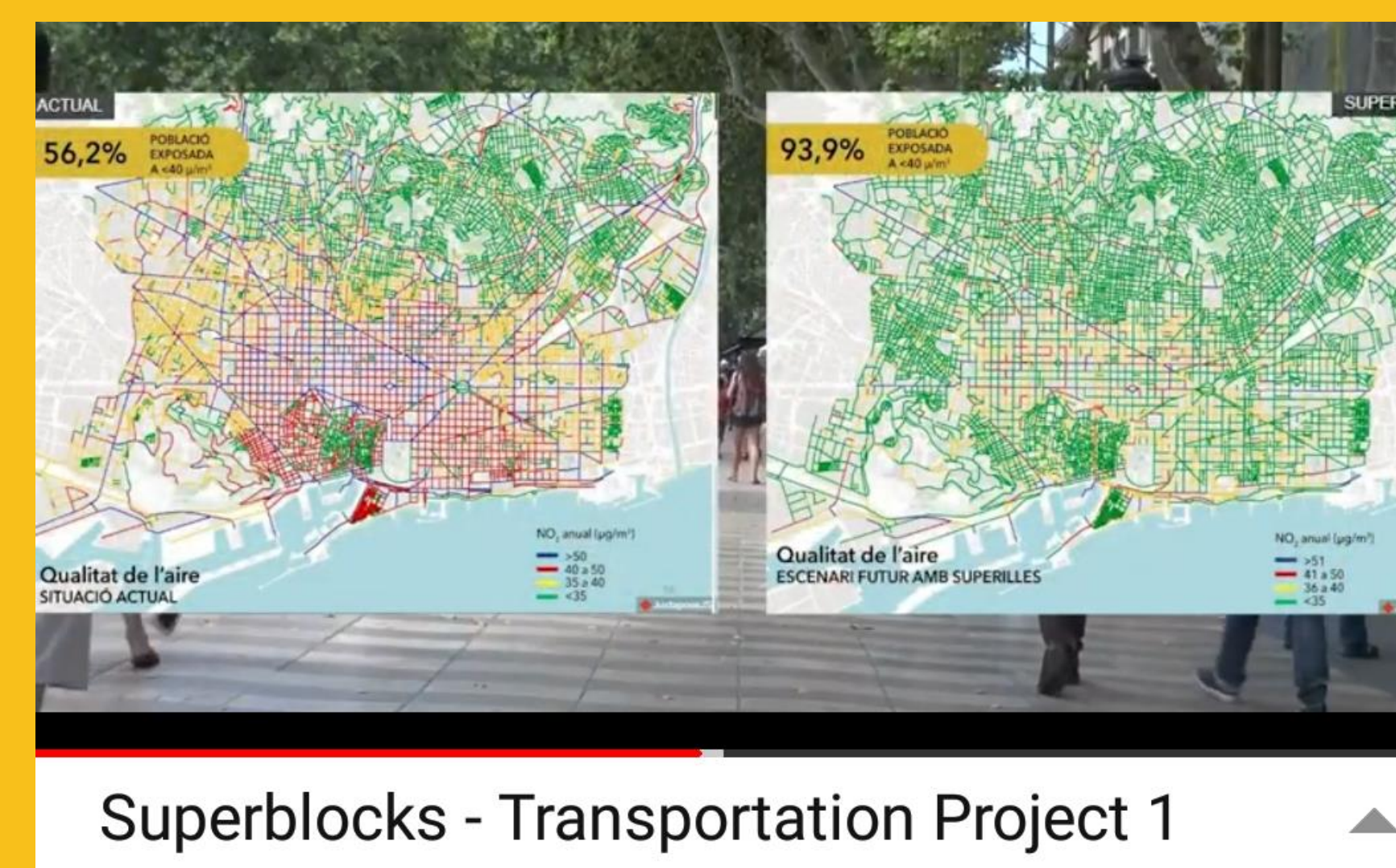


There has been some demographic changes in the engineering student body. To investigate ways to better serve all Rowan engineering students, the RevED team also use surveys at the end of each semester to gauge how students learn best and understand their perception of inclusive pedagogy and curriculum changes.

- 61% of students thought having a statement about Diversity and Inclusion on the course syllabus was important.
- 70% of students indicated that using preferred names and pronouns was moderately to extremely important.
- 70% of students thought that considering social and societal effects along with theory was moderately to extremely important.
- 61% of students believe that open ended problem solving is very to extremely important.

In the Classroom

Projects in 3rd year courses such as Civil Engineering Materials, Geotechnical Engineering, and Transportation Engineering used global engineering examples as a means for students to engage in work that covers aspects of diversity and ethics. Students were able to investigate different construction practices worldwide, explore design standards used in other countries and compare it with U.S. standards and study the impact of engineering on communities outside of their own.



Our Solution

- Stop the use of British standards for they are over designing in traffic
- Modify existing British standards specific to environmental concerns to prevent the actual cause of failure of roads
- Use of sedimentary aggregates to help with degradation concerns
- Consider climate of road location
- When choosing to use sedimentary aggregates they should consider the specific gravity/absorption and gradation tests
 - Especially in this "wet" area for porous rocks could possibly not be as effective



These projects were assessed by student presentations, videos, and reflections. More courses in the first and second years have also started drawing in-class and homework problems to give a systems and global perspective on the engineering and how it has impacts on different communities. CEE faculty were given support to develop and implement these projects by the RevED Team.

Expanding the Project Footprint

The RevED project is expanding our footprint. Some of the efforts include:

- With institutional support, we rolled out the Program for Inclusive Pedagogy and Educational Reform (PIPER) which provides financial and other support for instructors in any Rowan department to utilize towards reforming their course curriculum.
- Research Experience for Diversity and Inclusion (REDI) is awarded to support research activities of Rowan University Faculty, Staff and Students that promote and enhance diversity and inclusion.
- Inaugural year of oSTEM at Rowan University which ended its second semester with over 75 members
- Revision of tenure and promotion guidelines to value diversity and inclusion.
- All new engineering faculty have to complete a Certificate of Inclusive Pedagogy.

Acknowledgments

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