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Promoting Interest in Transportation Careers Among Young Women

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Today, there is a pressing need for a workforce with diverse skills, experiences, and backgrounds to adequately respond to society's biggest challenge—climate change. The persistent lack of representation of women in STEM fields continues, and although women have increased their representations in some fields, only about 14% of the transportation workforce are women (Godfrey and Bertini, 2019). This lack of equity and inclusion is especially problematic given the critical role that transportation innovations will play in the coming decades as society seeks to decarbonize our economy and stabilize the climate. This research leverages the findings of prior work on how to attract and retain women in the transportation industry (e.g., Agrawal and Dill, 2008; Drury et al., 2011) by developing and testing a college-level educational intervention that uses pro-environmental framing and exposure to female transportation role models to help attract young women to careers in transportation.

Study Methods

The research team designed a one-class transportation learning module that can be deployed into an existing course focused on climate change or environmental science. In this module, students learned about the environmental benefits of transportation innovations and were introduced (via video) to prominent female transportation professionals working in climate-solutions-related fields. In the experimental design, students taking the climate change course were placed into either a control group (no learning module) or a treatment group (with learning module) where both groups of students completed a survey at the beginning and end of the semester designed to measure student understanding and interest in transportation fields and careers. The research team analyzed the survey data and student written responses from the learning module to study the effectiveness of this intervention.

By analyzing the importance of performance measures and the relative performance percentiles of California and other U.S. states, this study evaluates the current position of California's freight system relative to other U.S. states and regions.

Findings

After completing the climate change course that included the one-class transportation module, female students expressed they were more open to working in a transportation career by the end of the semester (17.5% increase) compared to the control group, which showed no statistically significant change. In addition, all students who were exposed to the transportation module better understood (39.7% increase) that the transportation industry can provide a green and sustainable career.

Aligning recruitment efforts with environmental themes may help students of all genders see the social and human benefits that transportation careers offer in responding to climate and environmental challenges.

Policy/Practice Recommendations

The research team recommends that similar short-term learning modules be employed within different educational settings (middle school, high school, and college) to expose young women more broadly to transportation career pathways. Aligning recruitment efforts with environmental themes may help students of all genders see the social and human benefits that transportation careers offer in responding to climate and environmental challenges.

These findings and recommendations suggest that potentially millions of students at different formative years of their education could be reached through the development of cost-effective educational materials. A remaining challenge would be to get teachers to adopt such materials within their learning environments. Developing partnerships with existing textbook publishers may offer access to some of these students through subject-aligned integrations.

About the Principal Investigator

Professor Eugene Cordero

Professor Eugene Cordero has been in the Department of Meteorology and Climate Science at San José State University for 19 years and is also the founder of Green Ninja, a K-12 science publisher that uses environmental solutions as a lens for teaching science and engineering. Eugene's earlier research focused on the atmospheric variations associated with global climate change both in models and observations. More recently, Eugene shifted his focus towards solutions to climate change, and this has yielded a collection of educational materials (i.e., curriculum, videos, games) that promote pro-environmental attitudes and behaviors in youth.

To Learn More

For more details about the study, download the full report at **transweb.sjsu.edu/research/2028**

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