



# Exploring the Efficacy of Engineering is Elementary

## About the Study

Researchers from Towson University, Penn State University, Elizabeth Parry Consulting, and the Museum of Science, Boston conducted a five-year-long study on the effectiveness of Engineering is Elementary, funded by the National Science Foundation (Grant/Award Number: 1220305).



**4**   
ENGINEERING  
UNITS

**604**   
3-5 GRADE  
CLASSROOMS

  
**14,000**  
STUDENTS

**2** YEARS  

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**120,000**  
ASSESSMENTS

# Engineering is Elementary is Proven Effective

Students in the treatment group (Engineering is Elementary) regardless of demographic characteristics had better outcomes, in both engineering and science, than those in the comparison group.

## ENGINEERING

13%

IMPROVEMENT

Students who received Engineering is Elementary, had a 13% larger improvement from pre-to-post than students who received the control curriculum.

## SCIENCE

24%

IMPROVEMENT

Students who received Engineering is Elementary, had a 24% larger improvement from pre-to-post than students who received the control curriculum.

**FEMALE STUDENTS** had larger gains in engineering learning as compared to males, across conditions.\*

**BLACK STUDENTS** given Engineering is Elementary had better outcomes in science and engineering than black students given control.\*\*\*

**HISPANIC STUDENTS** given Engineering is Elementary had better outcomes in science and engineering than Hispanic students given control.\*\*\*

**ASIAN STUDENTS** given Engineering is Elementary had better outcomes in science than Asian students given control.\*\*

**STUDENTS ON IEPs** given Engineering is Elementary had better outcomes in science than students on IEPs given control.\*\*\*

Footnotes:

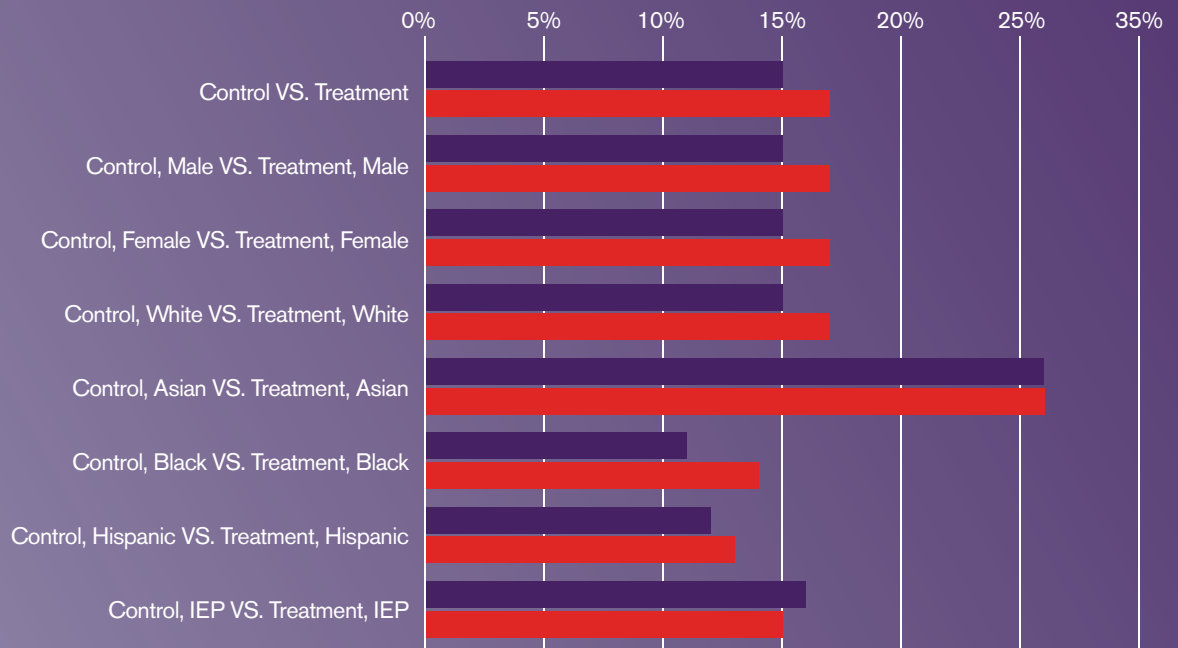
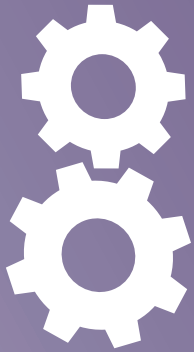
\* statistically significant only for engineering learning.

\*\*statistically significant only for science learning.

\*\*\*sample size too small to find significance.

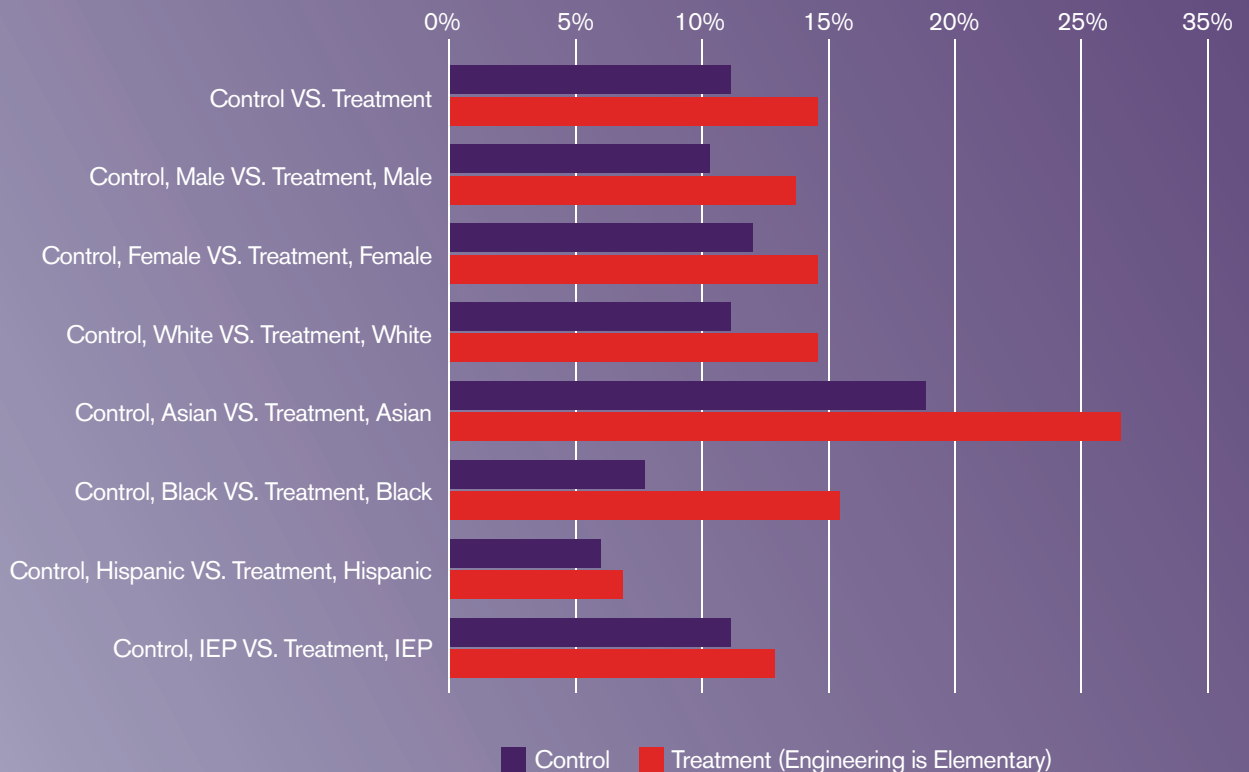
# ENGINEERING

Percentage Improved (Pre-test to Post-test)



# SCIENCE

Percentage Improved (Pre-test to Post-test)



All data and claims above have been peer reviewed and can be accessed here: Cunningham, C. M., et al (2020). The Impact of Engineering Curriculum Design Principles on Elementary Students' Engineering and Science Learning. Journal of Research in Science Teaching. <https://doi.org/10.1002/tea.21601>