

**Secondary Teacher Outcome Impact Analysis**

**Combined Years 1 (2011) through 4 (2014)  
Teacher Delayed Post Perceptions with Pre Perception covariates  
Teachers nested within schools**

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## Executive Summary

Does VISTA have an impact on secondary teachers' knowledge of problem-based learning, inquiry, and nature of science instruction?

### Attrition

Three-hundred and thirty-one teachers were randomly assigned to treatment (N = 223) and control (N = 108) conditions across the four years of the study. At the conclusion of their respective first years, 201 teachers remained in the study (N = 136 treatment, N = 65 control; see Table below). This represents an overall attrition rate of  $(1 - 201/331 =) 39.3\%$  and a differential attrition rate of 0.54%. WWC v2.0 allows for a differential attrition rate of 6.3% for an overall attrition rate of 39%. Consequently, we did meet this standard at the teacher level.

### Impact Analysis

Evaluation of the impact of VISTA on teacher scores was examined through a two level model in which teachers were nested within schools to accommodate the fact that some randomly assigned teachers resided within the same schools.

Results of this impact analysis for problem-based learning score did not reveal a statistically significant difference between treatment and control conditions,  $t(171) = -0.99$ ,  $p = .32$ . Controlling for model covariates, the average Problem Based Learning score of teachers in the treatment condition was 0.11 points lower than that of teachers in the control condition. Hedges  $g = .16$ . However, instruction on problem-based learning primarily occurred during the second year of the program, so this outcome is expected.

Results of this impact analysis for inquiry instruction score revealed a statistically significant difference between treatment and control conditions,  $t(117) = 3.16$ ,  $p = .002$ . Controlling for model covariates, the average Inquiry scores of teachers in the treatment condition was 0.47 points greater than that of teachers in the control condition. Hedges  $g = .66$ .

Results of this impact analysis for nature of science definition score revealed a statistically significant difference between treatment and control conditions,  $t(169) = 3.72$ ,  $p < .001$ . Controlling for model covariates, the average NOS understandings score of teachers in the treatment condition was 0.42 points greater than that of teachers in the control condition. Hedges  $g = 0.59$ .

Results of this impact analysis for nature of science instruction score revealed a statistically significant difference between treatment and control conditions,  $t(117) = 4.03$ ,  $p < .001$ . Controlling for model covariates, the average NOS instruction scores of teachers in the treatment condition was 0.31 points greater than that of teachers in the control condition. Hedges  $g = 0.70$ .