

**Elementary Teacher Outcome Impact Analysis**

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

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## Executive Summary

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

### Attrition

Two-hundred and two teacher teams were randomly assigned to treatment ( $N = 101$ ) and control ( $N = 101$ ) conditions across the four years of the study. At the conclusion of their respective first years, 169 teacher teams remained in the study ( $N = 91$  treatment,  $N = 78$  control). This represents an overall attrition rate of  $(1 - 169/202 =)$  16.3% and a differential attrition rate of 12.9%. WWC v2.0 allows for a differential attrition rate of 10.6% for an overall attrition rate of 16%. Consequently, we did not meet this standard.

### Impact Analysis

Evaluation of the impact of VISTA on teacher scores was examined through a two level model in which teachers were nested within teacher teams (or schools), where random assignment occurred at the level of school (teacher) teams.

Results of this impact analysis for problem-based learning score revealed a statistically significant difference between treatment and control conditions,  $t(162.29) = 7.96$ ,  $p < .001$ . Controlling for model covariates, the average problem-based learning score of teachers in the treatment condition was 0.58 points greater than that of teachers in the control condition. Hedges  $g = .87$ .

Results of this impact analysis for inquiry instruction score revealed a statistically significant difference between treatment and control conditions,  $t(166.01) = 6.47$ ,  $p < .001$ . Controlling for model covariates, the average inquiry score of teachers in the treatment condition was 0.51 points greater than that of teachers in the control condition. Hedges  $g = .68$ .

Results of this impact analysis for nature of science definition score revealed a statistically significant difference between treatment and control conditions,  $t(166.76) = 10.53$ ,  $p < .001$ . Controlling for model covariates, the average nature of science definition score of teachers in the treatment condition was 0.77 points greater than that of teachers in the control condition. Hedges  $g = 1.04$ .

Results of this impact analysis for nature of science instruction score revealed a statistically significant difference between treatment and control conditions,  $t(150.05) = 6.11$ ,  $p < .001$ . Controlling for model covariates, the average nature of science instruction score of teachers in the treatment condition was 0.28 points greater than that of teachers in the control condition. Hedges  $g = 0.67$ .