Digging Deeper Together

A Model for Collaborative Teacher/Scientist Professional Development

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Experimental Design:
- Pre-test/post-test control group design
- Cluster randomized assignment of participating teachers to treatment/control groups
- Students are clustered by teacher

Outcome Measures:
- Science achievement
- 2 forms of 26 item multiple choice achievement test covering photosynthesis and cellular respiration. Rasch analysis common item equated outcome measure has 37 total items

Student attitudes toward scientists
- 2 forms of attitude scale including 10 Likert scale items. Rasch analysis common item equated outcome measure has 15 total items.

Analytic sample:
- 64 teachers (27 treatment; 37 comparison); 1535 students (514 treatment; 1021 comparison).

Sample Achievement Questions

Achievement

<table>
<thead>
<tr>
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Effect sizes for impacts. Effect sizes corresponding to the treatment effects estimated using the multilevel models were computed using guidance from the What Works Clearinghouse (WWC) Procedures and Standards Handbook 3.0 (see IES, 2017). The WWC recommendation is to use in the numerator the treatment effect estimate from the multilevel model (i.e., the covariate-adjusted mean difference) and in the denominator the pooled student-level standard deviation. WWC define effect sizes of .25 or larger as substantively important.

Controlling for the effects of student and teacher-level characteristics, Digging Deeper demonstrates a statistically significant impact on student achievement (p=0.017) and attitudes about scientists (p=.003).

Join us!

WE NEED YOUR HELP

Become a PlantingScience mentor
- help gain of 25 students online with their plant investigations
- teaches 1 hour per week from plants with an online connection
- All credentials welcomed, undergrad through Ph.D.
- Open student eyes to the importance of plants in the world
- Help teach young plant scientists about science
- Help teachers feel more comfortable using plants in the classroom

Digging Deeper Collaborative PD

Participants
- A group of 9-12 high school teachers

Location
- BSCS headquarters, Colorado Springs, CO

Activities
- Online student gatherings
- Science achievement
- Student attitudes toward scientists

Quotes
- “Digging Deeper works!”
- “I liked that we didn’t know what was going to happen before we did the experiment. Instead of having taught something and then just bring an experiment to prove it, we made an attempt to find out what would happen ourselves.”

PlantingScience Awards

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Research Methods

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Controlling for the effects of student and teacher-level characteristics, Digging Deeper demonstrates a statistically significant impact on student achievement (p=0.017) and attitudes about scientists (p=.003).