

teachers' instructional practice. Findings contribute to policy discussions concerning the potential benefits and limitations of using generic and subject-specific observational measures within teacher evaluation systems.

The Impact of a High School Science Professional Development Program on Achievement: A Retrospective Quasi-Experiment

Jody Bintz, BSCS

Molly Stuhlsatz, BSCS

Joseph A. Taylor, ABT Associates

ABSTRACT:

This retrospective, quasi-experimental study tests the effect of an intensive, 3-year PD intervention for district science education leaders in Washington State on students' science achievement. This study was designed with two components: 1) a test of the effect of the program on student achievement in participating districts as compared to matched non-participating districts and 2) a test to identify mediating variables predictive of student achievement among the participating districts. Results showed an initial dip in student achievement in participating districts compared to matched districts followed by steady improvement with an overall effect size (Hedge's g) of 0.126 of the intervention. Preliminary analyses indicate mediating variables predictive of student learning outcomes among participating districts include district-level organizational support and the application of findings from How People Learn.

NGSS and Scientific Argumentation: District Leaders' Beliefs and PCK

Rebecca Katsh-Singer, Boston College

Katherine L. McNeill, Boston College

ABSTRACT:

Recent research has addressed the challenges and opportunities NGSS offers to students and teachers (e.g. Osborne, 2014). While district-level science leaders are called on to design and implement professional development to enable teachers to shift their instruction (NRC, 2015), we currently lack research about these leaders' beliefs and knowledge about NGSS. Therefore, in this study we explore the beliefs and pedagogical content knowledge (PCK) of such leaders about NGSS and specifically the science practice of argumentation. Utilizing a sense-making theoretical framework (Weick, 1995; Spillane, 2004), we surveyed 53 and interviewed 10 district science leaders in states that have adopted NGSS to better understand their beliefs about scientific argumentation and measure their PCK for argumentation. Our findings suggest that district science leaders believe argumentation is important for students and offers key benefits such as improving literacy skills. However, our results also indicate that some leaders may not be "letting go" of their beliefs about typical science instruction, instead combining these ideas with newfound beliefs about NGSS. In addition, some possess low levels of PCK for argumentation. Therefore, district science leaders may need support so that the learning experiences they design for teachers accurately reflect the goals of NGSS.

Concurrent Session #12

1:00pm – 2:30pm

Workshop - Publications Advisory Committee

The "Guest Doctoral Student Reviewers" Initiative: Realizing the Professional Development Potential of the Journal of Research in Science Teaching

1:00pm - 2:30pm, Baltimore Salon A

Presenters:

Fouad Abd-El-Khalick, University of Illinois, Urbana-Champaign

Dana Zeidler, University of South Florida