



# The Boise WaterShed Project: A Community Collaboration

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# The Collaborators

## ▶ The Boise WaterShed

- City of Boise Environmental Education Center with a mission to teach people of all ages about water protection and conservation
- Third year partner with West Ada School District and Micron Foundation for 2<sup>nd</sup> grade field trips

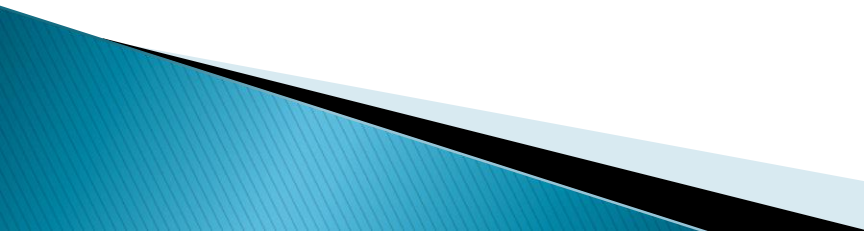
## ▶ IDoTeach

- Secondary education teacher preparation program for STEM majors at Boise State University
- Replicated from innovative Uteach program

## ▶ West Ada School District

- Interested in increasing engagement through real-world and hands-on experiences for students
- Promoting an integrated and inter-disciplinary approach to STEM teaching

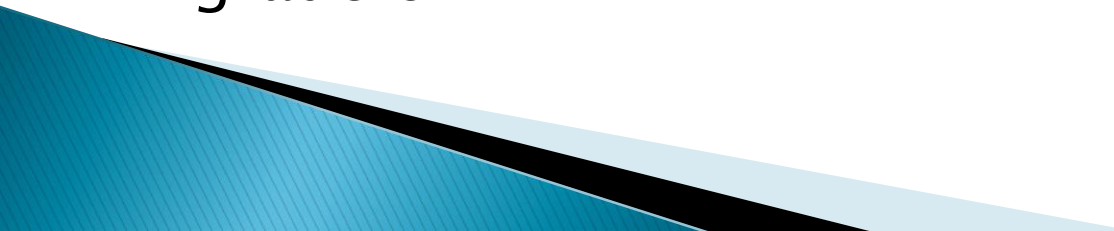
# Background of the Partnership

- ▶ Approximately 3000 second graders from the West Ada School District visited the Boise WaterShed this year.
  - ▶ IDoTeach pre-service teachers worked as interns
    - Modified existing program to explicitly infuse STEM careers into the experience
    - Designed interactive, hands on stations for students
  - ▶ Funded through the generous contribution of the Micron Foundation
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# Purpose of the Study

The purpose of this study was to investigate the benefits of community partnerships between school districts, universities, and organizations.

Specifically, we used the following questions to guide the study:

- ▶ How does participation in the Boise WaterShed field trip impact *knowledge* of STEM careers for second graders?
  - ▶ How does participation in the Boise WaterShed field trip impact *interest* in STEM careers for second graders?
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# Review of Literature

- ▶ Early Introduction to STEM through Community Partnerships
  - Features of successful partnerships (Watters & Diezmann, 2013)
- ▶ Children's Vocational Development
  - Current disconnect between work and school (Porfeli, Hartung, & Vondracek, 2008)
  - Doing Science vs. Being a Scientist (Archer, et. al. 2010)
  - More resources are needed to bridge this connection
- ▶ Increasing the STEM Pipeline
  - Bringing engineering to P-12 Classrooms (Brophy, Klein, Portsmouth, & Rogers, 2008)

# Teaching Strategies

- ▶ Explicitly teach about engineering and meteorology during the weather lesson
- ▶ Include hands on centers for students to rotate through
- ▶ Meteorology Notebook



# Methods

- ▶ Survey was administered before and after the field trip
  - 5 point scale using smiley faces
- ▶ Initial survey was piloted with one group of students
  - Changes were made to the survey
- ▶ Every third survey was entered for data collection (both pre and post)



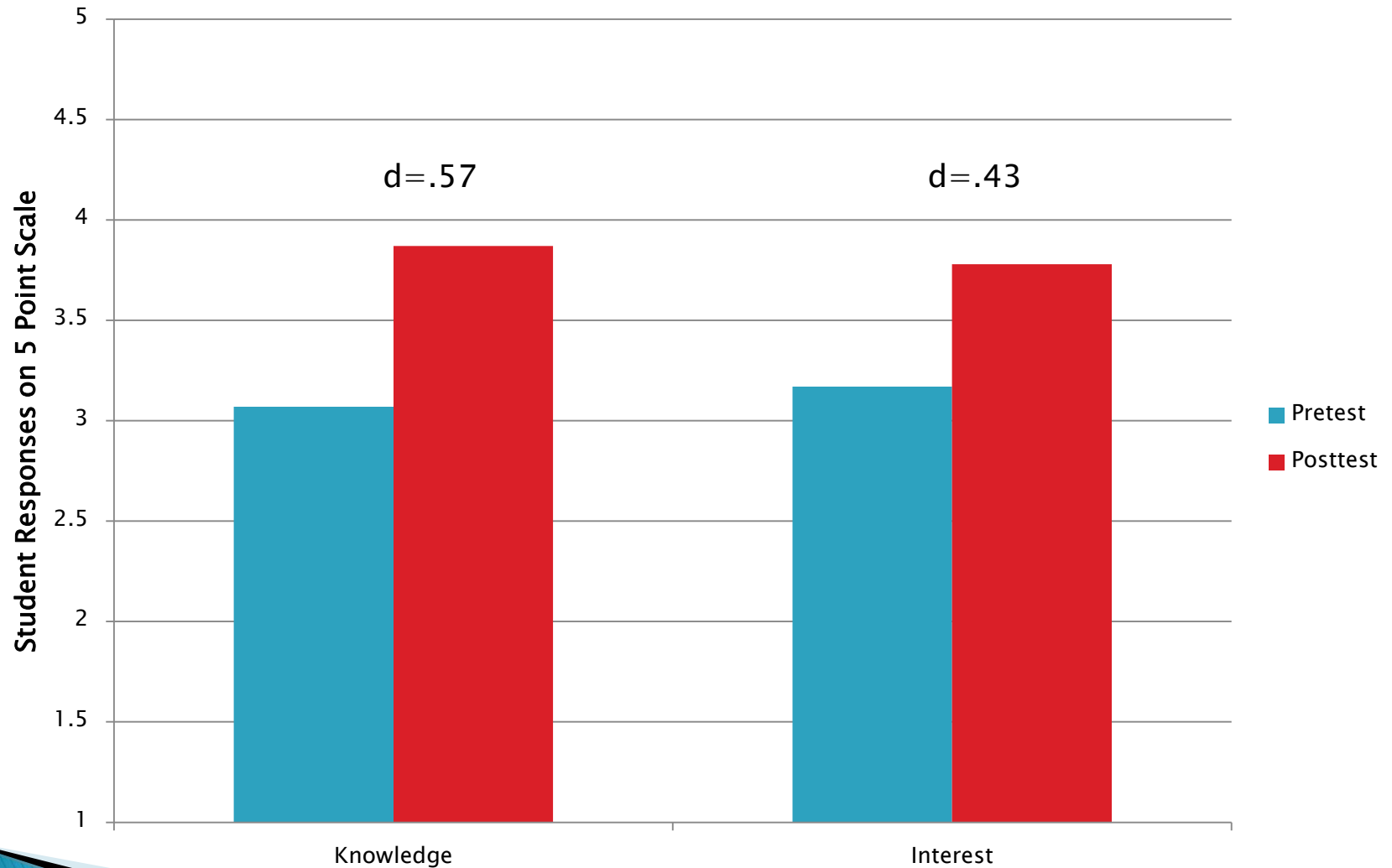
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# Questions and Reliability

- ▶ Knowledge of STEM Careers:
  - Questions 1, 5, and 6
    - reliability: Pretest,  $\alpha = .609$ , post test  $\alpha = .751$
- ▶ Interest in STEM Careers:
  - Questions 2, 3, and 4
    - reliability: Pretest,  $\alpha = .556$ , posttest  $\alpha = .695$



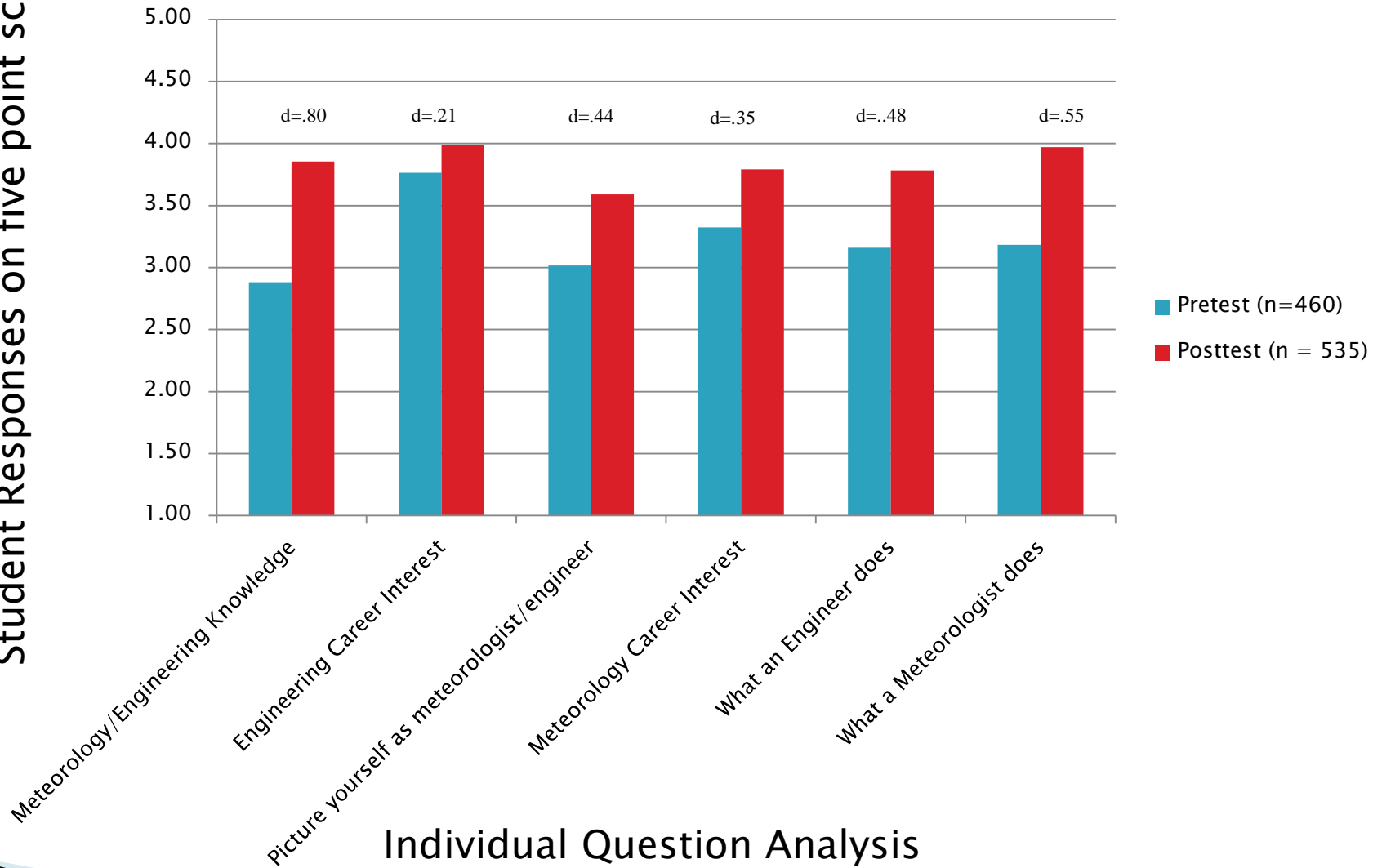
# Student Survey Results by Category



\* All means are significantly different at the  $p < .05$  level

# Student Survey Results

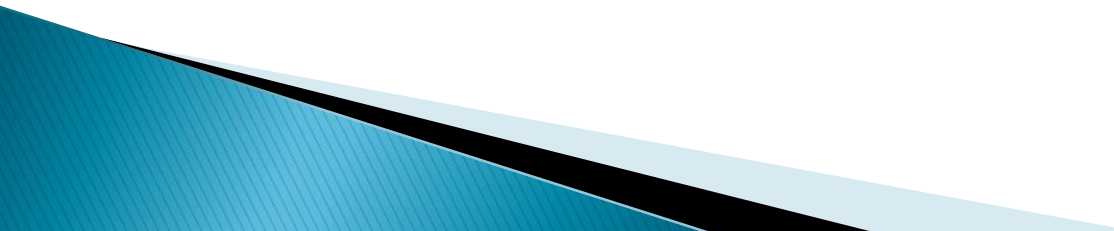
Student Responses on five point scale



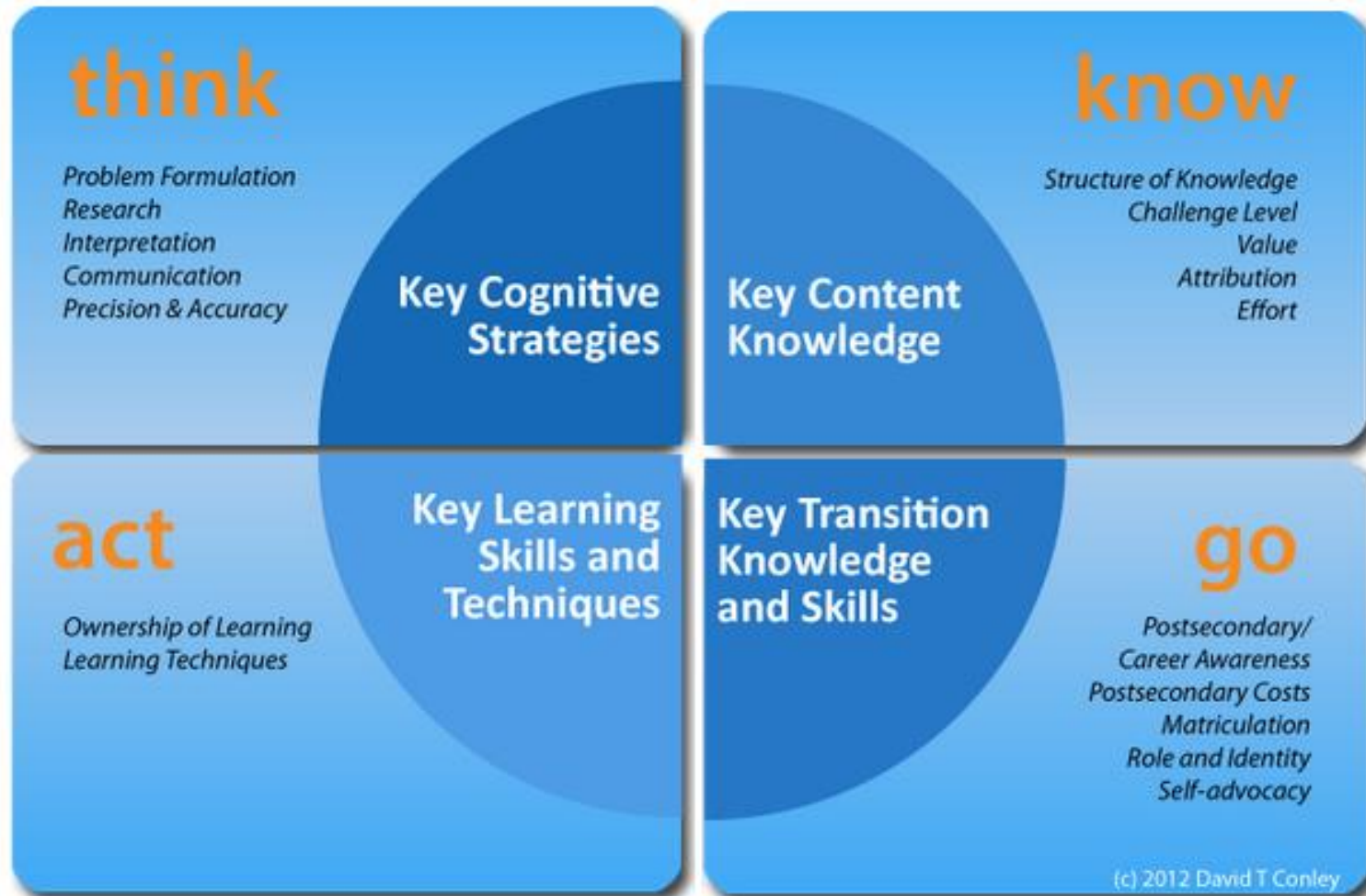
## Individual Question Analysis

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# Discussion and Implications

- ▶ Informal educational experiences for young children can help develop vocational awareness and interest.
  - ▶ Does increased engagement lead to increased outcomes (aka. increased learning?)
  - ▶ Specific focus on STEM may help increase the STEM pipeline
  - ▶ How do we create collaborative projects such as this to ensure sustained “real world” experiences in STEM through student academic career?
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# College and Career Readiness



# Future Research

- ▶ Continue to measure the impact of this experience for students over time
  - Interest and test-based measurements of outcomes directly due to engagement
  - Do we see increase in STEM major or career entry?
  
- ▶ Study the impact this partnership has had on IDoTeach interns  
(Interviews with IDoTeach students are in progress)

