Improving Visual Data Literacy Skills of High School Earth and Space Science Students by Weekly Data Analysis Curriculum

Background
• High school students struggle with interpreting visual data.
• These skills are used in all science classes.
• These skills are tested on the science subtest of the ACT
• Students will need these skills to help in future science classes and to be able to interpret visual data in everyday life.

Focus Question
Will students increase skill in understanding and using visual data with weekly methodical analysis?

Secondary Questions
Can students use visual data to:
1. Identify independent and dependent variables?
2. Interpret experimental procedure?
3. Find patterns to make future prediction?

Method
Treatment classes used the intervention below, and Comparison classes taught by another teacher did the same curriculum topics without the intervention.
• Pretest / Posttest
• Pre-survey / Post-survey
• Weekly classroom discussion
• Methodical visual data analysis of current curriculum data
• Weekly ACT-style visual data analysis assessments

Results
The intervention seemed to show a positive impact on student learning.
• 16.7% gain between the Pretest and Posttest
• Increased student confidence in identifying scientific variables and interpreting visual data to find patterns.

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Teaching Value
Students will benefit from:
• Focus on visual data within each unit
• Practice using methodical visual data analysis
• Continued classroom discussion on data analysis, interpretation, and use
• Continual practice with ACT-type assessments

Student Quotes
• “The most helpful part was going over answers and talking about how to find the answers.”
• “I am now confident that I can analyze a graph without help.”
• “It really helped on the ACT.”

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