

Current Events in an Earth Science Classroom

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ABSTRACT

Many students experience a disconnection between inside and outside the classroom. My action research-based classroom project explored if current events in an Earth science classroom can increase students' scientific literacy, content knowledge, and engagement.

Classroom instruction involved a lesson using a current event compared to a lesson without a current event. Through the use of multiple-choice tests, student surveys, observations to analyze how the instruction affects scientific literacy, content knowledge, and engagement.

The analysis showed that the only significant change in students was engagement during the current event instruction. Future action research plans would investigate how the use of technology can engage students, affect content knowledge, and build scientific literacy in students.



BACKGROUND

Teaching Earth Science in California's rural San Joaquin Valley can be challenging. Students seem to have a disconnection between science and the world outside the classroom. I questioned how to make science more relevant in my classroom while increasing literacy and student engagement while maintaining content information.



RESEARCH QUESTION

How does the use of current events in an Earth Science classroom affect student:

Content Knowledge?

Scientific Literacy?

Engagement?

“Scientifically literate individuals should be able to critically analyze science current events in the news and communicate the information with others”.

Hazen and Trefil, 1990.

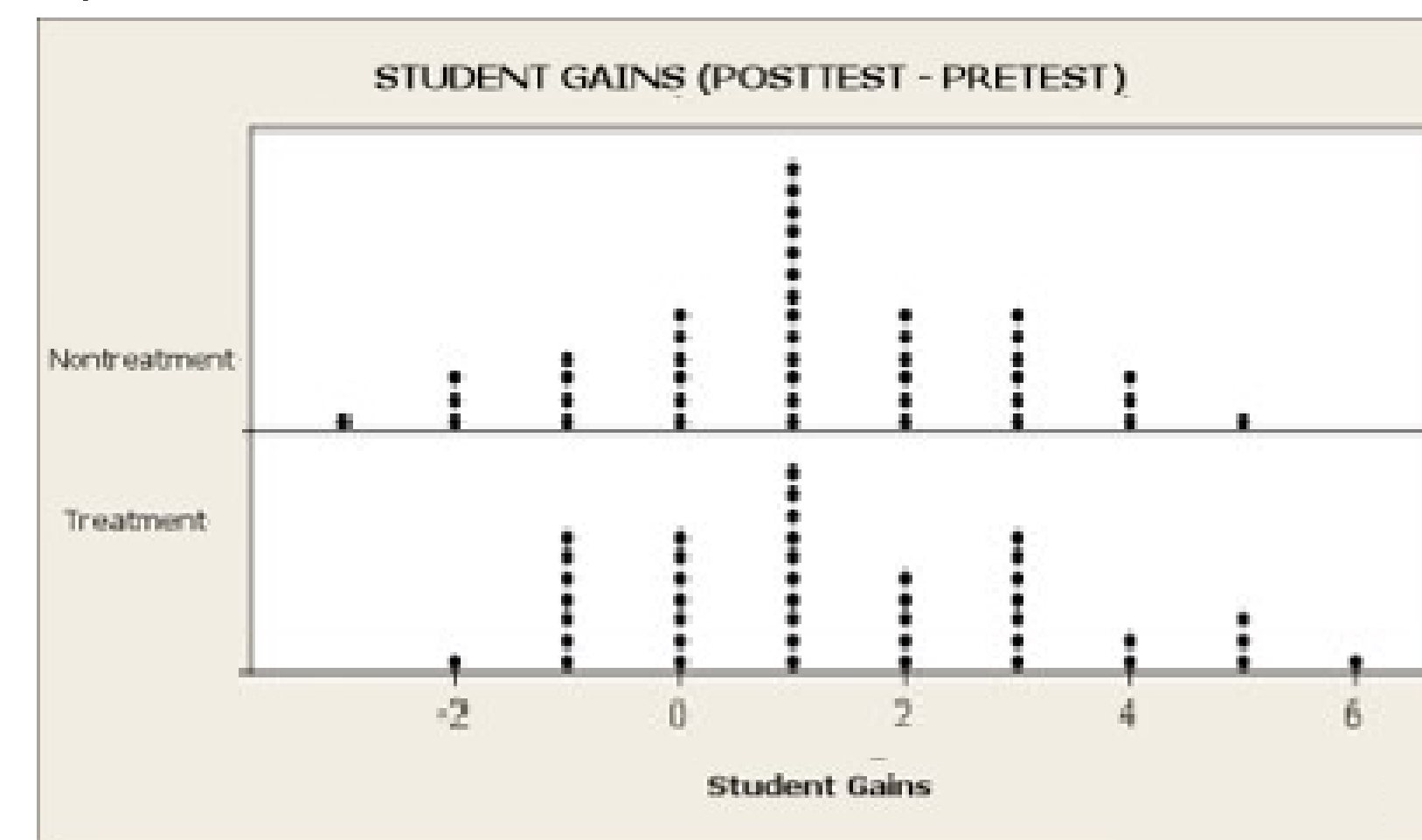
METHODS

Two Earth Science classes were used for the study. The overlying theme was plate tectonics with the non-treatment unit of volcanoes and the current event treatment unit covering earthquakes. Treatment involved using written current events and text dependent questions.

Focus Questions	Pre/post test	Rubric	Likert Survey	Open Ended Survey	Observations
How do using current events in the classroom affect student content knowledge?	x	x		x	
How do using currents in the classroom affect scientific literacy?	x	x		x	
How does the use of current events affect student engagement?			x	x	x

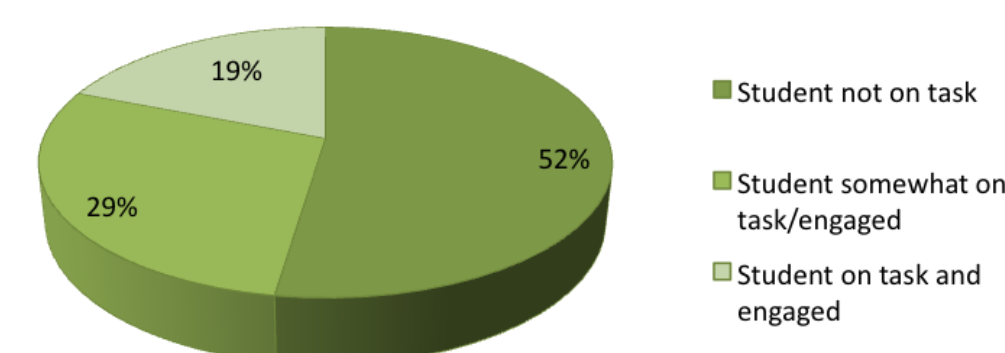
RESULTS

❖ No significant changes to student gains from pre to posttest

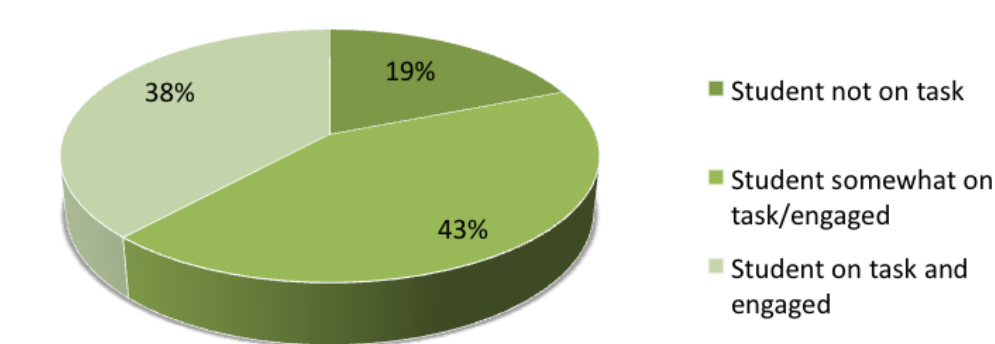


❖ Significant changes of student engagement between instruction not using current events and when using current events

Student Engagement Survey Not During Current Event Instruction



Student Engagement Survey During Current Event Instruction



INTERPRETATION AND VALUE

Although the study resulted in no significant changes to student content knowledge and scientific literacy, it has brought up questions about student attitudes towards outdated materials in this 21st century society.

Have textbooks become outdated? Do textbooks still play a role in a 21st century learner when they have access to technology and apps at their fingertips? Can textbooks be replaced with resources such as smartphones, tablets, apps, internet access and would using this technology in the classroom result in a student who is engaged, understands the content, and be scientifically literate?

This study changed my thinking on teaching. Students don't need to memorize knowledge that can be easily accessed using technology. They need to be taught skills to help them navigate the technological world. These skills involve research, knowledge, and application of the content.

“The overarching goal of our framework for K-12 science education is to ensure that... all students have some appreciation of the beauty and wonder of science; possess sufficient knowledge of science...engage in public discussions on related issues”.

A Framework for K-12 Science Education, 2012

REFERENCES

1. Hazen, R. M., & Trefil, J. (2009). *Science matters: Achieving scientific literacy*. Anchor.
2. *A framework for K-12 science education: Practices, crosscutting concepts, and core ideas*. (2012). Washington D.C.: The National Academies Press.