Let's DO Science!
Using Project Based Learning to Increase Student Learning and Interest in Earth Science

Ange Jones
Wamego Middle School Wamego, Kansas

Background

Educators are always looking for new strategies to increase student achievement or presentation techniques that will not only grab their student's attention, but sustain it and allow for students to make connections that result in a deeper level of learning. Students typically perform better when they are interested in the topic being taught. This leads to an active learning environment, which allows for increased retention of information and improved scores on unit assessments. The purpose of this project is to assess whether or not project based learning can be one strategy that can lead to greater student interest, engagement, and achievement when completing an Earth science unit.

Data Collection

	Data Source	Data Source	Data Source
Primary Question	**Unit Pre-Test**	**Unit Post-Test**	**Student Reflections in Science Notebooks**
Sub Question 1	**Pre-Unit Survey**	**Post-Unit Survey**	**Student Interviews**
Sub Question 2	**Student Reflections in Science Notebooks**	**Student Interviews**	

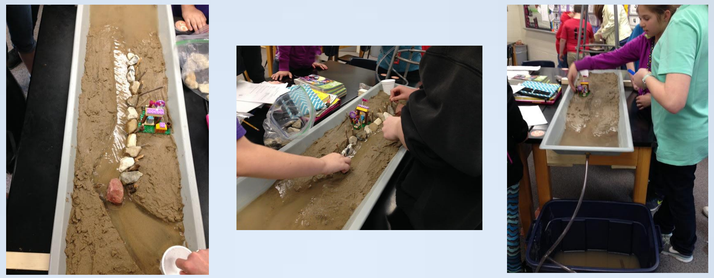
Primary Question

Does project based learning (PBL) as an instructional strategy increase student learning in an Earth science unit?

Secondary Questions

1. Will using the PBL instructional strategy increase interest and engagement in Earth sciences?
2. Will the use of PBL in Earth science help students make connections to their own lives and understand the importance of learning Earth science?

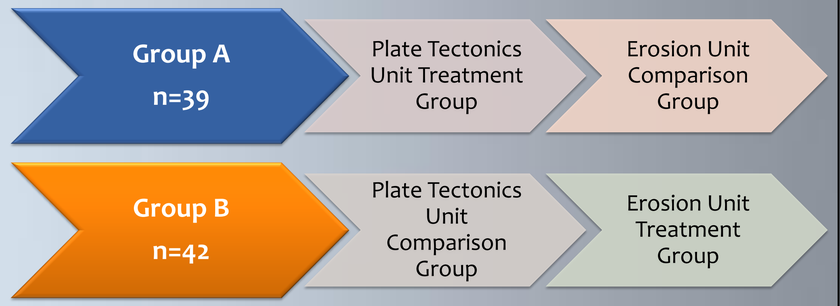
Students constructing their structure designed to withstand an earthquake.



Students demonstrating their erosion prevention solution.

Treatment

Students participated in two units of instruction. One unit topic was Plate Tectonics and the other unit topic was Erosion. Instruction during one unit was considered "traditional" in that it was lecture based with a few activities to reinforce content. During the second unit, instruction was "project based" where students were presented with a problem to solve. The content of the unit was learned in the context of solving the problem.



Results

In this case, PBL did not result in an increase in student's content knowledge. However, according to student surveys, the PBL technique did lead to a 25% increase in student interest in Earth science. Engagement also increased. Student surveys show a 31% increase in engagement due to the hands-on and problem solving nature of the units. This was supported with student interviews where 88% of students reported more interest in the unit where they had a problem to solve.

Student Quotes

- "I like the project a lot more because we got to build something, not just write about building something."
- "The project was more difficult, but more fun. I was the one who had to figure things out, and it helped to work with a team."