

The Effect of Project-Based Learning on Student Engagement and Attitude in the Science Classroom

Research Focus Questions

1. What impact does project based learning have on science students' attitude and engagement levels?
2. What impact do laboratory investigations or projects play in student learning?
3. How does having a choice in topic or approach impact student attitude?
4. Does PBL help shift the focus of learning from the end grade to more authentic learning?

Introduction and Background

- The Taft School is a private, coeducational school located in Watertown, Connecticut, United States. Approximately three-quarters of Taft's 596 students live on the school's 226-acre campus.
- Taft offers a variety of upper school elective science classes, one of which is a Performance Based Engineering Class, taught using a Project-Based Method.

Analysis:

The data collected with the *Engagement and Attitude in the Science Classroom* survey, interviews and the *Engagement Rubric* showed that a PBL curriculum does have a positive impact on student engagement and attitude in the science classroom.

Student Quotes:

- “This project is so interesting that I spent all of my free time researching the closet options.”
- “In Scientific Ethics I have found greater success because learning is tailored towards personal interest. It enables you to select a topic that interests you, so you actually work harder on it and not resentful that you have to do a project.”
- “Trying to learn for learnings sake, want to learn. In any case you can disengage in class, but higher engagement in a hands on class, because you do not have to go back to relearn it and the time table is important as you have to be efficient during class time.”

Data

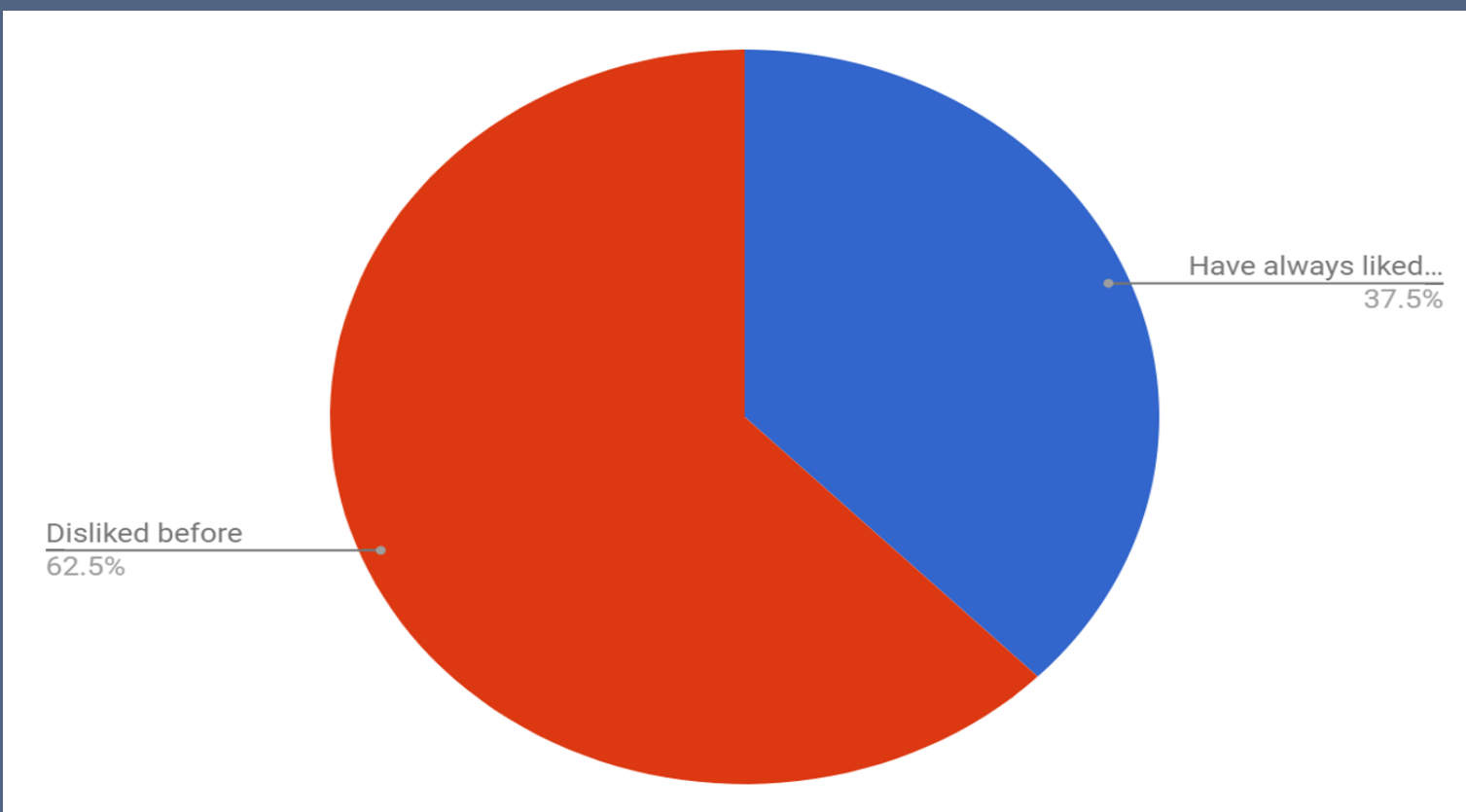


Figure 1: Interview Question: “In general my attitude towards science”,

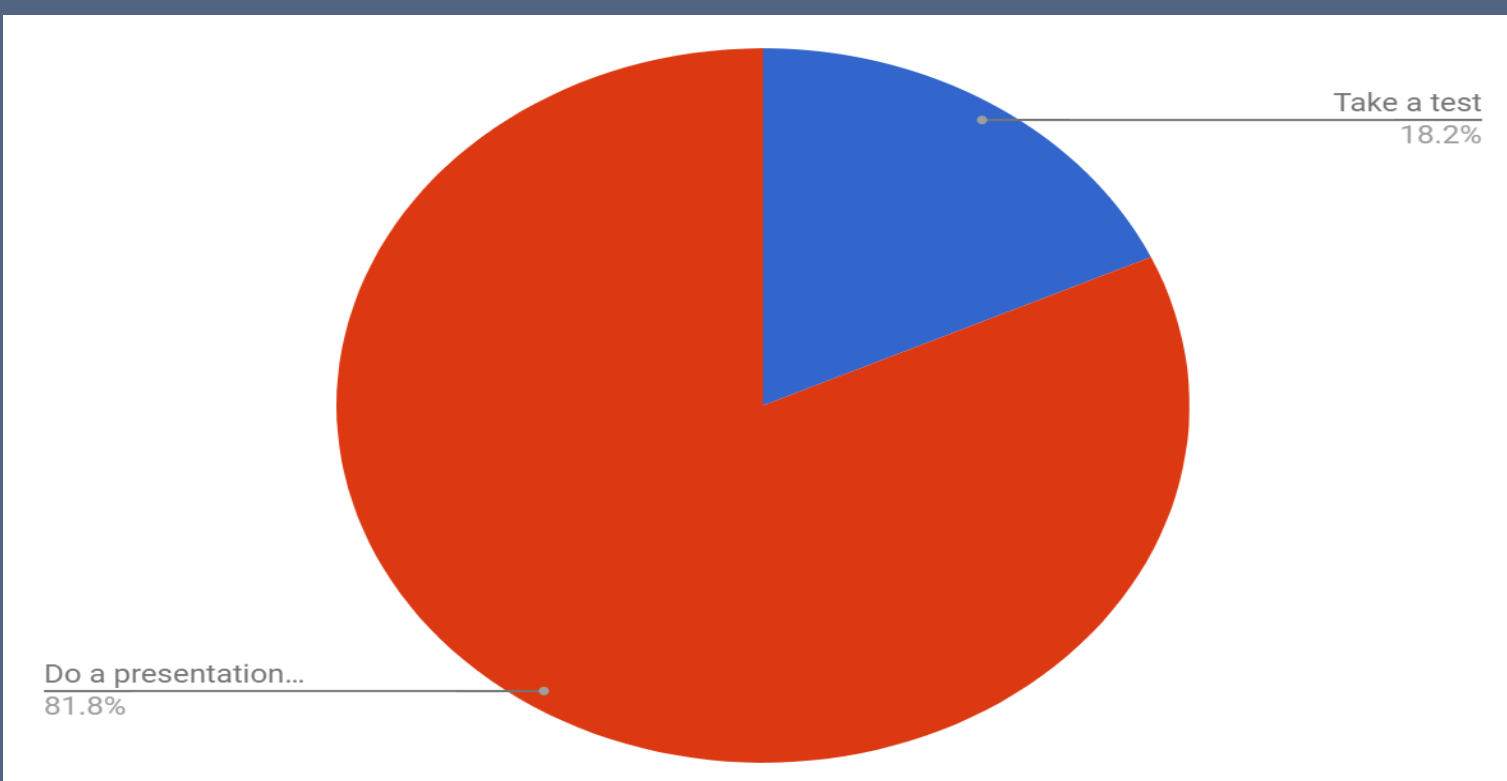


Figure 3: Survey Question: “At the end of a unit I would rather.”

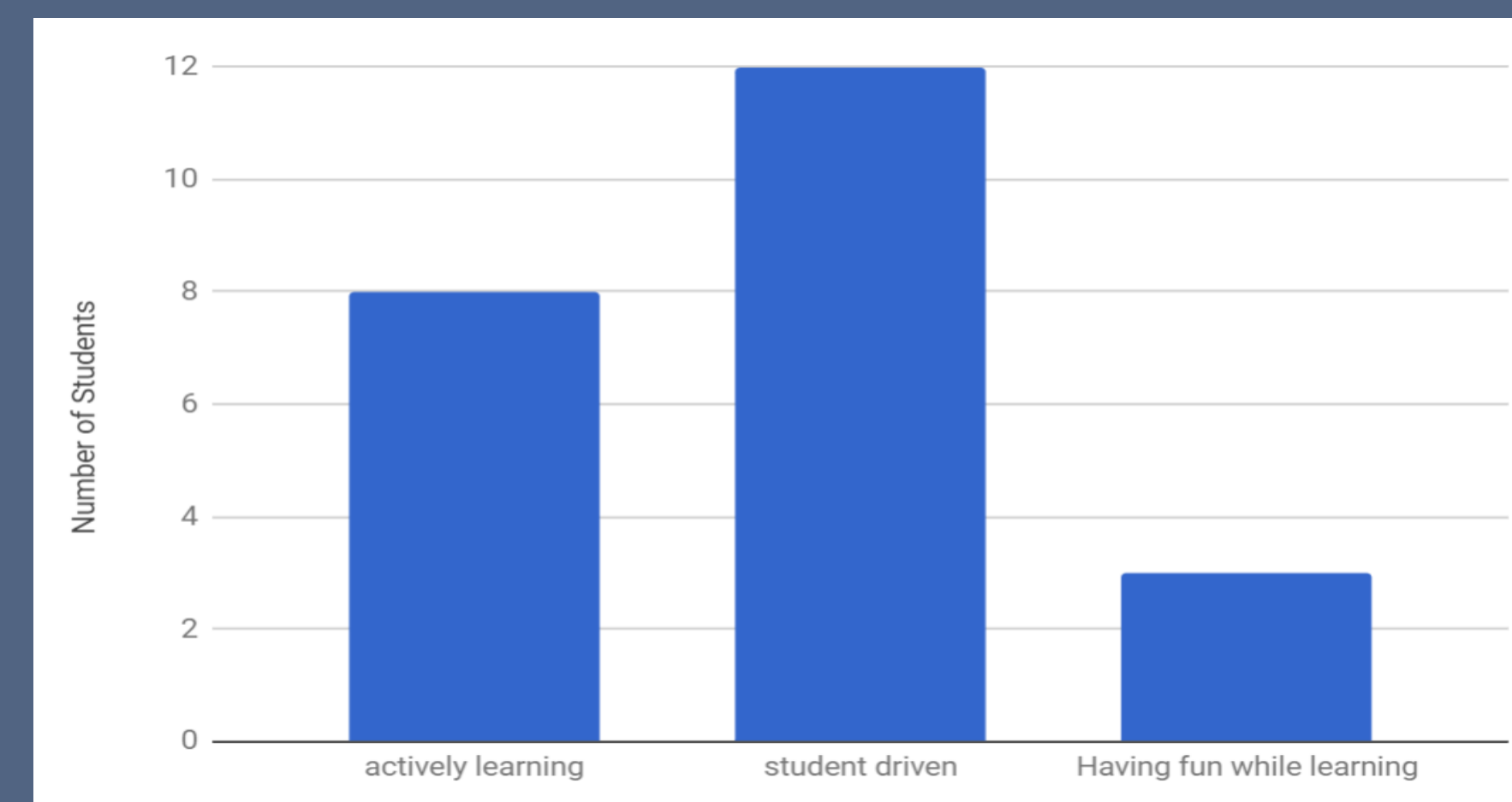


Figure 2: Interview Question: “Explain, why you enjoy science class.”

Dan Calore Math/Science Faculty
The Taft School, Watertown Connecticut

