

My goal was to flip the $2^{\text {nd }}$ semester of College Prep Physics (CPP) and AP Physics C (APC). Considering there are more than four times as many students in CPP than APC, I have decided to analyze the effectiveness of flipping CPP.

Rather than looking at a single quiz, test, or exam, I decided to look at all of the quizzes for four years. Including only students that I had both $1^{\text {st }}$ and $2^{\text {nd }}$ semesters, I figured out the average quiz grade for $1^{\text {st }}$ semester and $2^{\text {nd }}$ semester for the three years before I flipped and the year I flipped. Here are the results:

Traditional vs. Flipped


For three years the increase in average quiz grade under a traditional model from semester 1 to semester 2 was $2.1 \%$ (or $84.5 \%-82.4 \%$ ).

Flipping the class from semester 1 to semester 2 instead caused an increase in average quiz grade of $3.2 \%$ (or $86.8 \%-83.6 \%$ ).

I also handed out a survey and was able to increase the time the students "spend on average in small group conversation with Mr. Thomas-Palmer during class per week" from 4.1 minutes $1^{\text {st }}$ semester (Traditional) to 6.1 minutes $2^{\text {nd }}$ semester (Flipped). In addition I was able to reduce the time the students "spend on average working for [CPP] outside of class per week" from 3.1 hours $1^{\text {st }}$ semester (Traditional) to 2.3 hours $2^{\text {nd }}$ semester (Flipped).

Will I continue to flip my classes? Absolutely.
Would I recommend it to others? Absolutely.
The students have more time to ask individualized questions of their teacher, spend less time doing "homework" and perform better on quizzes.

Jonathan Thomas-Palmer

