

A Flipping Experiment

Innovative teaching strategies rev up learning

BY ANTHONY PERSICO

MICAH WAS THE KIND OF STUDENT that teachers root for. Her grades were average, but she refused to accept the idea that she wasn't a "math person." A bubbly sophomore with an ever-positive attitude, Micah was a regular at my afterschool tutoring sessions, especially on the day before an assessment. On one such occasion, Micah made an unusual request: she asked if she could video-record my explanation of a geometry proof. I agreed, and she pointed her phone's camera lens in my direction.

"The way you explain this stuff makes it so much easier for me to understand," she said as she played back the video.

Micah knew she had to work a little harder than her classmates to understand complex concepts, but she was willing to put in the extra effort. I told her she was welcome to record the rest of my explanations if she thought it would help.

The next day, Micah showed up early to ask me questions about what she had studied the night before. But instead of showing me her written work, she pulled out her phone, played back the video, and paused it partway through.

"Couldn't you have proved that the angles were congruent first and then proved the sides after that?" she asked me. For a teacher, questions like this are more telling than any test score. Micah was engaged in the material and thinking critically. I told her that her reasoning made sense, and praised her effort.

When I graded the assessments later that day, I saw that, for the first time, Micah had scored in the top 5 percent of all my students. I had to think it was the video explanations that accounted for her improvement. To test my hypothesis, I began to regularly record my lessons and post them on my teacher website for all of my students to access. The video lessons allowed them to control the pace of their learning, and soon, many struggling students began to show improvement, both on tests and in their attitude toward math. Students even requested videos of future topics so they could get a head start on the material. Their new enthusiasm encouraged me to begin experimenting with a "flipped" education model—a form of blended learning that calls for students to learn material outside of the classroom via video presentations and then apply their understanding in class. The model would allow me to replace classroom lectures with problem-solving activities and cooperative learning.

The first two weeks of flipping my classroom were a disaster. Some students didn't watch the videos, often because they didn't have regular Internet access at home. Others completed assignments faster than their peers, which required me to spend extra time modifying my lessons for them. One day, my department chairperson dropped in for an observation and, in her report, described my class as "semi-organized chaos" and "lacking structure."

Clearly, I needed to adjust the model. I started uploading the videos onto flash drives for students without home Internet access. I had a second classroom computer installed so students who had been absent could catch up. And I implemented a peer-tutoring system, giving faster-paced students the responsibility of assisting their classmates. Micah was the first to volunteer, exclaiming, "The best way to learn something is to teach it to someone else."

Our clunky flipped classroom became a thriving learning environment. Students began asking more meaningful questions and embracing more challenging problems, while I became a floating facilitator rather than an "information dispenser." My students' final-exam pass rates nearly doubled from the previous year. Micah ended up as one of my top-performing students, and I recommended her for advanced algebra II.

While filming myself teaching worked well for me, there is no one-size-fits-all approach to flipping a classroom. Other teachers have achieved great results by relying on outside video content such as that available on YouTube. One exciting thing about the model is that teachers are free to experiment and customize it to their teaching style and their students' needs.

There are plenty of students out there like Micah, who need something beyond traditional teaching methods in order to succeed. As K-12 education and technology continue to evolve, teachers who keep an open mind and embrace new modes of instruction will find they can better meet the needs of all their students. And like me, some may discover that we're all "math persons."

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