

Flipped Classrooms May Exacerbate Student Achievement Gaps. Here's How.

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Flipped classrooms have become a popular way for teachers to find more time for activities and individual support during the regular school day, but a new study cautions that the model could trade short-term gains for wider achievement gaps.

The model "flips" the traditional rhythm of class time by introducing teacher lectures online so that students can view them at home, while using class time for projects and group activities that might traditionally be consigned to homework. An Annenberg working paper released this week found mixed, **mostly short-term benefits from using the flipped-classroom approach.**

Elizabeth Setren, an assistant economics professor at Tufts University, and math and economics colleagues at the United States Military Academy at West Point randomly assigned more than 1,300 West Point cadets to one of two different versions of their required introductory math and economics courses. In the flipped version, students were assigned a video lecture before each class and engaged in interactive problem-solving during the class. In the standard version, teachers gave a standardized lecture during class that covered the same material as the video and assigned as homework the problems that the flipped-class students had worked on in class.

The researchers found no differences in economics classes. In math classes, students in the flipped classes scored on average a third of a standard deviation better than those in the traditional classes on the unit quiz—but by the end-of-course test, both groups performed equally well.

"We can't say for sure why we see effects for math and not economics, but perhaps the key part of this story is how motivated the individual instructors are," Setren said.

Math instructors reported being more excited about flipping their classroom than economics teachers were. While in both subjects, flipped classes engaged in more group and interactive work than the traditional classrooms, the flipped math classes dedicated more time to these activities than flipped economics classes did.

West Point is a college-level school, but Setren argued the results would be relevant to high schools with flipped classes also. The students were first-year cadets learning subjects similar to some upper-high school courses; vectors in math and personal finance in economics. She saw the military academy as potentially a best-case setting for flipping classes, because it has small classes of 16-18 students and cadets tend to be highly motivated to complete coursework. Yet even there, the study found, students in the flipped classes on average watched only about half of the content of each video and spent no more time preparing for class than students in traditional classes did.

Benefits Concentrated on Male, White, High-Achieving

Moreover, the short-term math improvements were driven by white and male students and those who had scored in the top quarter of ACT math scores before entering the academy. Women, black, and Hispanic students, as well as cadets who had performed in the bottom 25 percent of math scores at the start of school, saw no benefit from the flipped model. This led to a 69 percent wider racial gap between white and other students and a 23 percent wider gap between low- and high-performing students in flipped math classes than in traditional ones—and these gaps held steady through the remainder through the courses.

While the West Point study did not look at why students who were female, lower-achieving or from racial minorities did not benefit from the flipped classes, "one theory is that maybe they feel less motivated or comfortable asking for the professor's time or seeking out that attention," Setren said. "I think higher-achieving students or certain groups of students might feel more comfortable or more entitled to seek out professors' time during an interactive workshop-type setting."

That would align with other studies which have found **students' help-seeking behaviors matter a lot** in the classroom. One study found working-class students were more sensitive than middle-class students to teachers' moods and **more likely to worry about "bothering" them** when asking for help.

Setren suggested that even though flipped classes are intended to give teachers more class time for individual support, that didn't translate to equal support for all students. For example, math teachers in the West Point study spent more time answering individual questions in flipped classes, and answering questions for the whole group in traditional classes.

"We see the potential of [flipping classrooms] to be beneficial," she said, but, "for educators who are working with a flipped-classroom model, I think this really highlights the importance of paying attention to not just how it's working overall, but also focusing on how educators can make sure they're meeting the needs of all students in class."