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Educators Evaluate 'Flipped Classrooms'

Benefits and drawbacks seen in replacing lectures with on-demand video

By [Katie Ash](#)

A growing number of educators are working to turn learning on its head by replacing traditional classroom lectures with **video tutorials**, an approach popularly called the "flipped classroom." Interest in that teaching method was in full view this summer at the International Society for Technology in Education annual conference in San Diego, where almost every session on the topic was filled to capacity.

The movement was inspired partly by the work of Salman Khan, who created a library of free online tutoring videos spanning a variety of academic subjects, known as the **Khan Academy**, which many view as a touchstone of the flipped-classroom technique. But, much like the Khan Academy itself, the approach is attracting increasing scrutiny—and criticism—among educators and researchers.

The term "flipping" comes from the idea of swapping homework for class work. Students typically are assigned the video-watching for homework, freeing up class time that used to be spent listening to lectures for hands-on activities and application of knowledge, which used to serve as homework.

However, as most educators who have begun to use the technique are quick to say, there are a multitude of ways to "flip" a classroom. Some teachers assign a video for homework, while others allow students to watch those videos in class. Still others make videos for the lesson, but do not require students to watch them at all, giving students a variety of resources and allowing them to choose what they utilize to learn the required information.

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But just as the Khan Academy has recently come under fire from some in the education blogosphere for what critics say is flawed pedagogy, the flipped-classroom technique has also garnered criticism from some who believe that flipping is simply a high-tech version of an antiquated instructional method: the lecture.

"My concern is that if you're still relying on lecture as your primary mode of getting content across, ... you haven't done anything to shift the type of learning that's occurring," said Andrew Miller, an educational consultant who works with the Alexandria, Va.-based professional-development group ASCD and the Novato, Calif.-based Buck Institute of Education, which works to promote project-based learning in classrooms.

"That's not how all of us learn," he said. "Just because you flipped your classroom doesn't mean your students will watch the videos. How are you engaging your kids?"

Ramsey Musallam, a chemistry teacher at Sacred Heart Cathedral Preparatory, a private Catholic high school in San Francisco, shares Mr. Miller's concerns.

"Everyone initially thought that [flipping] was an innovative way [to teach] because we're so rooted in this idea that students don't like homework," he said. "However, when you step back a little bit, what you're looking at is simply a time-shifting tool that is grounded in the same didactic, lecture-based philosophy. It's really a better version of a bad thing."

Mr. Musallam, who is also an adjunct professor at the University of San Francisco's college of education, began flipping his classroom in 2006, but after noticing little difference in student learning despite the extra in-class time for labs and hands-on activities, he shifted his perspective.

He still uses flipping as an instructional technique, but instead of giving students the video initially, they first go through an exploratory, guided inquiry-based period. Next, the students receive basic instructions and materials to complete lab work and observe the phenomena they are studying.

Only then, "when I feel that they can't form any more ideas on their own," does Mr. Musallam make videos to address misconceptions and provide instruction, he said.

Delaying the direct instruction as much as possible increases students' curiosity, he said.

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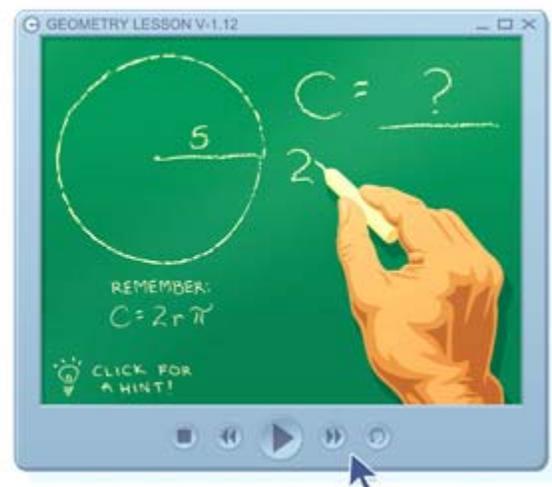
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—Illustration by Chris Whetzel

Using the flipping technique is not necessarily negative, Mr. Musallam said, but teachers should be realistic about what it really is.

"I say keep the flip alive, but lower the volume and think about it like we think about anything," he said. "It's a thing you do in the context of an overarching pedagogy," not the pedagogy itself, he said.

Sharing Questions

Jonathan Bergmann, the lead technology facilitator for the 600-student K-8 Kenilworth school district in Illinois, is considered one of the pioneers of the flipped movement. He and his former fellow teacher Aaron Sams began using the flipping technique in 2006 at the 950-student Woodland Park High School in Woodland Park, Colo., to teach chemistry.

The pair created videos of their lectures and posted them online for their chemistry and Advanced Placement chemistry classes during the 2007-08 school year. They required the students to take notes on the videos and come to class with one thoughtful question to share.

The teachers found that the technique allowed them to spend more time with students one-on-one and to provide just-in-time intervention when students needed it. They also noticed an uptick in test scores in the students using the flipped-class technique.

Soon they began visiting other schools that were curious about the method and hosting conferences on flipping. They recently co-wrote a book called *Flip Your Classroom: Reach Every Student in Every Class Every Day*, published in July of 2012 by the International Society for Technology in Education and the ASCD.

"You need to figure out the answer to the question: What's the best use of your face-to-face instruction time?" Mr. Bergmann said.

After the first year, he and Mr. Sams made adjustments to the flipped classroom, moving from what they call the "traditional" flip to the "mastery based" flipped classroom.

In the mastery-based model, students are not required to watch videos at home on a specific day. Instead, they are given an outline for each unit that includes all the resources they might need for each objective, including videos, worksheets, and textbook excerpts. They can then work through the material at

Tips for Flipping

1. Don't get hung up on creating your own videos. While some believe that students prefer to see their own teacher in the videos, others recommend harnessing the educational content that is already available on the Web. Resources such as the Khan Academy, YouTube EDU, and PBS can provide well-produced video content for your students.
2. Be thoughtful about what parts of your class you decide to "flip" and when. Deciding to flip part of your lesson will not automatically make it a better lesson. You have to be intentional about when to flip and clear about what the benefit will be for students.
3. If possible, find a partner to create videos with. Students enjoy hearing the back-and-forth conversation of two teachers, especially when one teacher plays the role of mentor while the other plays the role of learner.
4. Address the issue of access early. Survey your students to find out what technology they have at home, and find alternatives for students who lack Internet access. Alternatives may mean burning the videos onto DVDs or creating lists of places where students can go online.
5. Find a way to engage students in the videos. Just having students watch videos instead of listening to lectures doesn't guarantee that they will be more engaged.

their own pace, even taking tests and quizzes and performing labs when they are ready rather than as a whole class.

Using technology to create test-question banks that could be randomized, so that no two students receive the same test and may receive completely different questions altogether, made the mastery flipped model

Requiring students to take notes on the videos, ask questions about the videos, or engage in discussion about them will help ensure that they watch and absorb the material.

SOURCE: Education Week

possible, said Mr. Bergmann.

'Self-Paced Became No Pace'

Deb Wolf, a high school instructional coach for the 24,000-student Sioux Falls district in South Dakota, also uses the mastery technique. Instead of letting students have complete control over their pace, though, she sets deadlines to keep everyone on track.

"For students who had not been challenged in the classroom, this was an opportunity for them to just fly," she said. "For others, it was an opportunity to take the time that they needed to move slower. And for some, self-paced became no pace," and teachers had to step in and create deadlines.

Ms. Wolf began flipping her chemistry class at Roosevelt High School in the spring of 2008 after hearing about the technique from Mr. Bergmann and Mr. Sams. During the 2008-09 school year, all the chemistry teachers in her school flipped their classrooms, and the next year, the district applied for a federal American Recovery and Reinvestment Act grant, which Ms. Wolf facilitated, that provided professional development for the district's 35 math and science teachers around technology in the classroom.

"Most of them took away from that grant the idea that they could use technology to help provide students opportunities to master content in a variety of ways so that time became the variable, ... not learning," she said. "We didn't have 35 teachers that all suddenly flipped their classrooms, but the take-away was that by harnessing technology, they provided students the opportunity to master what they didn't master the first time."

Still, engaging reluctant learners continues to be a challenge, said Ms. Wolf.

"[Our teachers] realized that we were dragging [such learners] along. They may have been in class, but they weren't engaged. I know that we weren't meeting all of their needs in the traditional classroom, and I'm not sure that we were meeting their needs in a flipped classroom either," she said.

Like Mr. Musallam, Ms. Wolf emphasized that flipping is one approach in a wider framework of instructional methods to help reach students.

"You can't just hand the flipped classroom off to an ineffective teacher and say you're going to transform the classroom," she said. "It's not going to make a bad teacher a good teacher."

Students and teachers at the Havana Community Unit School District's 1,100-student high school in



rural central Illinois will try their hands at the flipped technique when the entire school flips this fall.

In a district where 65 percent of the students qualify for free or reduced-price lunch, Superintendent Patrick Twomey hopes that flipping the school will help address the inequalities that hamper the high school's population of students deemed at risk academically.

"[In the current model], one student goes home to educated parents who can help him with his homework, while another student goes home and gets no help," Mr. Twomey said. "In the flipped model, both of those kids come back to the classroom after receiving the content, and now all of the help with the homework is given by the expert in the field."

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