

Flipped classroom may have reached equilibrium, neither loved nor hated, just another potential tool for teachers — if done well. “You never want to get stuck in a rut and keep doing the same thing over and over,” said Aaron Sams, a former high school chemistry teacher turned consultant who helped pioneer flipped classroom learning in an edWeb webinar. “The flipped classroom is not about the video,” said Jonathan Bergmann, Sams’ fellow teacher who helped fine tune and improve a flipped classroom strategy. “It’s about the active engaged stuff you can do in your class.”

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The two teachers admit when they started flipping their classrooms they put everything into video form. Now, they’ve taken a step back and realized **some things shouldn’t be in lecture form, and therefore shouldn’t be videos either.** Instead, the two teachers have embraced what they call mastery learning, with an emphasis on students taking control of their own learning. Instructional videos are an optional part of a bigger move towards asynchronous learning.

“The best use of class time is to meet the individual needs of each learner, not driving the class with predetermined curriculum,” Sams said. So he and Bergmann decided to make watching the video lectures optional. The videos are available, but if students felt they could learn it better in some other way, they’re encouraged to do what works best for them.

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“One of the most important skills that any student can learn is where to go for information and resources,” Sams said. **Instead of following a rigid curriculum, the two teachers decided on the key learning objectives of the class — the things they felt their students really needed to know —and structured the class around those.** This was the major purpose of the list of core objectives you have made for each course. This list forces faculty to focus on the basics of what the student should know upon completion of the course, and then build the course and assessments to support these objectives. The constant evaluation of these objectives allow faculty to find that balance between sufficient content and quality. Research shows that too many courses (*especially first year courses*) across the nation are putting undue stress on their faculty and students (and college) by overloading quantity at the expense of quality. Although this *past* century was about how much knowledge we could obtain, this century is not as much about ‘rote knowledge’ (*plenty of this available via internet*), but how well we (and students) can find the resources needed while using critical thinking skills and problem solving skills effectively. The fundamentals for this are found in the basic academic survival skills of organization, study habits, self-discipline, reading, writing, etc. Our average student lack sufficient training in these areas, making it imperative we incorporate this skill training into our courses. It is very difficult to teach problem solving and critical thinking without constantly applying and practicing it in *our chosen occupation (teaching)*. Then they offered students a menu of resources that included instructional video, some sort of practice and links to the corresponding section of a textbook. The teachers became resources and helped provide benchmarks to keep students on track.

The educators say this method is working for them because they’ve decided to make their classrooms mastery based, whereby “a student gets to the end of some learning unit and must pass whatever kind of assessment you have before he can move on,” Sams said — very much like competency-based learning. **Even if the entire course is not set up this way, the most crucial time for this ‘mastery’ is the very first unit. One of the most valuable mastery concepts the student should obtain during the first week is to ‘follow directions’.** “There is no place for them to hide. They had to converse with me and tell me when they were ready to be assessed on something,” Sams said. When he taught in a more traditional way, Sams admitted there were students he hardly knew.

WHAT'S IT LOOK LIKE?

Working with a mastery-based model means students are not all learning the same thing at the same time. Bergmann said the first five minutes of class are essential to setting the class into productive motion by quickly assessing where students are and directing them to various stations around the room. "Your class looks like organized chaos," Bergmann said. "It's very powerful."

"The flipped classroom is not about the video. It's about the active engaged stuff you can do in your class." It is at this point the faculty member realizes the value in **active learning**. Learning becomes easier and teaching becomes more enjoyable and rewarding! Learning environments are created that support motivation and require students to use critical thinking skills to analyze diverse ideas in real-world situations, while relieving the course from the 'content tyranny' that plagues many instructors.

Students are scattered around the room learning a topic in their own way and teachers are walking around talking to students, answering questions and checking in on their progress. There's no assigned homework, unless a student feels he needs to do some extra work to understand a concept. **"The students who are going to get most of my time are the students who need it,"** said Sams. **"It's the kids who are struggling or the students who need me hovering over their shoulder."**

Sams and Bergmann soon realized that effective flipped classrooms didn't include videos of science demonstrations. That's the most exciting part of science and kids should get to see it up close. Since students were moving at different paces, Sams and Bergmann had to demonstrate the same thing multiple times. "We did demos for just a handful of students," said Sams. "It was a far more intimate environment so we could converse with kids about what was going on."

Disciplinary issues also diminished significantly. **"When I was the guy up front, all the attention was supposed to be on me and it was really easy for a disruptive student to pull the attention to himself,"** said Sams. **With everyone working on their own projects, one student has much less power to disrupt.**

ASSESSING WITH MASTERY MODEL

One of the most challenging parts of a messy, asynchronous classroom is that kids aren't all ready to be assessed at the same time, and when they do take a test, they might not pass. Sams' and Bergmann's chemistry classes have formative assessments, constant checking in and talking about work with students on a daily basis.

The two teachers also spent two years building up a store of test questions in Moodle, a free learning management system that randomly generates tests. **Those who fail the test can take another to prove mastery.**

It took a lot of work to build up the system that now works smoothly and the process revealed challenges in the mastery model. "One of the dark sides of mastery is the demoralizing effect," Bergmann said. **He had students that he knew understood the material because of his daily work with them, but who couldn't pass the tests. That's a frustrating and demotivating experience for a student.**

Sams and Bergmann turned to the Universal Design for Learning, a set of curriculum principles that maintains **students need more than one way to learn information and more than one way to demonstrate knowledge.** Following the second principle, the two teachers allowed their students to show they understood the material any way they wanted. Sams said he received songs, welding projects and even hand-drawn graphic novels. He admits those didn't help the students take standardized tests, but they showed chemistry understanding, his main goal.

If this all sounds messy, it is. Sams and Bergmann are the first to admit that there are challenges, especially around grading. But, they've discovered a way to take flipped learning to another level, offering it as one option in a smorgasbord of instructional materials and letting students have the autonomy to choose what works best for them. Kids got behind, but the teachers checked their progress along the way and structured the course so that the most necessary information was in the first four sections, with nice-to-know material in the fifth section.

"We would rather our students actually know 80 percent of the content, instead of being exposed to 100 percent of the content," said Bergmann.

Other teachers in high-poverty schools like Rigler also report very strong results after flipping classrooms. Greg Green, principal of Clintondale High School in Clinton Township, Mich., thinks the **flipped classroom—and the unprecedented amount of one-on-one time it provides students—could even be enough to close the achievement gap between low-income, minority students and their more affluent white peers.** This would also allow the closing of the instructor effectiveness gap. Clintondale has reduced the percentage of Fs given out from about 40 percent to around 10 percent.

"It's an obstacle," said Karen Cator, director of the Office of Educational Technology in the U.S. Department of Education. "We do need to figure out ways that students, regardless of Zip code, regardless of their parents' income level, have access" to technology inside and outside of schools. Two chemistry teachers learned that they could solve technology access issues by **making DVDs of the videos for students without reliable Internet access at home.** We must provide a viable option for those without internet access at home.

Social studies teacher Sydney Elkin said her students' scores on the Georgia state end-of-course exams increased, particularly for her special-education students. **The semester before she flipped her classroom, about 30 percent of all students passed. In her first semester with a flipped class, she said, nearly three-quarters passed, including nine out of 10 special-education students.**

Students said they spend different amounts of time on her instructional videos, although **all must fill out a "note-taker" sheet as they watch.** (This is one way of holding students accountable for viewing the videos, which can be used as a portion of their 'home daily grade'.) One might spend just 10 minutes, while another might pause and rewind, listening over and over to certain sections for nearly half an hour. It does sound ridiculous to think we can present the material one time and have all 30 students learn it at the same pace and extent, and without any learning activity to deepen the learning of the concept. However, that is exactly what we were able to do for many years this past century. If LEARNING is truly the objective, why should we expect everyone to learn at the same pace? Providing video lectures/tutorials allows us to compensate for this while still maintaining the test schedule for the course. Some watch the videos at home; others prefer to listen in class.

"It's wherever, whatever, whenever; that's the whole point," said Larry Rosen, a psychology professor at California State University, Dominguez Hills, who writes widely about technology and is studying how it's transforming education. **"The flipped classroom allows you to present content and the students then consume it in their own location at their own pace."** Provides tutorial service 24/7, and with the inspiring voice of the instructor. No need to decide whether to flip a course or not...just start with flipping one lesson. It is very difficult to justify low success rates if there are not a complete set of instructor-made lecture videos for all core objectives in the course.