



JESSIE, AN 11TH-GRADE AP ENGLISH STUDENT, STARES at the opening lines from John Milton's epic poem "Paradise Lost":

*Of Mans First Disobedience, and the Fruit  
Of that Forbidden Tree, whose mortal tast  
Brought Death into the World, and all our woe,  
With loss of Eden, till one greater Man  
Restore us...*

She's soon lost in the 17th-century language, complicated phrases, and obscure classical and Biblical references. Although her textbook's footnotes provide some insight, Jessie struggles with analyzing the lines in tonight's homework assignment. Her parents have only vague memories of the poem. If Jessie is intrepid, she'll search the Web for more

analysis, and, with luck, find a reliable source. Or, she might just skim the poem, close the book, and hope that her teacher explains it all in tomorrow's 45-minute lecture.

If Jessie were a student in Caroline Goodman's AP English Language and Composition class, she would find that the veteran teacher has flipped Milton on his head. Goodman is one of many independent school teachers who have "flipped" their classrooms.

Goodman's students at St. Mary's Episcopal School in Memphis, Tennessee, do much of what used to be "homework" in class. Outside of school—whether it's at the kitchen table, on the bus, or during study hall—students log in to the class webpage to watch video lectures or read material that provide background material on authors and text—activities

# THE FLIPPED CLASSROOM

BY DONNA DAVIS • [flip here](#)



that used to take up valuable face-to-face class time. They also use the class page to conduct a variety of learning activities, including online research, participating in discussion boards, reviewing for the AP exam, and creating their own videos or online content. Back at school, Goodman and the students read aloud or in groups, and then take time to discuss the text in depth. Students also work on writing assignments in class. That tactic allows them to get peer and teacher feedback designed to improve their work.

The flipped classroom's goal is to create a collaborative, student-centered learning environment that emphasizes student action and interaction over passive "seat time." By minimizing lecture time and increasing face-to-face time, students have more opportunities to interact with their teachers and with each other, enhancing learning and relationships.

The flipped classroom falls into the category of "blended learning." That model combines online content and instruction in which the student can control the time, place, and pace of study with more traditional, supervised learning at school, according to a definition offered by Heather Staker and Michael B. Horn in a 2012 report for the Innosight



Institute, a think tank that specializes in "disruptive innovation." Recently, however, the flipped classroom has gotten the bulk of the attention from educators and the media.

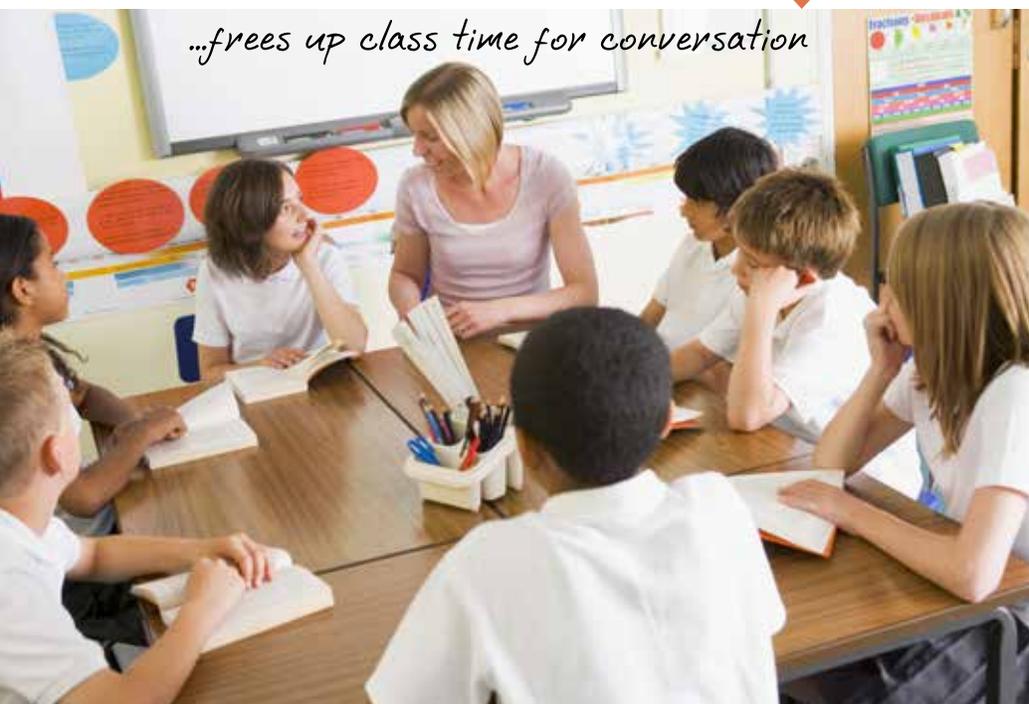
Chemistry teachers Jonathan Bergmann and Aaron Sams usually get credit for the term "flipped classroom," although they don't claim that fame. In 2007, they began making videos of their lectures and posting them online to help students who needed extra help or who had missed class.

Their work got the attention of other teachers who started asking how they could do the same thing. Bergmann and Sams' book *Flip Your Classroom* (ISTE 2012) provides a primer for teachers who want to flip.

The pedagogy behind the "flipped classroom" isn't new. American educational reformer John Dewey promoted student-centered, learn-by-doing education in the early 20th century. Harvard physicist Eric Mazur has used "peer instruction" in his classes for more than two decades. In 2000, economics professors Maureen Lage, Glenn Platt, and Michael Treglia wrote about the "inverted classroom" in the *Journal of Economic Education*, and in 2006, Khan Academy began offering its free array of online tutorials, or flipped homework.

Textbooks were the highest level of "technology" available in Dewey's time. Today, a flipped classroom might make less use of a text—or use a digital

*...frees up class time for conversation*



version—and take advantage of hardware and software, online resources, teacher- or ready-made videos, and other multimedia components.

Flipping isn't all about the videos and technology; what happens in the classroom, and beyond, is more important. "The videos prime the pump for discussion, which often starts even before class," says Leslie Fraser, who uses flipped content in her Algebra II class at the Rivers School in Weston, Massachusetts.

In the ideal flipped classroom, students come to class having watched a video or completed the assigned online work. They use the added class time to create content, solve problems collaboratively or on their own, engage in inquiry-based activities, and conduct project-based learning. The online, at-home component frees up time for learning not only in the classroom, but outside its four walls as well—through internships, community service work, or field trips, for example—and puts the lessons in a real-world, experiential context, proponents say.

Although the idea of reversing homework and enhancing student-centered class work are common denominators in the flipped classroom, Bergmann

and Sams point out, "There is no such thing as the perfect flipped classroom."

Some teachers, like Goodman and Fraser, flip some of the time; other teachers flip all of the time. Entire schools have flipped, as in the case of Clintondale High School, a public school in Detroit.

Who is flipping in independent schools? In many cases, math and science teachers in middle and upper schools. Content plays a role in the decision. "Photosynthesis isn't going to change," says Craig Savage, AP Biology teacher at Parish Episcopal School in Dallas, Texas. Language teachers also flip. Students can use technology like VoiceThread to record conversations and improve their pronunciation, for instance. Humanities teachers like Goodman use flipping to convey background information, such as an author's biography or historical context.

Bergmann thinks limited flipping can also take place in the elementary classroom. "Don't flip a class: Flip a lesson," he writes in his "Flipped Learning" blog. He suggests starting with a concept students have difficulty learning and making it into a short video—one to two minutes per grade level.

**the videos** prime the pump for discussion, which often starts even before class begins



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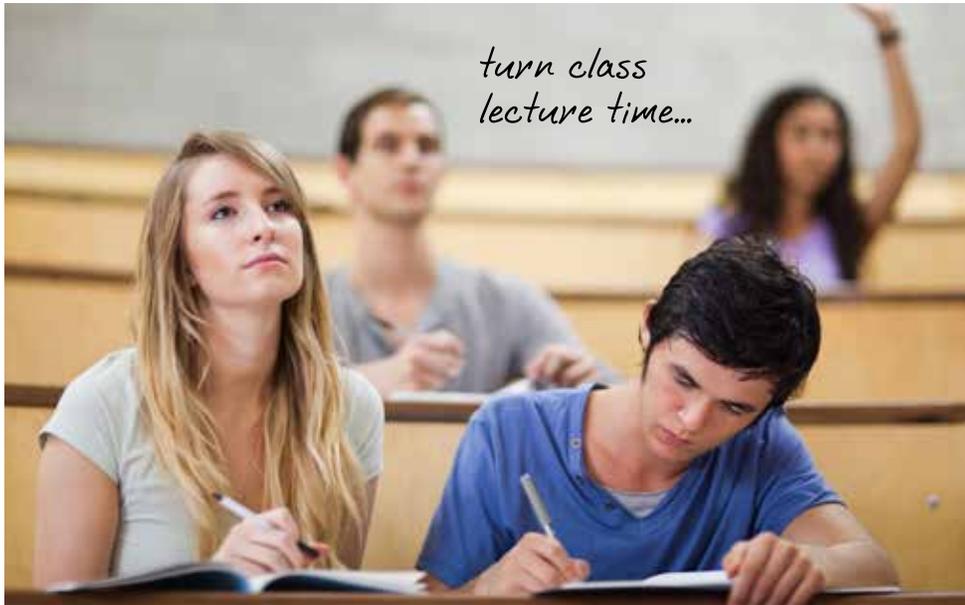
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*turn class  
lecture time...*

Determine how, where, and when you want students to watch: in class or at home. Finally, design a way to evaluate what they took away, perhaps a note sheet or a few sentences posted in a Google Doc.

How do teachers go about flipping a class? Watkinson School math teacher Angela Boratko created her own lecture videos of 10 minutes or less using her SMART Board. (Each video took 20 to 30 minutes to make.) Students access the videos on YouTube. Boratko gained video-making skill as the year went on. The more challenging part of flipping involved determining the class session's structure and grading rubrics. "I'm not grading them on participation anymore. Those traditional elements are no longer there."

To track her students' progress, Boratko divides her 90-minute block classes into three "stages of comprehension." To earn a 100 percent grade for the day, students must complete all three stages: 1) 10 to 15 problems based on the previous night's video, 2) word or other advanced problems that make students apply what they have learned, and 3) a complex, extended problem that has a real-world connection. If the day's lesson involves graphing, students who reach the second stage might make a graph of hourly snowfall for the day and for the third stage, go outside to measure the actual snowfall, compare it to their graph, and report their findings. Students watch videos for four out of five classes in a two-week rotation;

the fifth class is reserved for a "very challenging" problem that requires group collaboration.

Boratko builds in accountability. She knows that students have not watched the video if the first stage stumps them, and she requires students correct any errors before they can move to the next stage.

The flipped classroom model translates to a busy, dynamic room, with Boratko moving around to help students working with their peers, and all of it happening at the student's individual pace. "I have 12 students and I am checking their work three times each. It's a marathon class

session. Someone might walk by and wonder what is going on in that classroom, but it's one of the most thoughtful and interactive learning environments I have ever seen."

Boratko's approach is just one way to flip a classroom. In his presentations on reversing instruction, Harpeth Hall math teacher Tad Wert advises teachers who are thinking about flipping to "determine your (educational) philosophy first, then find the tools to make it happen."

Those tools sometimes intimidate teachers who don't see themselves as tech-savvy. But Wert, who teaches flipped pre-calculus classes at the Nashville, Tennessee, girls' school, says teachers don't need to be fearful. He recommends four basic items to start: a Course Management System (CMS)



*...into active group projects*

such as Blackboard, Moodle, Haiku, or Googlesites; screen casting software (Camtasia, Jing, Screencast-O-Matic); a tablet computer with journaling software such as One Note, Smart-notebook, or Dabbleboard; and a headset with a microphone. A webcam is optional. Teachers also need to determine how to distribute the videos. Using a CMS is one option; another is uploading videos on YouTube or Vimeo with private or public links.

Teachers should prepare their presentations. Some use scripts; others work from a rough outline. Plan on spending three times the length of the video on preparation, Wert says. Making the videos can be time-consuming, but teachers end up with an archive of material for future classes.

Most flippers advise keeping videos at less than 15 minutes, with 10-12 minutes ideal. That limit means that students who want to pause, take notes, and review as they watch aren't spending hours in front of the computer.

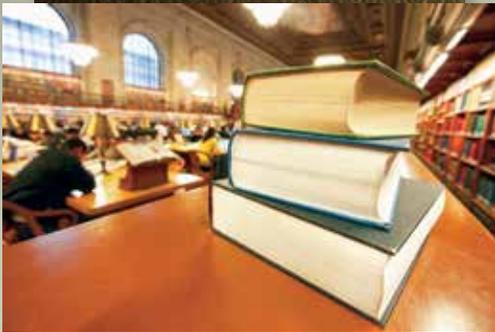
Some teachers prefer to use existing videos. Fraser uses Khan videos in her middle school classes and MIT videos in pre-calculus class to introduce a math topic or as a review tool. She looks for videos that are high-quality and "teach

## many schools already have the technology teachers need to flip

the way I would." She believes students benefit from a different "voice" and from the variety that adding videos brings to the class. TED Ed is another source of videos for reverse instruction.

From a technology standpoint, flipping doesn't have to be an expensive undertaking. Several online screen-casting and drawing programs are free. Many schools already have the technology teachers need to flip, but simply need to explore and find ways to "tap into its depth," Savage says. Parish Episcopal has a Bring Your Own Device (BYOD) policy for students and supplies laptops to teachers. Savage added a microphone, a \$120 drawing tablet, and some screen-casting and editing software to the mix. "The result did not cost much more than what we were doing for our faculty already," Chief Technology Officer Paul Tidmore says.

Fundraising can also provide monies for new technology. Boratko found support for her initial flipping project through Watkinson's donor-backed Inventive Teaching and Learning Fund. The \$10,000 grant helped purchase iPads for Boratko's 12 students to use in class, Director of Finance Wanda Schulman says.



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## FLIPPING YOUR FACULTY AND PARENT MEETINGS

Your school has flipped over the idea of the flipped classroom. What other aspects of the school's functions can benefit from turning things upside down?

How about the faculty meeting? Bill Ferriter (@plugusin), a Regional Teacher of the Year in North Carolina, suggests that principals create a brief video that covers all the important background information that they would otherwise share face-to-face. Along with the video link, they should

include a worksheet that allows faculty to write down ideas and questions as they watch. Faculty members can bring those thoughts to the meeting, where instead of spending time on housekeeping issues, they spend most of the meeting taking part in "cross-discipline and grade-level" discussions that might never take place.

Steven W. Anderson (@web20classroom), another educator and blogger, suggests using Google Docs for meetings—one document

can track a committee's work for an entire year. Setting up Ning or Edmodo groups are other ways to share documents and discussion. The idea, Anderson blogs, "is to make the time the staff or groups spend together more meaningful . . . freeing up time to do something meaningful for kids."

Kristin Daniels (@kadanels), Technology Integration Specialist for Stillwater (Minnesota) Area Public Schools, promotes Flipped Professional Development. In Daniels' model, teachers—

with a technology specialist working with them as the "guide on the side"—use online resources to learn how to use new technology tools. They come to workshops familiar with the technology and can spend the time designing ways to integrate the new tool into their teaching. "We are receiving individual or team-based professional development that supports what is actually happening in our specific classrooms," Afton-Lakeland sixth-grade teacher Derek Olsen comments.



The flipped classroom does have its detractors. Aren't schools just replacing hours of traditional homework with hours of computer viewing? What if every class flips? That's a lot of viewing time. "The idea of taping a lecture and then forcing them to watch it on their own time upsets me," educator and blogger Pernille Ripp writes.

Goodman responds that detractors may be assuming that students must watch lengthy videos. Instead, teachers should think of videos as a way to condense material. "Flipping forces us to boil down the information and decide what's core, then communicate it in an interesting and engaging way. In the classroom, you could turn five minutes of information into a 45-minute lecture." There are times when a video isn't the right method to convey that content, she adds.

Some critics also argue that the model fails to account for students who might not have internet access or their own computers or mobile devices at home. Teachers suggest they watch the content on school computers during free time; some burn DVDs for students.

Others see teachers jumping on the technology train for technology's sake. What if the video lecture confuses students or gives them incorrect information? Fraser "vets" her videos, and teachers who make theirs control the content. And, adds Wert, for complicated content, "you can always go back to the traditional, in-class lecture."

What about the students who never did that traditional homework anyway—why expect them to do the flipped work? Teachers say they know who those students are because they



Some schools are finding new ways to present Back to School Night. If their classrooms have flipped, how do teachers show parents what's happening in this interactive,

dynamic setting? The same way they work with their students—by flipping it. Instead of passing out copies of the syllabus and classroom rules, email that information ahead

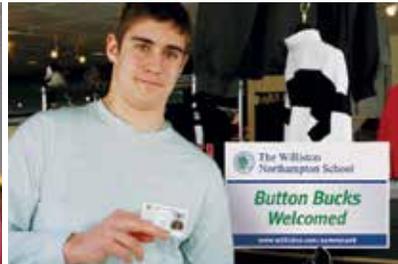
of time—or, better yet, put your presentation on a video.

A seven-to-10-minute video can provide parents with more than basic information, says Glenn Yetter, a blogger and educator from Lansdale, Pennsylvania. Teachers can also include virtual tours of the classroom and demonstrate how to use the school and flipped-class websites. At Back to School Night, parents who have done their flipped assignments can get hands-on practice navigating those websites and join in a group

activity, whether it's learning how to follow the class on Twitter or use the SMART board. Another twist on flipping Back To School involves having the students make the video themselves, suggests Heather Witten, a Spanish teacher in Elizabeth, Colorado.

And if flipping can help streamline and stimulate discussion and learning for students, faculty, and parents, what about flipping administrative, board committee, or full board meetings? It's just a flip away . . .

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## IF YOU CAN FLIP, YOU CAN BLEND *Does the flipped classroom go far enough?*

According to Brad Rathgeber, Director of the Online School for Girls (OSG), flipping is simply a "great entry point" into the world of blended learning.

"A lot of teachers have grasped the flipped classroom concept as something fairly concrete and reasonably easy to implement within a class," says Rathgeber, who heads OSG's consortium of more than 60 schools. "It's a great concept, and there's so much more that can happen."

According to the Innosight Institute's 2012 white paper "Classifying K-12 Blended Learning," the flipped classroom is a subset of the "rotation" model of blended learning. Students in a specific course rotate between learning modalities that the teacher chooses; one might be online learning, while others might include lab projects, writing assignments, or group work.

Innosight identifies three other types of blended learning models:

✦ **FLEX MODEL** - Students get most of their content and instruction online.

At school, they follow a customized schedule with varying amounts of support from teachers.

✦ **SELF-BLEND MODEL** - Students supplement traditional classes taken at school with one or more courses online.

✦ **ENRICHED-VIRTUAL MODEL** - Students do much of their coursework online and occasionally attend sessions at school.

Truly blended learning means that the class goes through a complete redesign. That rethinking might include or start with a flipped classroom model, but it goes farther.

Clayton Christensen, Harvard business professor and author of *Disrupting Class* (McGraw Hill, 2008), advocates creating a 21st-century blended

different paces and through different paths as needed."

Getting to true blended learning can be daunting, Rathgeber notes. The process requires training and a willingness to relearn and relinquish traditional teaching methods. In blended classes, the teacher doesn't disappear; instead, she guides students toward more customized learning.

A good online course provides a chance for reflection and increased perspectives. "Everyone has a voice and is required to use it. Some who are not the most verbal in a classroom are the most talkative online. They get the time they need for reflection and to process the information," Rathgeber says.

Blended learning can also draw students together



classroom that is student-centered and customized to each student's learning style. Through online resources and software, the student has more control in directing his or her own learning. The result, Christensen writes in an op-ed article for the *Deseret News*, allows "students to progress at

Professional development courses that teach blended learning techniques are a good place to start. But Rathgeber recommends that independent school teachers take an online course themselves. "Until teachers have broken down that barrier, they don't understand what can happen online and why."

through online discussion and collaboration on class work or other projects, and can extend beyond the classroom to other students worldwide. "By taking a fully online course, a face-to-face teacher has the opportunity to see what types of blended approaches might be possible."

will come to class unprepared to do the more advanced, hands-on work and join in the discussions. Being clear about expectations from the first day of class keeps students accountable—for example, do students have one night or a week to watch a video, do they have to post on a discussion board, do they need to complete a note or problem page?

Students sometimes balk at the idea that their classroom has flipped, but eventually adjust. “At the beginning, I had to incentivize it—planting an assignment in the video,” Savage says. “But once I had to go back to a traditional lecture, and they all got mad. They liked having the work on their own schedule, being able to watch and pause and take notes.”

Parents seem pleased as well, to the point of joining in. “I have some parents tell me they watch the videos,” says Kathryn Byrne, an upper school math teacher at School of the Holy Child in Rye, New York. “It also takes the pressure off parents who are trying to help with homework but are unable to effectively explain concepts to their children.”

When it comes to outcomes, statistics show that the flipped classroom has achieved positive results. One public school that has received a lot of media attention for its flipped approach is Clintondale High School in Detroit. The school decided that flipping was the best way to reach its high population of at-risk students who were failing and dropping

out at frightening rates. According to Clintondale’s website, the school flipped classes for its 140 freshmen in 2010 and saw the failure rate drop by 33 percent in English, 31 percent in math, 22 percent in science, and 19 percent in social studies in one semester. Discipline cases also fell, by 66 percent. Now the entire high school has flipped.

In independent schools, which usually don’t have the same high percentage of at-risk students, anecdotal evidence shows improvement in regular and advanced classes. Both Fraser and Wert say students’ test grades and AP scores went up. The flipped model also has served students with learning differences. Students can learn at their own pace, especially in classes that have all the flipped units posted from day one. And “for the students who process information more slowly,” Caleb says, “they can replay the lessons over and over.”

The model has also had some unexpected benefits for teachers. “The happy surprise is that now I have time to listen to what each of the kids has to say, including the quieter students,” says Linda Caleb, who uses VoiceThread responses in her 5th-grade Design Technology at Holton-Arms School in Bethesda, Maryland. “I get to hear from every girl every week.”

Is it any wonder everyone’s flipping out? ■



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