Implementing the Flipped Classroom – Teachers and Technology Team Up to Reinvent Education

Flipped learning is reinventing and revitalizing education. It gives teachers and students valuable one-on-one interaction while effectively using technology. But flipping a classroom takes more than a teacher making a video for students to view at home. It doesn't happen overnight and sometimes takes more than one school year to effectively flip a classroom.

It seems like such a simple concept — watch lectures at home and spend more time in class collaborating with teachers and peers. Yet successfully flipping a class takes planning, training and ongoing support. Partnerships need to be developed with IT departments, students and parents. It may start out with just one teacher accepting the challenge. A few, such as Clintondale High School in Michigan, have flipped entirely. Most schools, however, ease their way into the concept. After all, change is never easy and takes time.

Jonathan Bergmann, a pioneer of the flipped classroom model, was told by his administrator that most change in schools takes about three years. "The first year you are just trying new things. The second year you are working out the bugs and by the third year the change is culture. This is exactly what we experienced as we flipped our classes," he said. "Maybe the biggest hurdle in the implementation of the flipped class is time. It takes time to plan for the flip. It takes time to make videos. It takes time to flip the assessment."[1]

Sunset Ridge School District 29, a small K-8 district in suburban Chicago, IL, and Allen Independent School District in Texas, are two schools easing their way toward incorporating flipped model opportunities. Sunset Ridge launched its exploration last year when one teacher flipped lessons in a seventh grade math class. Allen has flipped five physics, algebra and chemistry courses. In both districts, a champion emerged to foster implementation of the flipped model.

Technology Teacher Facilitator Charlene Entman orchestrates the flipped concept at Sunset Ridge. She's worked in education technology for 24 years. In 2003 she obtained a master's degree in instructional technology at Northern Illinois University and is currently adjunct professor in the Department of Instructional Technology at Concordia University, Chicago.

"I want to be the teachers' colleague as well as a technology resource," she said. "I build a bridge between the curriculum and the methods teachers use to engage the learners. I don't tell teachers what to teach; I offer ideas to enhance their teaching."

Katie Lanier, a 12-year veteran science teacher and flipped class leader in the Allen district, uses the flipped model to teach physics, and scientific research and design courses. She knew going in that there would be challenges, but she also knew innovation and success lay ahead.

> "The other side of the flip — what occurs in the classroom — presents different challenges, such as time management. "Teachers need to determine what to put in the video, what works better in the classroom and how to allocate the one-on-one time with students. It's about adjusting the pace of class time."
>
> — Katie Lanier

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Climbing the Learning Curve

The start-up — learning the technology and adjusting the classroom pace — was the first challenge that teachers, students and parents faced. Lanier walked into the flipped model with a steep technology learning curve.

"I had to learn the website content management system, how to upload video, embed links on the Web page and make videos. I needed to determine what the students had and what they needed for communication technology devices and Internet access," she said.

Dawn Meziere, the teacher at Sunset Ridge who flipped her 7th grade math class, said there were technology glitches in the beginning, such as browser compatibility issues, along with a learning curve for using new hardware and software applications. "But they were quickly resolved with the help of Charlene and the technology department."

That interdepartmental partnership is a key in overcoming challenges, Lanier said. "The work required to flip a class is much easier when you have a partner or team to divide the work. Anything new takes time and patience to adopt. Everyone needs to understand the flipped concept and how it will affect and benefit teachers, students and parents."

She added, "Sometimes you have to guess if something will work. You find out what does and what doesn't work. You capitalize on the opportunities that come along as students and teachers adapt."

Illustrating Bergmann's timeline for change, Lanier's task in her second year is working out the bugs, especially in the technical tools. "I need to do more video editing, vary my vocal inflection and not be a "talking head." The videos need to be less boring and more animated. But it's difficult when you're looking at an empty room. There's no feedback; no faces."

> "Students need to be encouraged and you have to keep showing them the value in what they are being asked to do. Those who understand the lesson move on to other projects. No one gets left behind. No one gets bored. More time is spent with applications, labs, activities and discussions instead of copying information."
>
> — Katie Lanier

Positive Parent, Student Experiences Boost Engagement

Meziere's students were intrigued by the idea of a flipped classroom so she got them acclimated to the model first. "Prior to making my own videos, I introduced my class to other websites that offered video tutorials and got them used to watching videos, taking notes and generating their own questions for class the next day," she said. "Students told me they felt less rushed than in the regular classroom because they were able to pause and rewind the videos when necessary and mark their notes with questions to ask in class the next day."

When the time came to create her own videos, Meziere admitted she was nervous. "My students persuaded me to try it. They thought it would be easier to watch videos of their own teacher rather than watching a stranger."

Lanier said continuous communication is required to get the parents working as partners. She sent letters explaining the flipped concept and how it would impact them and their child. Follow-up included parent newsletters, e-mails, surveys and in-class discussions.

"At first some parents thought the teachers weren't teaching anymore. But once they saw how the flip worked, it wasn't a hard sell," Lanier said. "Parents realized it reduced their need to help with something they might not understand themselves. Their role was to make sure their child watched the video and took notes, which was easy for parents do to. As a result there was less friction at home."

Meziere got the same parental input. "They liked that their child was able to watch a video and take notes at home, then get their questions answered and do practice problems in the classroom."

Always Willing to Learn

Professional development is a facet in implementing the flipped model that can't be overlooked or minimized. Lanier developed, then presented "Ready, Set, Flip Your Science Class" at Allen's 2012 summer staff development workshop and anticipates doing more in the future. In the presentation — which showcased her newly-acquired technology skills — she shared her learning experience, what tools to use, student comments, grading statistics, and time management tips for a flipped class.

Entman provides a host of support and professional development options that can be used as the flipped model grows. She brought in Jonathan Bergmann to talk to middle school staff about the concept and she presented a seminar at the district's summer workshop. Acknowledging that teachers and parents can be uncomfortable with new and constantly changing technology, she also gives lessons and webinars, and prepares videos and online notes.

Enthusiasm, Encouragement Lead to Success

The success and effectiveness of the flipped model is evident in Lanier's classes. "Physics is a historically difficult course, but it's required in Texas schools. I get some students who really struggle. They come into physics classes used to getting high grades, but end up getting lower grades, which discourages them," Lanier said. "The flipped class makes a big difference. I spend one-on-one time with each student every class period so I know who's struggling."

Her students enthusiastically embraced flipped learning. She surveyed 100 students in the middle of the year: 70 percent liked it. At the end of the year, 90 percent liked it. "Grades are improving. I have more As and Bs, and fewer Fs, which is a great outcome in a difficult course."

Meziere saw the same eagerness in her students. "After I flipped my class for the first time, the positive feedback from my students gave me the confidence and motivation to flip more lessons."

Schoolwires® Complements Needs of the Flipped Classroom

The catalyst in the flipped concept is utilizing an ever-increasing number of technology tools and applications: the Internet, DVDs, laptops, smartphones, iPads, and tablet and notebook computers. Students take their classrooms with them on family vacations, field trips, the school bus and when they're home sick or snowbound.

Schoolwires Centricity2™ and Nimbus™ products bring together essential technologies ideal for the flipped model. Centricity2 tools feature secure communication through social media, e-alerts, group management, mobile Web applications, blogs, forums and surveys. Nimbus™ provides a safe "members-only" social learning environment with stringent controls and language filters to keep networking activity structured and secure. Features include calendars, photo albums, assignments, file sharing and opportunities for group interaction.

Serving as her District's webmaster for the past several years, Entman was responsible for maintaining the Sunset Ridge website through the Centricity2 content management system. She provides training workshops that integrate the use of Schoolwires tools to enhance teacher web pages. Lanier and Meziere use Centricity2 to host their flipped classroom videos and assessments.

"I'm able to put an entire lesson on one page — YouTube video links, notes and online assessments — which is convenient and accessible for my students and easy for me to use," Lanier said.

On Your Mark, Get Set, Flip!

Interest in the flipped model continues to flourish in the country, as was demonstrated at the Fifth Annual Flipped Classroom Conference in Chicago. It drew 350 educators and 300 virtual attendees from around the world. Entman and Lanier attended, bringing home with them energy, ideas and encouragement as their districts explore and implement the flipped model.

Several teachers attending a summer workshop at Sunset Ridge have expressed interest in flipping their classrooms and Meziere plans to flip her sixth grade math class this year.

"We're on the cusp of the flipped model at Sunset Ridge," Entman said. "Right now we're showing parents, students and teachers how it works. We're implementing it gradually, and hopefully it will snowball as our community experiences positive results."

The Allen district will flip more than 15 AP Chemistry, APB Physics and Algebra I classes in 2012-13. The flip has won over many students as their comments affirmed:

- "I did miserably on the unit that we didn't [flip], but have really loved and done well on every flipped unit so far."
- "I don't have to listen to long speeches."
- "We should work on transitioning all classrooms to flipped classrooms."
- "My science grades have never been better. I've heard horror stories about old physics."

With such positive feedback, it's evident that the flip is proving its value and success in education — and it's making a profound impact on student achievement.

WHY THE MATH-SCIENCE FLIP WORKS

Simply put, the flipped classroom inverts traditional teaching methods by delivering instruction online outside of class and moving "homework" into the classroom. The concept has been implemented primarily in math and science.

Math teachers find the flip helps students engage in deep analysis and intricacies of mathematical concepts. Flipping a science class creates more time and opportunities for students to engage in inquiry-based activities and conduct more in-depth experiments. In chemistry, the flipped model has become a powerful tool for students to create conceptual understanding without direct instruction.[2]

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About Sunset Ridge School District 29

Located in the Village of Northfield 20 miles north of downtown Chicago, District 29 consists of two schools. Middlefork School serves students in kindergarten through 3rd grade, while students in 4th through 8th grade attend Sunset Ridge School. The district enrolls approximately 500 children.

About Allen Independent School District

The Allen Independent School District serves a suburban community 23 miles north of Dallas. Allen enrolls approximately 19,000 K-12 students in 16 elementary schools, three middle schools, one freshman center and one high school. The district employs 2,230.

Katie Lanier's video presentation, "Ready, Set, Flip Your Science Class," is found at http://prezi.com/wga1ndfuhxu1/ready-set-flip-science.

Footnotes

[1] 1 Jonathan Bergmann; Flipping for Administrators: How do you support your teachers as they start to flip?; August 5, 2012; http://flipped-learning.com

[2] 2 Jonathan Bergmann and Aaron Sams; Flip Your Classroom: Reach Every Student in Every Class Every Day; eSchool News, May 21, 2012; http://www.eschoolnews.com/2012/05/21/how-to-implement-the-flipped-classroom

To see how Katie Lanier and Dawn Meziere have implemented the flipped model, visit their Web pages:

- Katie Lanier, Allen Independent School District - http://www.allenisd.org/Page/10855
- Dawn Meziere, Sunset Ridge District 29 - http://www.sunsetridge29.net/Page/619

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