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Chapter 1

OUR STORY: Creating THE Flipped Classroom

Enrique is struggling in school, specifically in his math course. Every day his teacher stands in front of the class and teaches to the state standards. She uses the latest technology. She received a grant for an interactive whiteboard that is supposed to engage all kids and get them excited about learning. Enrique's problem is that the teacher talks too fast for him, and he can't take notes quickly enough. When he does get all the notes from class onto paper, he does not understand what they mean. When he goes home to complete his homework, he continues to struggle because what he wrote down in class during the lecture doesn't seem to match with what he is supposed to do on his assignment. Thus, Enrique, a hard-working student, has few

options: he can go into class early and ask his teacher for help, he can call a friend with the hope that the friend understood what she said, he can copy the homework from a friend, or he might simply give up.

Janice is active in volleyball, basketball, and track at Eastside High School. She is a conscientious student who always wants to do her best. Unfortunately, she has a difficult science class the last period of every day. She must often leave school early to travel to games and matches, and she misses a lot of classes. She tries to keep up with her science class, but she just can't because she misses so much of it. She sometimes comes in and meets with her teacher before school, but he is often too busy to individually teach her everything she missed.

Ashley has spent the better part of her life learning how to “play school.” She is 10 years into mastering the art of meeting her teachers' requirements by making sure that she meets every detail of a grading rubric. She never actually absorbs the key concepts. She consistently earns As and Bs in her classes—not because she has demonstrated understanding, but because she has met the requirements in the rubric. Those grades do not accurately reflect what she has actually learned. Ashley is being served very poorly by her school.

Sadly, these scenarios are common across the country. Many struggling students who genuinely want to learn fall behind instead. Others are so busy that they miss out on key concepts. Still others learn how to “play school,” but never really learn important objectives in their courses.

The flipped classroom can address the needs of students such as Enrique, Janice, and Ashley by allowing their teachers to personalize the students' education. You can do the same—whether you teach math, science, social studies, language arts, physical education, ELL, a foreign language, or humanities. This book will show you how!

Background

In 2006, we both started teaching at Woodland Park High School in Woodland Park, Colorado. Jonathan came from Denver and Aaron from southern California. We became the chemistry department at our school of 950 students. As our friendship developed, we realized that we had very similar philosophies of education. To make our lives easier, we began planning our chemistry lessons together, and to save time we divided up much of the work. Aaron would set up one lab and Jonathan the next. Aaron would write the first test, and Jonathan the next.

A problem we noticed right away about teaching in a relatively rural school is that many students miss a great deal of school because of sports and activities. The “nearby” schools are not truly nearby. Students spend an inordinate amount of time on buses traveling to and from events. Thus, students missed our classes and struggled to stay caught up.

And then one day our world changed. Aaron was thumbing through a technology magazine and showed Jonathan an article about some software that would record a PowerPoint slide show, including voice and any annotations, and then convert the recording into a video file that could be easily distributed online. YouTube was just getting started, and the world of online video was in its infancy. But as we discussed the potential of such software, we realized that this might be a way to keep our students who missed class from missing out on learning. So, in the spring of 2007, we began to record our live lessons using screen capture software. We posted our lectures online so our students could access them.

In all honesty, we recorded our lessons out of selfishness. We were spending inordinate amounts of time reteaching lessons to students who missed class, and the recorded lectures became our first line of defense. The conversation usually went something like this:

Student: Mr. Sams, I was gone last class. What did I miss?

Mr. Sams: I tell you what, go to my website, watch the video I posted, and come see me with any questions you have.

Student: OK.

Our absent students loved the recorded lectures. Students who missed class were able to learn what they had missed. Some students who were in class and heard the live lecture began to rewatch the videos. Some would watch them when reviewing for exams. And we loved it because we didn't have to spend hours after school, at lunch, or during our planning time getting kids caught up.

We never could have expected the side effects of posting our lessons online: the emails began. Because our videos were posted online, students and teachers from all over the world began thanking us for them. Students just like ours who had struggled with chemistry found our videos and started using them to learn. We participate in several online science teacher forums, and we began to share the links to the recorded lectures there. Teachers from all over the country began to take notice. Chemistry teachers began to use our video lectures as plans for substitute teachers, and some new teachers used them to learn chemistry content so they could teach it to their students. All in all, it was amazing to see that what we were doing in our small town was being noticed across the country.

The Flipped Classroom Is Born

In our combined total of 37 years of teaching, we have been frustrated with students not being able to translate content from our lectures into useful information that would allow them to complete their homework. Then, one day, Aaron had an insight that would change our world. It was one simple observation: "The time when students really need me physically present is when they get stuck and need my individual help. They don't need

me there in the room with them to yak at them and give them content; they can receive content on their own.”

He then asked this question: “What if we prerecorded *all* of our lectures, students viewed the video as ‘homework,’ and then we used the entire class period to help students with the concepts they don’t understand?”

Thus, our flipped classroom was born. We made a commitment during the 2007–08 school year to prerecord all of our chemistry and Advanced Placement (AP) chemistry lectures. To make things easier on us, one of us would do Unit 1 of chemistry and the other Unit 1 of AP chemistry. Then we switched off for each subsequent unit. This meant many early mornings for Jonathan, the morning person, and many late nights for Aaron, the night person in our duo.

Our students are on a block schedule where we see them for 95 minutes every other day. Every other night our students watch one of our videos as homework and take notes on what they learned. Teaching science courses, we continued to conduct the same laboratory experiments that we had always done. We found that we had more time for both the labs and the problem work time. In fact, for the first time in either of our careers, we ran out of things for the students to do. They were completing all their work with 20 minutes left in class. Clearly, this model was more efficient than lecturing and assigning homework.

We also decided to give the same end-of-unit tests as we had done the previous year. We discuss the details in the next chapter—but, in short, our students learned more and we had some rough data that seemed to indicate the flipped classroom was a better model than the traditional approach.

We implemented the flipped model for one year and we were very pleased with how our students were learning. We had evidence our model worked and was better for kids. So you would think we would perfect this model and continue to teach that way—but you’d be partially wrong. More on that in a bit.

Before we proceed with our story, we would be remiss if we did not mention a few important facts: (1) We did not lecture exclusively in our classes before flipping; we have always included inquiry-based learning and projects. (2) We were not the first educators to use screencast videos in the classroom as an instructional tool, but we were early adopters and outspoken proponents of the tool, and for us, the flipped class would not have been possible without them. However, there are teachers who use many of the concepts you will read in this book and who call their classrooms flipped, but do not use videos as instructional tools. (3) We did not come up with the term *flipped classroom*. No one owns that term. Although it has been popularized by various media outlets and seems to have stuck, there is no such thing as *the* flipped classroom.

How Flipping Aids Personalization

Flipping the classroom establishes a framework that ensures students receive a personalized education tailored to their individual needs. Remember Enrique, Janice, and Ashley from our opening story? They represent the struggling students, the over-scheduled students, and the students who get by with superficial learning. Educators are expected to find a way to reach these students with their very different needs. Personalization of education has been proposed as a solution.

The movement toward personalization has much merit, but for a single teacher to personalize education for 150 students is difficult and does not work in the traditional educational setting. The present model of education reflects the age in which it was designed: the industrial revolution. Students are educated in an assembly line to make their standardized education efficient. They are asked to sit in nice neat rows, listen to an “expert” expound on a subject, and recall the learned information on an exam. Yet somehow, in this climate, all students are expected to receive the same education. The weakness of the traditional approach is that not all students come to class prepared to learn.

Some lack adequate background for the material, are uninterested in the subject, or have simply been disenchanted with the present educational model.

For the better part of a decade, educators have been told to provide a personalized education for each student, and most educators believe that personalization is a positive goal to reach for each student. However, the logistics of personalizing 150 different educations each day seems insurmountable to most teachers. Exactly how can a teacher personalize the education of so many kids? How can she ensure that every student learns when there are so many standards to cover? Personalization is truly overwhelming for most educators, and they end up taking the shotgun approach to teaching: present as much content as they can in the time they have, and hope that it hits as many students as possible—and sticks.

When we began flipping our classrooms, we quickly realized that we had stumbled on a framework that enables teachers to effectively personalize the education of each student—the goal of educators since the concept of individualized learning first appeared. As we present our flipped classroom model to educators around the world, many have said, “This is reproducible, scalable, customizable, and easy for teachers to wrap their minds around.”

You may also have noticed some similarities between a flipped classroom and other educational models such as blended learning, reverse instruction, inverted classroom, and 24/7 classroom. All of these models have similar features and could possibly be interchangeable in certain contexts.

The Flipped Classroom Grows

As we began this journey, we had no idea that what we were doing was going to spread beyond our four walls. Then, out of the blue, we got an email from a neighboring school district wanting us to come and tell them about the flipped model.

They even offered to pay us! So we packed our bags and spent a day in Cañon City, Colorado. Most teachers have sat in staff development training where the principal or superintendent has brought in some “expert”—someone from out of town with a slide show. Well, we were those experts. When we started most of the teachers were sitting there with glazed expressions, as if they were daring these two yahoos to capture their attention.

As we shared our story, their slumped bodies began to become straighter. Soon the teachers in the audience were asking questions and showing genuine interest in the flipped model. And then as we broke them into groups to begin practicing how to make their own videos, we realized we had stumbled on something that was much bigger than ourselves. One seasoned teacher told us that in 26 years of teaching, our presentation and workshop was the most valuable professional development day he had ever attended. I do not know if his comment had as much to do with our presentation skills as it did with the simplicity and reproducibility of the model we presented.

A few weeks later, our assistant principal came into our rooms and asked us, were we expecting anybody from Channel 11? Much to our surprise, the education reporter from one of the news stations had heard about us and had just shown up on our doorstep. The reporter made a short news clip about what we were doing ... and, as they say, the rest is history. We were invited to speak at conferences, asked to train educators at schools, districts, and even colleges, and spoke about the flipped classroom across the United States, Canada, and Europe.

The Flipped Mastery Class Begins

Then, one day, our world was rocked by conversations with some of our students. At the end of every year we give students a comprehensive project. In this project, they are asked to analyze a household substance and chemically determine some