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## Introduction

### *Is the Flipped Classroom Education Technology's "Perfect Storm"?*

Having been immersed in the world of education and instructional technologies for a number of years now, I am often faced with decisions about which technologies might have the biggest impact on teaching and learning. Which technologies, or technology-enabled techniques, are most likely to have a significant impact on students' learning abilities and really help teachers succeed? This question has taken on even greater meaning in light of the increased controversy in recent years about ed tech spending in our schools.

The more I learned about the flipped classroom, the stronger I came to feel that this is the most powerful technology-enabled teaching concept that I have come across to date. In many ways it's an ideal marriage of technology and instruction. There are so many reasons why it just makes a ton of sense, and when I present the topic to teachers, most of them immediately grasp its potential.

Here is a short list of reasons why the flipped classroom is a great idea that should be embraced and encouraged by the educational community:

1. Students can review 'flipped' course materials repeatedly outside of the classroom, at their own convenience, on the device of their choosing (smart phones, tablets, laptops, etc.).
2. The wide availability and engaging format of this type of learning content can be a powerful enabler of learning, and can encourage students to take more responsibility for their own learning.
3. In a fully flipped delivery model, students who miss class because of other responsibilities or illness do not have to be 'penalized' by missing course content.
4. The time in class for valuable hands-on and face-to-face learning takes on a whole new dimension, empowering teachers to do what they like to do – help students really understand the material and achieve deeper learning.
5. There are tens of thousands of educational videos and other educational media that can be used as flipped classroom content that are available for free right now (more on this in later chapters).

6. Many instructors are already doing this to some extent (when they provide reading or video homework, for example).
7. It doesn't have to be costly or complicated to start your implementation of the flipped classroom.
8. Instructors can ease into this at the pace of their choosing, and they can select their own approach. Tech-savvy teachers can easily get started creating their own content with free Internet tools, while those who are less tech-friendly can leverage the extensive body of learning content that is already available.
9. There is a growing body of evidence indicating that the flip can have powerful results – clearly improving a range of learning outcomes, including grades, standardized test results, graduation rates, and more.

### *Measured Results are Proving it Works*

I've been sharing a lot of stories on EmergingEdTech about schools that are producing empirical evidence that illustrates the effectiveness of the flip. Here are a few highlight from some recent articles:

- *The Economist* [recently reported](#) on a paper published in the journal *Science* about a study by Professor Louis Deslauriers at the University of British Columbia that tracked the progress of 850 undergraduate science students taking a required physics course. At the beginning of the term, the students were placed in two groups that each received instruction in the typical lecture delivery format by competent and well-regarded instructors for the first 11 weeks of the course. At the 12 week mark, the students in group 1 received instruction in a flipped classroom setting. Their class time was spent on problem-solving and discussion, while content acquisition was achieved by the students themselves, outside the classroom, via reading assignments. Students in group 2 continued in the typical lecture delivery format for the twelfth week.

At the end of week 12, all of the students were given a test to determine the level of their acquisition of content for the 12 week period. Group 2, using the lecture delivery method, had an average score of 41%, and Group 1 had an average score of 74%. According to Dr. Deslauriers and his team, their result is the, “biggest performance boost ever documented in educational research, making the new teaching style more effective even than personal, one-to-one

tuition (sic) — although measuring the effect immediately after the experiment, rather than waiting for end-of-term exam results (as other research often has), may have inflated the number somewhat.” (The Economist, 2011)

Note that in the above study, there was no effort put into creating special learning content; students were just reading the text, and then spending class time applying the concepts in dialogue and problem-solving.

- Teacher and Administrator James Szoka shared [this story](#) about a rural secondary American school district where he worked. During the 2010-2011 school year, they performed research to compare the effectiveness of two delivery models of Algebra II/Trigonometry - a lecture delivery model versus a flipped classroom model. Details are available in the article, but the bottom line is that at the end of the second semester the students using the vodcasting delivery method had a GPA in their math class of 3.2/4, a B average. The students in the traditional delivery method had a GPA of 2.52/4, a C+ average. Additionally, the percentage of students in the video podcasting class who received a grade of A for the second semester was 50%, whereas the percentage of students in the traditional class receiving a grade of A for the second semester was 39%. (Szoka, 2013)
- San Jose State University adjunct professor Khosrow Ghadiri was concerned about the course “Engineering Electronics and Circuits” and its historically low passing rate (40% of students in the class received a C or lower last semester). This led San Jose State professors to MIT, where they worked with the edX team, [a partnership](#) of MIT, Harvard, Berkeley, and the University of Texas at Austin that is focused primarily on developing MOOCs. Together they developed an approach that placed 85 students in a flipped course environment, in which the students watched edX lecture videos (created by professors at leading universities) at home and attended class twice a week to practice what they had learned and to ask questions. Two other sections of students took a traditional version of the course.

The result: Midterm exam scores for students in the flipped section were higher than those in the traditional sections. Even though the midterm questions

were more difficult for the flipped students, their median score was still 10 to 11 points higher. (The Chronicle of Higher Education, 2012)

Read more about this study in this article: [Gathering Evidence that Flipping the Classroom can Enhance Learning Outcomes](#). (Walsh, Gathering Evidence that Flipping the Classroom can Enhance Learning Outcomes, 2013)

- [Results](#) from [Clintondale High School](#) are even more impressive, with the schools overall failure rate dropping by 10%, and [discipline cases being cut drastically](#). (Schools of Thought (Blog), 2012), (TechSmith)

Similar articles are published from time to time and can be found in the [Flipping the Classroom \(Reverse Instruction\) article category](#) on EmergingEdTech.

### *Using This Workbook*

The workbook is structured to help readers ...

- Ease into reverse instruction by coming to understand the basics of ‘the flip’.
- Delve deeper by reviewing what teachers who are proponents of the technique have shared about their experiences.
- Get a good sense of what you are going to need to do if you decide to try the flip.
- Get hands-on and learn how to approach flipping your own course content.
- Build your own plan for implementing flipped instruction techniques.

Exercises at the end of some sections and chapters will help to reinforce your learning and encourage you to think through ways to apply what you’ve learned. Section 2 of the book is the most intensive in this regard, and this is where the bulk of the exercises are found. Each exercise has its own corresponding web page where readers are encouraged to submit their completed exercises, and read the submissions of others, to learn more and to increase their involvement in the flipped instruction community.

I suggest working through the book start-to-finish if you are new to the flipped classroom. If you believe you are already familiar with the fundamentals of the flip

and want to get hands-on right away, you may consider going right to the first exercises, and then move onto some of the more hands-on chapters in Section 2.

*Let's Go!*

So let's start learning what the flip is really about, and how you can get started flipping some of your own content. Over the course of this workbook, you'll develop a plan to effectively incorporate the flip into your instructional approach.