Literature Review: “Flipping” the Classroom


- The short article profiles physical-science teacher Robert Townsend of Clintondale High School in Michigan, focusing on his approach to “flipping” the classroom, which allows students to view lectures at home and complete work in class with the aide of Techsmith video company.


- This book focuses on the argument for and an overview of the “flipped” and “flipped mastery” classrooms, paying special attention to the logistics of conducting a “flipped” classroom (e.g., equipment needed to create videos, what to do during class, and ideas for student assessment).
- It also includes a section on frequently asked questions that addresses important topics like computer access, administrator buy-in, and making sure students are reliably accessing content on their own time.


- This short article offers contrasting opinions on the virtues of “flipping” the classroom.
- Jonathan Bergmann, coauthor of Flip Your Classroom (cited above), says that “flipping” the classroom allowed him to make the best use of his face-to-face time with his students.
- Bergmann notes, however, that not all subjects are “flippable”; he says the process seems to work best with subjects that tend to be more linear, such as math, science, and foreign languages.
- Derrick Waddell, an instructional technology specialist, counters by claiming that “flipping” the classroom still cannot effectively combat the underlying problems of bad pedagogy, “misplaced emphasis on accountability,” and the digital divide.


- The article discusses the “flipping” teaching method in higher education, where students are responsible for reading content and listening to online lectures outside the classroom and engaging in active learning and discussions of concepts while in class with the instructor.
- Particular focus is given to the challenges and benefits of this method of teaching faced by both teachers and college instructors compared to the traditional lecture method as
well as the impact of both technological innovations and economics on its use in higher education.

- The use of this method by several instructors is highlighted, including University of Colorado at Boulder biology professor Andrew Martin, Michigan University calculus professor Karen Rhea, and Harvard University physicist Eric Mazur.


- This article details the success (and in some cases the lack thereof) of the use of “active-engagement” methods (i.e., “flipping” the classroom) in college physics courses.
- The article notes the high rate of faculty willing to experiment with active-engagement methods.
- The article discusses the results of a survey in which respondents noted that, while active-engagement teaching methods proved more effective than traditional lecturing, they can also be difficult to sustain.
- The article notes the inconclusiveness of the survey in explaining why instructors dropped the new teaching methods.


- The short article reports on the “flipping” strategy used by chemistry teachers Jonathan Bergmann and Aaron Sams to help their students better understand the course.
- The students watch an online lecture at night, then during class they interact through activities where their teachers guide them as mentors.
- The one-on-one interactions improve the students’ learning of the subject matter.


- This short article highlights a new website that lets instructors turn TED’s educational videos—as well as any video on YouTube—into interactive lessons inspired by the “flipped” classroom model.
- TED’s videos are displayed on lesson pages that include multiple-choice quizzes, open-ended questions, and links to more information about the material.
- Instructors who don’t want to rely on the premade content can “flip” the videos and customize some of the questions.


- The article focuses on education innovations that utilize the Internet and tutoring in education.
• It comments on a classroom where students watch short online video lectures on their own time and utilize class time for tutoring with the teacher.
• It mentions that the teachers observe students as they work on computers in class to identify students having problems for directed tutoring.
• It states that the system was designed by the nonprofit organization Khan Academy, which has over 2,400 video lectures.


• The article offers testimonies from the perspectives of the various players who helped to implement “flipped” classroom strategies in the mathematics department at Byron High School in Minnesota.
• The article presents an example of one of the “flipped” classrooms at the school, highlighting calculus teacher Troy Faulkner’s methodology and experiences.
• The article also explains the circumstances that led to superintendent Wendy Shannon’s decision to push for the adoption of “flipped” teaching methods.
• The article discusses the results of surveys measuring both students’ and parents’ reactions to the new “flipped” teaching strategies; a common concern among parents was the increase in demand that this approach can make on a family’s home computer.


• This article argues that instructors concerned about student learning should use a portfolio of teaching styles to appeal to a variety of student-learning types.
• The authors outline a strategy for teaching—namely, the “inverted” classroom technique—that appeals to a broad range of learning styles without violating the constraints typically faced by instructors at most institutions.
• The article also presents student and faculty perceptions of such a course.
• This article is particularly interesting in that its research and findings predate by more than a decade the more recent focus on “flipping” the classroom, which is more focused on using various technologies to enable the success of the technique.


• To create time for active learning without displacing content, the authors used two strategies for introducing material before class in a large introductory biology course.
Four to five slides from 2007–8 were removed from each of three lectures in 2009 and the information introduced in preclass worksheets or narrated PowerPoint videos.

In class, time created by shifting lecture material to learn-before-lecture (LBL) assignments was used to engage students in application of their new knowledge.

Learning was evaluated by comparing student performance in 2009 versus 2007–8 on LBL-related question pairs; the percentage of students who correctly answered five of six LBL-related questions was significantly higher in 2009 versus 2007–8.


In this article the author discusses why she doesn’t like flipped education.

She states that many students do not have access to technology at home and so this type of education cannot work for all.

She mentions that flipped homework is not good, as children should be allowed to pursue other activities at home like playing and taking care of siblings.

She highlights that traditional models of giving lectures and students learning may not work for all students.


This short article invites discussion about the merits of “flipping” the classroom with respect to blog post by a student at Stanford University critiquing the rigor and format of the “flipped” classroom teaching method deployed in his machine-learning course.

The article also provides the perspective of the instructor for the course, who teaches both a “flipped” version of the course and a traditional version.


This research compares the “flipped” classroom with the traditional lecture/homework structure in two different college-level introductory statistics classrooms.

The learning environment and the learning activity in both classrooms were investigated with respect to activity theory and research on learning environments.

The findings show that students in the “flipped” classroom were less satisfied with how the structure of the classroom oriented them to the learning tasks in the course.

The variety of learning activities in the “flipped” classroom contributed to an “unsettledness” among students that those in the traditional classroom did not experience.

- This short article details specific strategies for “inverting” the classroom utilized in several different courses by Robert Talbert, an associate professor of mathematics at Grand Valley State University.
- The article provides specific examples and Talbert shares specific techniques that he used to “invert” his classrooms.

Helpful links:

- [Dr. Robert Beichner – Physics – North Carolina State University](http://www.ncsu.edu/features/2011/09/leaving-lectures-behind/)


- [Mind/Shift: The Flipped Classroom Defined](http://mindshift.kqed.org/2011/09/the-flipped-classroom-defined/)


- Inverted classroom [http://www.hg2s.com/blog/tag/inverted-classroom/](http://www.hg2s.com/blog/tag/inverted-classroom/)

Other resources


- Power point presentation: [Dr. Robert Talbert – Math - Grand Valley State Univ.](http://www.amatyc.org/publications/webinars/Flipping%20the%20college%20classroom%20SLIDES.pdf)

- Slide show on art history Michelle Pacansky-Brock - Art History - Mt. San Jacinto College - has a presentation called “How and why I flipped my classroom” ([https://sites.google.com/site/flipyourclass/](https://sites.google.com/site/flipyourclass/)).

Learn from others

- Video network [Learning4Mastery](http://learning4mastery.com/)
- Forum network [The Flipped Class Network](http://vodcasting.ning.com/)
- [http://ctle.utah.edu/instructor-resources/hybrid-courses-furse.php](http://ctle.utah.edu/instructor-resources/hybrid-courses-furse.php)