

Turning the Flipped Classroom Upside-Down

BY GARY L. ACKERMAN

Ever since computers arrived in classrooms, educators have struggled to find a comfortable place for the devices in curriculum and instruction. The decades-old mantra of “technology integration,” which referred to any activity that included a powered-on computer, has been replaced by “flipped classrooms.”

For many, a flipped classroom is still an industrial-age classroom, but with lessons accessed via computer. The teacher leverages online video to replace face-to-face instruction. With instruction transferred to homework, class time becomes available for working problems. Yes, this does allow students to control and repeat instruction as needed and for teachers to provide guidance, advice, and clarification while students work problems, but a lecture delivered via video is still a lecture, and much of the face-to-face interaction between teachers and students simply repeats and reinforces the video lecture rather than providing authentic experiences.

By developing a more-sophisticated understanding of flipping, teachers can reinvent curriculum and instruction.

Upside-Down Classrooms

Long before flipped classrooms became an accepted pedagogy, my colleagues and I had been exploring the use of online video and other media, including interactive websites and simulations in our classrooms. We also were exploring the many ways that virtual classrooms supported our students and eased our work in managing curriculum and assessments. We had learned that many instructional tasks we were doing in person easily could be accomplished by students independently.

As we reflected on the model that was promoted in the flipped classroom literature, we saw an instructionist pedagogy: Students were told what is



important and how to perform procedures via video, and teachers reinforced that information and those procedures via guided practice. To differentiate our classrooms from those portrayed as flipped in the teaching literature, we began using the term *upside-down classrooms* to describe our work.

Flipped and upside-down classrooms share the characteristic of rethinking what is done “in-person” and what is done “for homework,” but upside-down classrooms are also grounded in:

- *Emerging understanding of the nature of learning.* The cognitive and learning sciences are articulating the social nature of learning, the importance of students finding emotional connections to the curriculum, and other factors relevant to learning. In upside-down classrooms, we give structure to social learning and build curriculum around complex problems.
- *A new role for technology.* Since Web 2.0 technologies first emerged as methods of facilitating user-created content, computers have become increasingly creative devices. In upside-down classrooms, learners consume and create technology, they access and manipulate and analyze data, and they interact with others via technology. Technology is embedded in the classroom and extends the campus.
- *An increased role of authentic curriculum.* When a classroom is turned upside-down, face-to-face instruction is replaced with activities designed to be active and authentic.

ACE Your Classroom

Turning a classroom upside-down is as much about what happens when teacher and students are together as it is about the lessons students complete outside class.

In-person classrooms become places where learners apply what they are studying, find connections to what they already know, and extend the domain of their knowledge. We refer to these activities in which students apply, connect, and extend the curriculum as ACE activities. Project-based learning, arts integration, interdisciplinary units, research, and other authentic curriculum are all examples of the ACE activities found in upside-down classrooms.

These activities allow students to generate and test their own ideas. In addition, authentic activities include extended time to work and reflect and access to multiple experts who provide scaffolding and other feedback.

During ACE activities, teachers become mentors to students, guiding them through the process, coaching them to become more skilled, and providing scaffolding and feedback.

Upside-Down Lessons

In flipped classrooms, homework predominantly entails watching instructional videos. In upside-down classrooms, teachers assign a variety of activities to be completed independently.

Video lessons are used for purposes other than instruction. For example, videos give context within which ACE activities are experienced or give a group of students a common experience. Videos help students become familiar with case studies or similar complex situations. When working with students to design experiments, we send them to segments of video in which college professors lecture on experimental error.

An increasing number of websites provide individualized tutorials for students. These can be adapted for *quests*. After students are introduced to one of these sites, they work through the tutorials with little direction from the teacher. This model is well-suited for aspects of curriculum in which individuals' performances can be improved through practice, such as spelling and math facts.

With the widespread availability of virtual science experiments and primary sources, *data collection* can be turned upside-down. After demonstrating how to manipulate the simulation and record data, students collect it independently outside the classroom. When they arrive back in class, the teacher guides the students through the processes of analysis and building and supporting conclusions.

Instructional videos and other media (such as step-by-step tutorials for procedures) contribute to a

collection of *worked examples*. Students access the examples on an as-needed basis.

Classrooms in which ACE is common are loud places. Because *reflection* is a learning activity that requires isolation and quiet, online discussion boards, blogs, wikis, and journals facilitate reflection away from the din of ACE learning.


Essential Technology

Many tools are available for teachers who want to use online spaces to support learning. The best choice for upside-down classrooms is a full virtual classroom. These are available from many commercial and open source providers; but a system provided, maintained, and managed by school technicians is essential to upside-down educators.

The virtual classroom provides tools adaptable to all the upside-down lessons. Online tests are good for formative assessment and can be adapted into *quests*. Worked examples are stored in the virtual classroom, and a repository can be created by teachers with access to the same virtual classroom system. All virtual classrooms provide multiple platforms for reflection as well.


In upside-down classrooms, boundaries between online and face-to-face interaction blurs. Access to adequate computers and to a reliable and robust wireless network is essential in these classrooms. Strategies that make it easy for students to bring their own devices can help meet this need.

Refreshing Teaching

As educators make use of the growing collection of educational media, they have the opportunity to refresh teaching. Students can complete many and diverse aspects of instruction independently using that media. By transferring those to homework, teachers have face-to-face time to mentor students who pursue an authentic curriculum. A key factor in the successful implementation of upside-down classrooms is the collaboration between technologists and educators as they design virtual classrooms. 

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