The One-to-One iPad Pilot Program in AT Biology

by Paul Church, Fieldston Upper Science Teacher

Since the iPad was first released in the spring of 2010, it has revolutionized the way we gather and process information. Its form factor, long battery life, light weight, relatively low price, and ease of use have made it a combination e-book reader, internet device, and entertainment center all in one. For me, the iPad has replaced all of my books, newspapers, and journals, and it is my go-to device for surfing the internet or checking email. In addition, I have found it to be the perfect vehicle for grading papers. Instead of carrying around a huge stack of lab reports, students submit them digitally, and I correct them on the iPad using highlights and annotations and then email the graded reports back to the students.

Once I realized what a great tool it is for teachers, I began to wonder if the iPad would be useful to students as well. Last spring, I asked a student to calculate the cost and weight of his reading materials for one academic year. He came up with a total price of $600 and 25 pounds. By comparison, the iPad costs $499 and weighs 1.5 pounds. As an e-book reader alone, the iPad was worth pursuing as an academic tool; everything else would be gravy—and the iPad has a lot of gravy. So I put together a video of students’ responses to the question “What would you use an iPad for?” (see https://www.ecfs.org/projects/pchurch/iPadMovie.mp4) and presented it to the venture-grant committee. I was fortunate enough to have that grant funded, and this past fall each of my 19 Advanced Topics (AT) Biology students received an iPad preloaded with their textbook and a number of apps. The response has been tremendous.

Their textbook is no longer limited to words and pictures on a page, as the e-book seamlessly incorporates audio and video to provide a much richer learning experience. Throughout the year, I assign a number of peer-reviewed journal articles, which the students now download and read on their iPads. Of course, these articles can be highlighted and annotated right on the iPad, just like all of their handouts and worksheets. In lab, students use a number of scientific probes (e.g., CO$_2$ sensors, Ph sensors, colorimeters), all of which sync wirelessly into the iPad, allowing them to perform experiments that they could not have done in the past. Then there are the apps, with everything from an interactive periodic table to a virtual frog dissection. In addition, my classes are routine video-recorded and posted on my website. Students who were either absent or need further review can now watch these videos on their iPads at their convenience.

For many students, the iPad has replaced not only their textbook but also their calculator, appointment book, laptop, and even their notebooks. Five months into the pilot program, I’ve asked students for their reactions, and this is what they are saying:

“With the textbook on hand at all times, getting my homework done is a lot easier (and lighter)!”

“I can do my biology homework at school, or in a variety of other settings that I wouldn’t if I had to lug around a hardcover textbook.”

“Being able to highlight journals on the iPad makes it easier, saves paper, and allows us to quickly and easily search the article.”

“Being an avid reader, I thought I wouldn’t like the switch from a paper textbook, but now I prefer the iPad because not only does it read the same, but you can click on key terms and it will show you the definition in the glossary.”

“Using the iPad to collect data during labs and to take notes from the textbook has been extremely beneficial. Being able to graph and compile the data immediately is really great.”

It is my hope that we can expand on the success of this program. Thanks to a generous donation from the ECF Giving Tree, the science department received a set of iPads that have already been used in the ninth-grade biology class and in a physics class as well. And we have only begun to scratch the surface in terms of the iPad’s usefulness in academia. Imagine the possibilities for foreign language, art history, music—well, every discipline, actually!