Spring 2013: iPad Experimentation in Seminar Classrooms

Background
In August 2012, the Educational and Scholarly Technology Services Group (ESTS) of Tufts Technology Services (TTS) launched the iPads for Education Pilot with the goal of leveraging iPads to promote active pedagogy and student engagement in Tufts classrooms. During the first phase of the project run in Fall 2012, 79 faculty, students, and staff across Tufts three campuses experimented with using the iPad in their individual teaching contexts. Their active participation and feedback enabled ESTS to develop 6 common use cases of iPad application in instruction (go to go.tufts.edu/ipadpilot to see the Fall 2012 report).

In the second phase of the project, interested Fall 2012 participants were asked to submit an application to have students use iPads in one of their courses. Four seminar-based courses in the School of Arts and Sciences were selected to use iPads in the Spring 2013 semester. All the participating instructors and each of their students were loaned an iPad. The composition of the classes are as follows:

- 4 classes (4 instructors, 1 graduate assistant, and 47 students participated)
- Class format: seminar (class size ranging from 5 to 16)
- Students: upper-level undergraduates and graduate students
- Subject areas: history, health-science fieldwork, foreign language, and psychology.

Faculty participants attended a group workshop where they shared with other instructors and ESTS staff their rationale and ideas for incorporating the iPad into their defined learning objectives. Following the workshop, each instructor updated their syllabus with specific plans for iPad integration in their courses.

One class required students to purchase several iPad apps, in the same way they would be asked to buy textbooks for the class. AT Fellows, ESTS student interns, provided a one-on-one support session for each of the students prior to the first day of class with individualized setup instructions and training help.

Faculty and students participating in the pilot agreed to provide feedback about the effectiveness of iPad integration in their classes at mid semester as well as at the end of the semester.

Student Feedback
Based on student feedback, the greatest benefit of the iPad pilot was equal access to tablet computing for every student in the classroom across all four courses. The fact that all 52 instructors and students came to rely on the iPad as a learning resource was a positive outcome of this pilot, particularly when you consider that only about 10% of the students used the iPad or other type of tablet intentionally for studying prior to the semester. However, giving all students equal access to a device, does not assure meaningful integration of the technology into the classroom. The extent to which the iPad was integrated into class activities varied from class to class, as did how much it was used by the instructor.

The students gave mixed reviews on whether the use of iPads in their class had any impact on their learning. Their evaluations ranged from little impact to a great extent depending on the class they were enrolled in. ESTS also observed that there is always the divide between early adopters and skeptics among students in all classes, although this divide was significantly less in the class where the iPads were used most extensively.

Interestingly, across all 4 courses, 86% of the students indicated on their final evaluation that their use of the iPad for their pilot course was probably or definitely effective. Eighty percent of the students also indicated that they probably or definitely feel their use of the iPad was directly beneficial to learning material for the course.

The final results showed that regardless of how the iPad was used or how students perceived its use, the students used the iPad not only in their pilot class but also other non-iPad classes either occasionally or
frequently when given access to the device. The iPad was mainly used for their own studying either occasionally or frequently in the following ways (ordered by frequency):

- Accessing Trunk, Tufts learning management system
- Reviewing course materials
- Doing web searches for research
- Improving their own work efficiency

The frequency with which students used the iPad to access Trunk and course materials raises the importance of making Tufts supported tools used by students accessible on mobile devices. This was further supported by the fact that students used the iPad occasionally throughout the semester to annotate course materials, complete homework including subject-related apps, view video resources and take notes. As such activities are unique to tablet computing, the continuing growth of mobile device ownership on campus,\(^1\) makes it clear that the university needs to consider mobile apps as a necessary part of learning resources for students and to make course materials more readily accessible for students to interact with, consume, and exploit on their mobile devices.

**Featured Class: History of the Book**

The History of the Book course received outstanding student evaluations on the effective use of the iPad on student learning (16 students). The iPad was used in this class to access primary sources of rare books and stimulate discussion. In both the midterm and final evaluations, the average student responses was that the iPad was used to achieve the stated learning objectives to a great extent.

**Student use of the iPad**

Students used the iPad 4-5 times per week to access primary and secondary source readings which they found "very effective" at enhancing their learning. Additionally, they used 2-3 times a week the following techniques which they described as "effective" at enhancing learning:

- actively engaging in clicker questions on readings via mobile polleverywhere.com in class
- exercising free writing, interacting with images taken during rare books sessions, and sharing their iPad screens remotely to the presenter station via AirPlay for discussion
- sharing reflection notes on the Spark Wordpress using the Wordpress iPad app

**Is the iPad a right fit for your class? Unique reasons for using the iPad**

This course tried to leverage the unique capabilities of the iPad in many class activities. Although many of the technology-based learning activities described above could be achieved on a laptop, the iPad was used to maximize the following benefits in the classroom:

\(1\) 2012 Tufts Students Report: ECAR Study of Undergraduate Students and Information Technology indicates 66% of Tufts undergraduates (total 701) owned and used a smartphone in 2012. For more information: go to http://sites.tufts.edu/ests/files/2013/04/ECAR_2012_FullReport.pdf
View images and resources that are better suited for physical interaction with the device
- Instant zoom-in/out with fingers to read fine details of subject-related materials and apps
- Export such images to an annotation app such as Notability to interact further with the content using note-taking and markups
- Read scholarly articles collaboratively but more immediately and frequently at students’ finger tips via Tufts Box.com file management system that allows for threaded discussions with classmates

Improved group dynamics
The iPad provided a continuity between in and outside of class as it was used to share materials and to support learning in both environments. Students were expected to complete assignments that require using the iPad such as annotation. The iPad also changed the dynamic during class between the instructor and students as the instructor sat with the students rather than standing authoritatively at the podium, while projecting materials remotely.

The instructor-led planning and modeling on how the iPad was to be used was critical for the success of this course. Rather than relying on student input on how the iPad could be used, the instructor presented a number of different ideas to the students who through applying these ideas gained further insights into the benefits of using the iPad. The instructor was also able to gain student support and cooperation with how she was planning to use the iPad through clearly communicating her rationale for trying innovative ways to teach and learn and discussing the benefits and risks of experimentation.

iPad Pilot Summer and Fall 2013
Several instructors in Tufts Summer Session approached ESTS about integrating iPads into their small-sized classes. This resulted in a number of courses in both Summer sessions piloting iPads. ESTS has collaborated with instructors from the following courses to support their proposed objectives for using the iPad:
- Community health: To provide mobile access for students to easily and creatively undertake out-of-class community exploration projects linked to health issues
- Ethical and socio-cultural aspects of pain: To enhance collaboration and communication in the blended mode of class environment and help students feel connected better while working remotely
- Physics for incoming engineering students: To engage students in the material and in demonstrating and articulating physics concepts in efficient and creative ways
- English for incoming engineering students: To engage students in electronic readings and interaction with the writing process
- Asian American Literature: To engage students in electronic readings, multimedia resources and creative analysis/presentation of Asian American Literature
- Chinese language: To practice writing Chinese radicals and increase access to digital language learning resources

In both Spring and Summer 2013, ESTS observed and developed iPad use cases for small sized class formats, mostly from the Medford campus. ESTS solicited a new round of applications for Fall 2013 from all three campuses and selected one large enrollment class along with several other new courses from the health-science campuses.