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# iPads in the Classroom Pilot Project

Anu Vedantham, *University of Pennsylvania*  
Caitlin Shanley



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# iPads in the Classroom Pilot Project

Report on the First Year of Operation  
September 2012  
University of Pennsylvania Libraries  
Weigle Information Commons

By Anu Vedantham, Ed. D. and Caitlin Shanley

*“It's much easier to carry around than a laptop or a textbook. It's nice to use to read documents posted on BlackBoard and articles online.” – Student*

*“They're nice but I'm still not really sure what you can do with an iPad that you can't do with a laptop other than play Fruit Ninja and Temple Run.” – Student*

*“I liked that it was so easy to use and that I could use it everywhere I was.” –Student*

*“[I] would like to make use of the portability. Two possibilities would be using the iPads for an exercise in collecting ethnographic data, and using the location awareness to access geo-tagged writing about places, landmarks, and businesses.” – Faculty*

*“The students really enjoyed this treat - it would be interesting to think of what else to do with them.” – Faculty*

## Overview

The Penn Libraries' Weigle Information Commons (WIC) launched the *iPads in the Classroom* pilot in June 2011 with the purchase of a cart of 30 iPad2 tablets. Five new iPads were added in April 2012. WIC staff designed and piloted a lending program focused on course-specific contexts under faculty supervision. The program provides iPads for class projects lasting up to two weeks, with pre- and post-feedback surveys of faculty and students. Faculty can request iPads to be pre-loaded with course documents and special apps, and WIC staff provide training. This report describes the design process, specific classroom projects and survey results.

The pilot began with the creation of policies and the process of overcoming a sharp learning curve on the management of mobile devices. Since the first class project in September 2011, a large number of class and project loans have been conducted successfully. Integration into academic activities has been surprisingly quick for both faculty and students, with minimal user difficulties. Highlights of classroom uses include simple multimedia interviews, documentation of learning experiences, peer-sharing and brainstorming. Key outcomes include faculty-to-faculty sharing of iPad uses, increased awareness on



campus of the potential for iPads to help with student learning, and recognition of WIC's role in providing assistance for faculty, students and staff with iPads.

## Design of Pilot Program

Since opening in 2006 in the Van Pelt-Dietrich Library Center, WIC has become well-established on campus as a place for the Penn community to explore new technologies with staff support. WIC staff conduct regular hands-on training for students and faculty on new media and video projects. In 2010, WIC staff served on a [Penn Information Systems and Computing \(ISC\) tablet evaluation team](#) led by Jordan McClead. Through this team, WIC staff collaborated with colleagues from several schools and centers to assess the tablet landscape and learned about models of iPad use at the Wharton School and the Graduate School of Education.

A review of the literature revealed that at other institutions, iPads have been successfully used in classroom contexts for reading activities (Sheppard, 2011), mathematics (Hu, 2011), data collection (Schaffhauser, 2010), language acquisition (Meurant, 2010) and textbook replacement (Ybarra, 2011), but concerns have been raised as well, especially about the text interface (Wieder, 2011). One study comparing two pilots of iPad use found that perceived ownership and perceived ease of use mattered for successful classroom integration (Culen & Gasparini, 2011). The Educause Tablets and iPads Primer provides a collection of specific examples from college contexts (Educause, 2012).

During the design of the pilot, WIC staff consulted with IT administrators at the libraries, the School of Arts and Sciences and the Wharton School. They consulted with members of the New Media Consortium and met with representatives from Apple Computers and Samsung. The decision to proceed with the Apple tablet platform was made in light of several factors: high market penetration of iPads, iPhones and other iOS devices, fragmentation and lack of consistency across Android devices, and relative immaturity of devices such as the Samsung Galaxy Tab 10.1. WIC staff attended conference presentations about lending programs at other libraries for iPads and Amazon Kindles. Following these discussions, WIC purchased 30 iPad 2 tablets and a Bretford imaging cart in June 2011. The devices were prepared for first use in July 2011, and usage has been steady since then. Four 'new iPad' tablets were added in April 2012.



Figure 1: Bretford Imaging Cart

## Program Description

The [iPads in the Classroom website](#) provides program details. Penn faculty members can reserve up to 28 iPads for a class activity by submitting an online form. A [public Google calendar](#) provides information on how many iPads are available on each date. Faculty can request that apps be purchased and/or installed on the iPads prior to class use. Faculty can choose to use the iPads for a single class session or for projects lasting up to two weeks. For single sessions, WIC staff deliver and pick up iPads from the classroom and minimal paperwork is required. For longer term class projects, each iPad is assigned explicitly to one

student who signs an agreement form taking financial responsibility for its safekeeping. iPad “smart covers” and chargers are also provided.

During project loans, students may treat the device as their own. They may log in to personal email, Facebook and Apple accounts, install new apps, access music and apps they have already purchased, set passwords and customize preferences. They may access wireless Internet through Air-Pennnet. Students and faculty must retrieve and save all data (including photos and videos) before returning the device. Immediately upon return, all personal information is erased, the devices are restored to factory defaults and then reimaged with the apps selected (and in some cases purchased) by WIC.

This pilot program has several unusual characteristics. Many libraries circulate iPads in ways similar to e-readers, books or other materials – a loan to an individual to use as a device in a personal or individual context. Some schools and centers at Penn and at other institutions provide iPads to faculty and students for use as exclusively personal devices, often with the option to purchase later. The WIC pilot focuses on the use of iPads to support student learning in a course context, and the requirement for faculty control of iPad use is important to the program structure. Faculty can assign iPads to individual students or to groups of students.

## Usage Overview

Since the online reservation form opened in September 2011, the pilot program has received 54 requests for 382 iPad loans. Almost all requests have been satisfied successfully with no loss of iPads to date. (One iPad was lost to theft prior to the start of the pilot.) The following classes have used iPads:

Course Name	Faculty Name
INTG001: Benjamin Franklin Scholars: Integrated Studies Program	Peter Struck (with Lisa Messeri and Devin Griffiths)
WRIT027-306: Poetic Vision and the Psychedelic Experience	Nese Senol
MUSC018-041: Music in Urban Spaces	Molly McGlone
CINE015: Copyright and Culture	Peter Decherney
URBS205: People + Design	Rick Berman
WRIT030 and 011: Digital Literacies	Patrick Wehner
NPLD 795: Non-Profit Leadership	Andrew Lamas
EDUC 526: Technology for Educators	Eleni Miltsakaki
ELP500: Reading and Writing	Brian McManus

In addition to class projects, librarians, faculty, staff and students have borrowed iPads for meetings, training and exploration. Notable activities included:

Project / Activity	Faculty/Staff Name
Professional Development for Medical School Faculty	Frank Campbell
Penn Libraries' Chat Review Team	Samantha Barry
Project / Activity	Faculty/Staff Name
Penn Libraries' Digital Library Architecture Design Team	Lauren Gala

<b>Project / Activity</b>	<b>Faculty/Staff Name</b>
Penn Libraries' Net Tools Team	Kate Atkins
Gadget Day Workshops (2)	Various WIC staff

## Project Details

Highlights of usage are presented below. Several of these projects are also described in [PennWIC blog posts](#).

### Identity project

The first class project for the iPad pilot involved the Integrated Studies Program, a new freshman course at the School of Arts and Sciences where 80 freshmen live and study together. The class was exploring identity - academic, personal and intellectual. Students worked in pairs, using iPads to conduct video interviews of each other. They uploaded videos onto a private video server and watched them within the class context. This simple lesson concept worked well for the week-long project. Students reported devices to be easy to use, and faculty reported satisfaction with content and quality of videos produced.

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|---|
| <p style="text-align: center;">Lesson Ideas</p> <ul style="list-style-type: none"> <li>• Student video interviews</li> <li>• Idea mapping and brainstorming</li> <li>• Collaborative editing</li> <li>• Shared note-taking</li> <li>• Website / article evaluation</li> </ul> |
|---|

### Poetry Conference

The second class project for the iPad pilot took advantage of battery life and portability. A faculty member teaching a freshman writing seminar borrowed one iPad for 2 weeks to explore ways to integrate it into her teaching. She planned a scavenger hunt assignment for her students' field trip to a poetry conference in New York City. WIC staff pre-loaded the assignment in PDF format on the iPads before distributing the devices. Students blogged their reflections, took photos and video of presenters, and generally captured the spirit of the conference. The iPad worked well in terms of portability, battery life and sturdiness. Students reported learning from each other how to take photos, take videos and move media files onto personal computers. Students and faculty reported difficulties typing on the iPads without external keyboards.

### Simplemind for Brainstorming and Mapping

A faculty member teaching a freshman writing seminar identified the app SimpleMind for "mind-mapping" activities such as brainstorming or classification. At his request, WIC staff purchased the app for installation on the cart. He used SimpleMind with his students for single class sessions in two courses to wrap up literature reviews for a large research paper. He noted, "The exercise called for students to place their own working research paper within the broader scholarly debate about the subject. They created maps of their propositions, reasons, and evidence in relationship to the scholarship they have consulted and organized the scholarship to indicate relationships between scholars." Students created colorful mind-maps of articles and drew connections across articles and authors. They planned out arguments and shared mind-maps by passing the iPads around a seminar room table. The faculty member presented his successful experience at two campus meetings. Students and faculty noted the ease of use of physically passing around an iPad displaying a student's mind-map.

## Geo-tagging and Mapping

An urban studies faculty member learned about SimpleMind from the project mentioned above and used it as well as mapping apps for two classes. Students walked around Philadelphia, created mind-maps, took photographs and shared insights. He commented after the exercise, “Students found the interface very easy to learn and use, requiring little or no instruction on my part. Student thought maps were of varying quality, which is to be expected in this kind of exercise.”

## Evernote for Collaborative Editing

A cinema studies faculty member guided his students with Evernote on the iPad during a class session to record interactions with multimedia copyrighted materials. The faculty member found this activity to be a good fit overall but commented, “Many students used it effectively but too many used it as a text-based blog rather than as a means for capturing, storing, and sharing media.” He found that a single shared Evernote account provided a cloud-based collaborative solution that worked with multimedia materials.

At a WIC workshop, about 20 participants logged in with a shared Evernote account. Participants were asked to watch a short video on astronomy and then type in a research question on the iPads. When the participants synced content, each could immediately see and comment on the research questions from all participants. Such insights into the group’s thoughts at that moment would have been difficult to accomplish without the iPads and cloud storage. Feedback indicated that this type of lesson activity was of interest to several participants for possible replication.

## Noteshelf for Creative Note-taking

WIC staff presented the Noteshelf app at two Gadget Day sessions with the iPads, and participants indicated a high level of interest in this app. One participant wrote, “I attended [Gadget Day] and was very impressed with the Noteshelf presentation and feel that technology could be very useful in my department.” The app allows hand-written colorful note-taking using a stylus and connects to Evernote. Subsequently, WIC staff authored an [AppsonTap blog post](#) on Noteshelf.

## Apps for Health Sciences

Several apps for the health sciences were added to the imaging cart and used for a faculty development session at the Perelman School of Medicine in January 2012. These apps allow for easy review of PubMed articles, diagnoses of symptoms using an interactive database, and analysis of prescriptions. Apps receiving positive feedback included DynaMed, FirstConsult and PubMed Plus.



Figure 2: WIC staff explore iPads

## Browsing and evaluation of websites and apps

Several groups and classes borrowed iPads to use for group activities to browse and evaluate websites and apps. Librarians used the iPads to organize transcripts of online chats, evaluate new interfaces for library catalogs and test mobile-friendly websites. A graduate education class used the iPads to explore the process of downloading and evaluating apps of interest for K-12 education. Some groups used the iPads for quick data entry on online forms and web-based audience response systems such as Poll Everywhere.



about the iPads at the annual Engaging Students Through Technology symposium and at the Gadget Day sessions. Faculty expressed interest in becoming familiar with the devices and keeping up with their students “in order to facilitate the use of iPads in the classroom” and “to explore the potential for its use in teaching.” Topics of interest included video creation, video editing, ebook access, mind-mapping, peer review and web browsing.

Faculty also shared concerns about the new platform, worrying about adequate support, training, responsible use of the iPads by students, theft and breakage. One faculty member worried, “that I won’t be able to provide adequate frontline support” and another was concerned about finding enough class time for training on video-editing software. Several mentioned reliance on WIC staff for support and training for their students.

After the iPad loans were completed, several faculty shared their surprise at how quickly students adapted to the devices. One faculty member wrote, “great experience for the students and the teachers!” Another commented, “The students quickly began to use the iPads for browsing, email, and media consumption. I was surprised that only one student had an iPad before the class, and I was also surprised how many of them became regular iPad users in just a week.” A third faculty member wrote, “They figured out much more to do with them than I would have. Don't be overly prescriptive.”

Faculty wrote about the success students had with the video and sound recording. One faculty member reported that having one student in each group with prior experience on Apple devices helped groups make better use of the iPads. Two faculty members wrote about their interest in long-term integration of iPads. One described, “I could imagine having a class-set of iPads to use all semester – that would make them much more useful.” Another discussed interest in collecting ethnographic data and using location awareness capability for geo-tagging writing tasks.

Some faculty reported that web browsing on the iPad differed from web browsing on laptops and occasionally created confusion, especially with online forms. Faculty reported student dissatisfaction with the “unwieldy” on-screen keyboard, difficulty with email and finding apps. One faculty member advised, “I would probably suggest that the iPads not be used for heavy text input, unless external keyboards are added to the mix.” Faculty suggested adding Bluetooth and other external keyboards to the WIC equipment loan program. Faculty expressed concerns about proprietary platforms, functionality of Google Docs on the iPad, and about difficulties in using some e-book platforms.



**Figure 4: WIC iPad workshop**



**Figure 5: iPads at a Gadget Day**

Students generally reported no difficulties using the iPads. Most indicated that they needed no assistance to do what was expected for their class projects, and that they found the processes easy and pleasant. Several mentioned getting assistance from peers, and a few mentioned coming to WIC for assistance. A very few students mentioned difficulties and concerns. One commented, “nothing worked, aside from the camera, and that's debatable. I just used it as little as possible.” Another noted difficulties connecting to the Internet. Students mentioned difficulties learning how to copy and paste, working without right-click functionality, connecting to personal iTunes accounts and typing on the touch-screen. One student expressed frustration with the design of the class project, commenting, “Make sure it's actually a good tool for the project and not just trying to shoehorn iPads into everything.”

Faculty and students shared many ideas for future uses of iPads in the classroom context. They suggested using the sound recording feature for oral exams for language classes, recording lectures, taking notes and recording journal entries. They suggested using the video camera for recording discussions, filming, video blogs, making videos and video-conferencing. As one student described, “It would be cool for picture and videos of things [so] people could remember the activity.”

A faculty member teaching a class on landscape architecture expressed interest in stylus-based drawing programs in which students could sketch ideas in layers on top of an imported topographic image, and then share a slideshow of images that showed the step-by-step evolution of a design.

Students suggested using iPads to view streaming video of past lectures, participate in online classes, complete online surveys, take tests and write. The potential of iPads as e-readers was mentioned repeatedly. For example, one student wrote that the iPad “is much easier to carry around than a laptop or a textbook. It's nice to use to read documents posted on BlackBoard and articles online.” Apps mentioned included GarageBand, Evernote, and apps that allow the syncing of an iPad to the classroom projector source.

In addition to the apps discussed earlier, faculty and staff have suggested several apps to be added to the WIC iPad image including: [Prey](#), [Penn Sound Radio](#), [Penn Study Spaces](#), [Britannica Kids: Volcanoes](#), [The Elements](#), [Jack and the Beanstalk Interactive Storybook](#), [Starwalk](#) and [Air Sketch](#).

## Technical Details

In contrast to the ease of use and quick learning curve reported by most faculty and students, staff time involved in managing the pilot was higher than expected. The process of purchasing, organizing and managing the iPads proved to be surprisingly complicated. Apple considers the iPads to be single-user devices and provides no simple method for their management in a multi-user environment. Fairly detailed workarounds had to be designed for a classroom-based pilot.

After consultation with Apple representatives, WIC staff created a setup that uses three Apple IDs through the Apple Volume Purchasing Program. Although each app is inexpensive (typically one to two dollars), the process of purchasing and tracking app licenses is cumbersome and prone to errors. The process of creating and updating the image for the iPads has required some expertise. At present, the basic image includes 58 apps (listed by category in the Appendix and at <http://tinyurl.com/ipadappspennwic> ).

A separate image has been created for the health sciences apps. The images require frequent updating since the apps change frequently.

Ensuring student privacy has required a full reimaging of iPads after each loan, and this requires manual reinstallation of wireless network access. Manual reinstallation of AirPennNet access by staff is more convenient for faculty and students but raises privacy concerns for staff. Asking faculty and staff to install AirPennNet after receiving the iPads avoids privacy concerns but has sometimes been cumbersome and also has taken up scarce classroom time. An automatic sign-on solution for wireless access for the devices would significantly improve single-session class activities.

Since the loans were handled under faculty supervision, the process of distributing and collecting the iPads was straightforward and was done in the classroom either before or after the class sessions. Several Google Docs helped document and organize the lending process. Occasionally, distribution was complicated such as when students missed class, or decided to bring their iPads directly to the library. Overall, however, the lending process was smooth. Restoring iPads to factory defaults has been quick. However, it takes about two hours of staff time to handle the cart imaging process after each set of returns.

WIC staff reported fielding frequent questions from students and faculty on wireless setup. Connecting to AirPennNet proved complicated and unreliable, and often the process required several attempts. Instructions for [wireless setup](#) were added to the iPad website in response to patron questions. Similarly, questions about text entry and keyboards inspired a [blog post evaluating styluses](#). Staying on top of developments for iOS and Android platforms requires significant staff time, and the management, especially imaging processes and software updates, requires frequent tweaking and adjustment.

Staff from around campus provided assistance with the implementation of this pilot program. Olaino Hardaway and Dan Alig from the Wharton School provided guidance on iPad management. Jordan McClead, formerly at ISC and now at Google, helped guide project design. Implementation and analysis at the libraries included assistance from several individuals including David Toccafondi, Marjorie Hassen, Kate Atkins, Vickie Marre, Nancy Bellafante, Samantha Barry and Nick Salvatore.

## **Conclusions**

The iPads in the Classroom pilot has proceeded smoothly this year. With some minor adjustments, iPad loans for class projects could become a general public service provided by the Weigle Information Commons. The portability, multi-touch intuitive interface and long battery life are aspects of the iPads that distinguish them from laptops. The ability to pass an iPad around easily in a discussion setting has also made integration easier for some types of classroom activities.

WIC staff have noted that it is helpful to encourage faculty to first borrow one or two iPads for informal exploration before launching a class project. Faculty familiarity with the device and discipline-specific apps has made class activities smoother and more effective. Creation of a specific class assignment, such as the scavenger hunt described earlier, and pre-loading the assignment on the iPads before distribution

has been successful. Assignments that focus on one or two capabilities of the device have worked well, as have assignments that pre-select a small number of apps.

One challenge is finding a balance between using the iPad as a personal device and using it as a classroom device. Another is deciding how much training is needed for effective student use. Most students quickly found ways to access personal social media and email using the iPads. In contrast, a very small number of students struggled with right-click capability and reported difficulty accessing the media files they had created on the iPads. Managing the student use of personal aspects of the iPads has not been as challenging as similar activities on personal computers since it is more cumbersome to switch across open windows on the iPads.

So far, word-of-mouth marketing has been sufficient for the iPad pilot. Formal outreach to departments around campus is planned for the upcoming year. As the iPad pilot transitions into an iPad service, it will become important to streamline procedures, integrate this service into the general equipment lending program, and work towards automation of iPad lending. If multiple faculty members request the iPads for the same set of dates, guidelines may be needed for managing the program, especially during the busiest weeks of the academic semesters. Documenting faculty and student experiences with the iPads in different disciplinary contexts, perhaps through video testimonials and guest blog posts, will also be an important activity to assist with broader engagement around campus.

For more information, please visit the project website at <http://guides.library.upenn.edu/ipad> or email the authors at [wic1@pobox.upenn.edu](mailto:wic1@pobox.upenn.edu)

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## Appendix

### List of Apps on Basic Image

- Built-in and basic apps:
  - [Messages](#)
  - [Calendar](#)
  - [Notes](#)
  - [Reminders](#)
  - [Maps](#)
  - [YouTube](#)
  - [Videos](#)
  - [Contacts](#)
  - [Game Center](#)
  - [iTunes](#)
  - [App Store](#)
  - [Newsstand](#)
  - [FaceTime](#)
  - [Camera](#)
  - [Photo Booth](#)
  - [Settings](#)
  - [Safari](#)
  - [Mail](#)
  - [Music](#)
  - [Photos](#)
  - [Calculator](#)
- Social Media / Web 2.0
  - [Facebook](#)
  - [WordPress](#)
  - [Hootsuite](#)
  - [Twitter](#)
  - [Flickr](#)
  - [Dropbox](#)
- E-readers
  - [Stanza](#)
  - [Kindle](#)
  - [Inkling](#)
  - [NPR](#)
  - [NYTimes](#)
  - [SkyGrid](#)
  - [iBooks](#)
  - [Flipboard](#)
- Library-related
  - [EBSCOhost](#)
  - [British Library](#)
  - [NYPL Bibliion](#)
  - [WIC Mobile](#)
  - [Penn Libraries Mobile](#)
  - [Blackboard Mobile](#)
  - [RefWorks](#)
- Note-taking
  - [iCard Sort Lite](#)
  - [SimpleMind](#)
  - [Dragon Dictation](#)
  - [Flashcardlet](#)
  - [Evernote](#)
  - [Mendeley](#)
  - [Pocket \(formerly Read It Later\)](#)
- Media and entertainment
  - [Netflix](#)
  - [TED](#)
  - [GarageBand](#)
  - [Pandora](#)
  - [Naxos](#)
  - [iMovie](#)
  - [PS Express](#)
  - [Sleep Pillow](#)
- Communication
  - [Skype](#)
  - [Adobe Connect](#)
  - [ArcGIS](#)
  - [Prezi Viewer](#)
  - [Doceri Remote](#)
- Research and Education
  - [Google](#)
  - [3D Cell Stain](#)
  - [Ancestry](#)
  - [Heritage](#)
  - [HistoryMaps](#)
  - [NASA](#)
  - [Google Earth](#)
  - [GIS Roam](#)
  - [NASA Vis Explorer](#)
  - [GoSkyWatch](#)
- Technology Utilities
  - [ScanLife](#)
  - [WiFi Finder](#)
  - [WhatTheFont](#)

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