

April 13, 2011

To: President Burns Hargis

From: Bill Handy and Tracy Suter

Please accept this as our end-of-semester report of the iPad pilot at Oklahoma State University.

iPad Pilot Summary and Course Summary

The Oklahoma State University iPad pilot launched during the Fall 2010 semester. Students and faculty from the School of Media and Strategic Communications and Spears School of Business participated in the pilot.

The primary purpose of the pilot was to evaluate the overall impact on the participating students' academic experience and performance.

Students were made aware of the pilot program after they had enrolled in the courses selected for the pilot and the enrollment period was closed. This was done by design to prohibit a student from enrolling in an iPad pilot course simply to receive an iPad. While three students dropped the course after learning of the pilot, there is no indication there was any correlation.

Participation in the study was not mandatory. Students were given the opportunity to opt-out of the pilot but remain enrolled in the course. Students who agreed to participate in the study were each given a 16GB iPad with WiFi capabilities and a cover. Creation of a personal iTunes account to activate the iPad was required.

Students were given the iPad to keep so they would treat the device as their own by downloading applications, and using it for both personal and academic reasons. The reasoning behind the decision to give the iPads to students rather than lending the devices for the semester was two fold. First, there was the desire for students to truly immerse themselves in using the device since one theory was that students would learn and therefore perform better if we could blur the line between personal and academic life. Second, to alleviate concerns over losing money on application purchases, damaging or losing the device or time spent importing or creating content to interfere with the student's use of the device.

Two courses were taught in five sections on both the Stillwater and Tulsa campuses. These courses were taught by Professor Tracy A. Suter, Ph.D. and Professor Bill Handy:

Public Relations Communication Methods (SC 3283) -- Taught by Professor Bill Handy, this course was offered in the School of Media and Strategic Communications. Characteristically, it is a hands-on course focused on how the fundamental tools used in the communications industry are used to persuade and influence. The course was offered in three sections, two at the Stillwater campus and one at the Tulsa campus. A total of seventy-four students were enrolled.



Modifications to the course included pre-recording lectures using computer screen capture software (Camtasia by Techsmith) to record PowerPoint presentations including audio. These recordings were done in the professor's office prior to each class and uploaded to iTunesU. Students watched lectures prior to attending class (in addition to required reading) so they could obtain a basic understanding of the topics and theories pertinent to the course. The professor was then able to use class time to further expand on topics as well as apply what was learned and give the students the opportunity to participate in additional activities for which there would not have otherwise been sufficient time.

Students were given the option of downloading their textbook using the CourseSmart application which offered a number of Pearson textbooks. This book could only be viewed when there was wireless access to the Internet.

A variety of applications were used throughout the semester and students used the iPad to create content, collaborate on projects, review lectures, take exams, and review research.

Professor Bobbi Kay Hooper, Ph.D., conducted research on the "Impact of the Apple iPad and Technology on Student Learning" which focused on Social Learning Theory and Communities of Practice. Students were studied in three courses which used different or no technology:

- PR Communication Methods which used Apple iPads
- Layout and Design which used Apple iMacs
- Media Law which integrated no technology in the course

Although her research is referenced in this report, her findings will be more completely published for academic journals and available through those channels.

Marketing Research (MKTG 4333) -- Taught by Professor Tracy A. Suter, Ph.D., this course was offered in the Spears School of Business. The focus of the course is developing applied research skills used in marketing and other social sciences. The course was offered in two sections, one at the Stillwater campus and one at the Tulsa campus with forty-nine students enrolled collectively. In this course, students complete a real-world marketing research project for firms in the community. Examples from Fall 2010 include the Oklahoma WONDERtorium, Tulsa Zoo, and YMCA.

Having the iPad in this course allowed students to follow the marketing research industry trends of moving away from paper/mail forms of data collection and toward electronic forms of data collection. Primarily, they were able to create and administer Web-based questionnaires directly on the iPad in a field research context. In addition, students used the iPad's presentation software, Keynote, to make short, narrated slideshows of their findings. These were posted to iTunesU for wider distribution.

Working in conjunction with Cengage Learning, students were given the course textbook in PDF form in exchange for evaluations of the e-reader functionality of the iPad.

iPad Pilot Outcomes

The professors focused on integrating the iPad into each of their respective classes. Each provided feedback based on observational research and quantitative data collected through surveys. Attention was given to the following areas which are addressed within this document:

- Reduction or increased expenses
- Student and faculty usage
- Integration of an ePub/PDF textbook with regard to e-Reader functionality
- Integration and enhancement to the academic experience
- Peripheral impact of the iPad

“iPad has replaced my need for the desk top computers in class in many ways”

Did the iPad increase or decrease expenses?

The retail cost for a 16GB Wi-Fi iPad at the time of the pilot was \$499.¹ Students were only required to have an iTunes account and although this required a credit card to open the account, it did not require any purchase to be made. Wi-Fi was provided free to students on campus. The Wi-Fi system was tested and improvements were made to accommodate possible bandwidth needs in a number of areas although no significant changes were made. Cost to upgrade any wireless systems are not included in this report as they would be part of any normal enhancement as more wireless devices are used.

“It was very helpful, using it helped me get work done faster and in more places than my laptop would”

Textbooks required for each class were available in a digital platform² and the cost was less than buying a traditional paper book. On average students in the Public Relations course saved \$75 - \$100 (book prices changed over time) on their textbook. One student in the pilot program was able to purchase digital textbooks for all their courses saving more than \$300. Students in the Marketing course were not charged to access the content of their textbook. Although the savings was significant for marketing students, this scenario is not likely to be common for future use.

On average, each student spent less than \$30 total on applications bought for each class. Some students purchased additional applications for academic purposes, but these were not required. Some applications were free so students were able to further enhance their learning experience at no cost.

Paper usage was also reduced. One class went completely paperless, submitting and receiving all graded assignments and tests electronically.

Although difficult to financially quantify, there was a sense of increased productivity with the integration of the iPad. This includes students, as well as the professor, being more organized, an “always on and available” functionality of the device resulting in easy access and the ability to be truly mobile using the iPad in ways a laptop or smart phone might not be feasible to use.

¹ The cost to Oklahoma State University was less than the retail amount.

² A generic “digital platform” is used because textbooks were available in ePub, iBook, pdf and web-based platforms.

Conclusion

Depending on the nature of how the iPad is used, there would likely be a cost savings to the user of the device especially if the device is maintained and used for several years. If a full time student were able to integrate the iPad into all courses, and could save on average \$200 per semester on textbook purchases, their savings could exceed \$1,600 over the course of their college career. The cost savings in one semester alone could potentially pay for the iPad. This does not take into consideration peripheral cost savings for items such as notebooks, highlighters, etc., which could be eliminated or reduced through integration of the iPad.

If the device were to be fully integrated into more curriculum, there could be cost savings to the university through the reduction of physical space allocation needs, cost of purchasing and maintaining computers for computer labs, use of “cloud” storage to reduce future network storage needs, and reduced paper and printing needs.

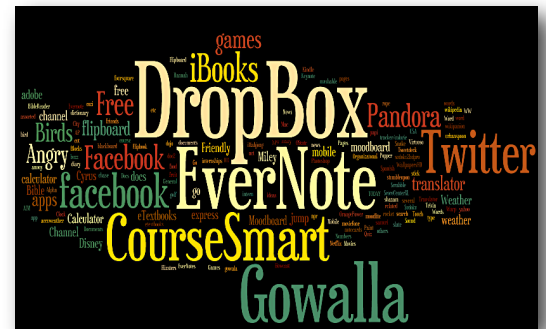
Text cloud of the most often downloaded apps

Although not part of the study, some parents commented that possible cost savings of e-Pub textbooks was enough to consider purchasing an iPad for their child.

How was the iPad used among students and faculty? How were specific applications used for academic purposes and what best practices emerged?

The iPad was used for a variety of activities normally delegated to a laptop or paper/pen. In many cases, students were using their iPad instead of a computer except for very cumbersome or labor intensive tasks (video editing, etc.). Academically, the iPad was used for:

- Document creation, sharing, and management
- Note taking
- Taking tests
- Collecting data for research
- Watching videos to prepare for class or enhance in class learning
- Reading text books and other online content pertinent to
- E-mail management
- Accessing social networks



In addition, since students were given the iPads, they were able to fully integrate them into their personal lives and use them for personal activities such as reading for pleasure, game playing and accessing social networks for personal reasons which can play an important role in overall satisfaction of the college experience, an opportunity many students do not have.

Application selection provides interesting insight into student usage. The most common applications included Evernote (for note taking), Gowalla (a geo-social application which was initially used to take attendance), DropBox for file sharing and storage application as well as Flipboard, iBooks, and CourseSmart for both academic and personal reading.

PR students specifically and overwhelmingly recommended two applications for coursework:

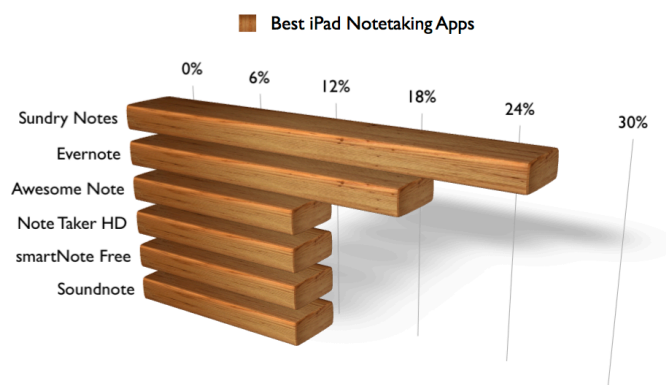
- Dropbox, *“It is the simplest way to safely store all of your work. Also, professors should realize it’s a great way to communicate back and forth as far as grading.”*
- Evernote, *“I used it for all of my classes that required note taking.”*

Marketing Research students agreed regarding the value of Dropbox as a “cloud” storage application but preferred Sundry Notes slightly to Evernote when comparing all note taking applications.

There was also a high usage of social media applications such as Facebook and Twitter which were used for both academic and personal reasons. It is noteworthy that access to both these social sites was available through a browser interface but many students preferred to access the content through their applications.

Students also downloaded entertainment type applications for personal use such as Pandora (music) and Angry Birds (game).

Almost unanimously, students used the iPad with their other courses and fully integrated the device into their daily lives. In one case, a student was using their iPad in conjunction with their employment at the request of their employer.



Source: Oklahoma State University Marketing Research Students, iPad Pilot Program, September 2010

Some students expressed a desire for some kind of introduction course or tutorial for the iPad. Online tutorials were shared at the beginning of the semester but time in class was not devoted to fully exploring the device. The most common frustrations students expressed included not knowing what other kinds of applications they might want to download (one student suggested Apple should include a Facebook “like” button so they would know what their peers were using) or lack of knowledge to fix problems that occurred with specific applications. Since all that was normally required in the latter was a simple deletion and reinstallation of the application, it emphasized the need for an overview at the beginning of the semester.

Conclusion

Students and faculty integrated the iPad into their academic and personal lives. Application selection and best practices were unique to each course and user.

Was the integration of an E-Reader an enhancement or detraction to the academic experience?

Qualitative and quantitative responses were mixed regarding the iPad as an e-Reader. Qualitative response indicated students liked using the iPad to house their textbooks. In some cases, the ability to read textbooks on the device resulted in increased reading by the students.

When asked if students would have preferred a traditional textbook but still used the iPad in the class, 35.7% agreed, 14.3% strongly agreed, 25% disagreed and 21.4% strongly

“I like the iBooks app, and I have read about 10 times as much this semester than I had before. I did not use the textbook very often, but I liked it when I did.”

disagreed. 3.6% weren't sure.

Much of the negative commentary surrounded the CourseSmart application used by the PR students. Students felt the application itself was a bit cumbersome and didn't like not being able to access their textbook without access to the Internet.

Another challenge was the online purchase of the PR textbook. Because the book had to be purchased directly from the publisher students were not able to charge the book to their bursar account. This prohibited students from using scholarship money or financial aid to purchase their books.

It is important to note, student expectation of using the iPad for e-book reading was high prior to the beginning of the semester but post tests indicate it wasn't used for this as much as other areas of use.

Was the integration of the iPad an enhancement to the academic experience?

From personal observations shared by the faculty involved, there was a positive impact to the integration of the iPad. Within weeks of the semester beginning, there was greater depth to classroom discussions. The ability for students to apply knowledge occurred weeks ahead of the traditional course timeline. For example, a field research assignment in the Marketing course was completed seven weeks in advance of when it would have normally occurred because of the iPad's integration into the class.

The increased pace is likely attributed to the mobile functionality of the device which allowed students to work in any environment, the change to the classroom environment, and the ability of all students to have complete access to the same technology creating an equal and level playing field (limited access to technology can be the weakest link in a the successful completion of an academic course).

“This program not only helped me in this class but I was able to incorporate my iPad in all my classes. I was able to google things instantly when I didn't understand a word or phrase in my other classes. Also, it was nice to have my textbook on it.”

Survey responses showed students also felt the iPad improved their course performance when compared to other courses in which they were enrolled with 54% feeling there was some improvement and 11% feeling there was much improvement.

Although not possible to measure accurately, there is an assumption among the two faculty members that overall grades were higher from previous semesters.³

How the device was integrated into the course also made a difference to the students' opinion on its enhancement to their learning. In comparison to other courses, 92.8% of PR students felt watching video lectures prior to attending class improved their performance some or much. 89% agreed watching the video lectures provided value to the course.

³ Because courses, including exams and assignments, were modified throughout the semester, it was not possible to compare grades to previous student work.

The ability to watch course lectures online didn't seem to impact class attendance, although research conducted by Dr. Hooper indicated 41% of students had less incentive to attend class when material from course lectures was available online.

Dr. Hooper's research also showed students' perceptions of technology also improved when exposed to any technology in the classroom but more so with the introduction of the iPad.

Students' desire to integrate technology such as the iPad is also apparent when asked if they would transfer to an identical course which didn't use the iPad -- 92.9% wouldn't transfer, 3.6% weren't sure and 3.6% would.

Pre and post surveys indicate many students felt the integration of the iPad caused them to put forth more effort and spend more time working on the course, causing a greater workload than initially anticipated. However, the majority of students felt the iPad enhanced their academic experience.

Overall, when asked their level of agreement or disagreement with the statement, "I think the iPad enhanced the learning experience of this course," 75.0 percent of respondents either agreed or strongly agreed. Interestingly, when the student's personal computing platform was considered, 92.8 percent of Mac owners agreed or strongly agreed with the above statement compared to 70.4 percent of PC owners.

Conclusion

Consensus is the iPad was an enhancement to a student's academic experience also has positive implications to faculty usage. The most important consideration is the device must be truly integrated into the course. Simply distributing the device to students without evaluation of how the course might be modified for its use limits the impact.

Endnote from Faculty Participants

On a scale of 1 (low) to 5 (high) ranking of how beneficial we feel the iPad has been to the courses and our students, both professors gave it a 5. They are also quick to point out that any enhancements to the course and students' academic experience would have as much to do with the iPad as well as how the course had been modified to accommodate the new tool.

By semester's end, students and faculty had personal best practices based on the individual needs of the courses and personal preference. Also, during the semester, technology had been improved with regard to the iPad among organizations that compete within academic circles. During the pilot, Desire 2 Learn (D2L) and Google both enhanced their platforms to be functional on the iPad, although D2L is still very limited in comparison to what can be accomplished in a desktop mode.

On a broader scale, there would be value to integrating this device into classrooms as appropriate. Even without full integration into a classroom, there is still value derived from the individual use of the device such as cost savings for textbooks, improved efficiency and improved organizational skills.

There are limitations to the research involved including the small size of the sample, no control group, different instructors and varied course material. Quantifiable data has been provided which shows the positive impact to the integration of the iPad into two different courses.

What follows are observations which don't easily fit into any of the above categories but are beneficial to a better understanding of the pilot.

- One of the faculty members involved began the pilot using a PC but bought a MacBook Pro halfway through the semester. Although the use of a PC didn't hinder his efforts in using the iPad, he felt the switch to the MacBook enhanced his personal and academic efforts with regard to technology.
- Variability among student use and comfort with technology was wide ranging. One student was challenged throughout the semester with basic e-mail functionality, while another student in the same section of the course could not wait for the semester to end to "jailbreak" the iPad. As stated in the memo, an introduction to using the device could eliminate these types of challenges.
- Even though an iPad case was provided as part of the pilot, many students bought their own cases speaking to how personal the device became. The students truly saw the iPad as their own, just as we had hoped.
- The professors took steps at the beginning of the semester to engage a community of iPad users and interested onlookers outside the university in case any challenges surfaced throughout the semester. None did.
- Representatives from Apple were always available to the professors regarding iPad and iTunesU-specific questions and were quick to respond.
- At the beginning of the semester, WiFi speeds were painfully slow on the Tulsa campus. OSU-Tulsa IT made changes quickly to enhance the wireless network for everyone's benefit. OSU-Stillwater made similar changes the summer before the pilot began.