Mobile Learning — learning within various contexts and locations facilitated by networked and highly portable devices. Learn more at cehd.umn.edu/mobile.

OVERVIEW

In fall 2011, the College of Education and Human Development (CEHD) began the second year of a mobile learning pilot initiative to examine how iPads could be used for teaching and learning. As in the first year of the initiative, iPads were distributed to the entire incoming first-year class (438 students), at no cost to the students. The project was funded by private donation. Participation in the pilot was voluntary and students could keep their iPad until they left the college. Twenty-seven CEHD instructors who teach First Year Experience courses chose to participate—agreeing to incorporate the iPad into their curriculum. Most of these instructors are in the Department of Postsecondary Teaching and Learning. CEHD’s Academic and Information Technology Services distributed iPads to students and instructional staff, provided student training and instructor professional development, and evaluated the project. Evaluators from Postsecondary Teaching and Learning and the Minnesota Evaluation Studies Institute contributed to the initiative’s research and evaluation component.

RESEARCH AND EVALUATION

At the end of Year 2, all participating instructors and students were surveyed. All 27 instructors\(^1\) completed the instructor survey; 273 students completed the student survey (62%). Building upon the surveys and interview questions from Year 1, the project team developed new survey instruments for both the students and instructors.

The goal of the student survey was to learn more about our students’ preferences, perceptions, needs, and challenges with respect to their academic uses of the iPad. Specifically, the survey was designed to discover the iPad’s:

+ Value to students
+ Usefulness in several areas of academic life
+ Enhancement of the student learning experience

The data gathered by the instructor survey and the student survey were essentially the same. The instructor survey also included questions related to instructor’s perceptions of the level of support and barriers to the use of the iPad in the classroom.

\(^1\)The survey was completed by 27 instructors who taught during Year 2 and by one instructor from Year 1 who was on sabbatical during Year 2.
SUPPORT FOR INSTRUCTORS AND STUDENTS

In the first year of the iPad pilot, several support mechanisms for instructors and students were identified. These were developed and implemented in Year 2:

+ A redesigned CEHD Mobile Learning website was launched in the fall 2011 to serve as a resource for students and instructors. The site features case studies, research, and resources on mobile learning and iPad use in the college. The site's teaching and learning resources include tutorials, support documents for students and instructors, app recommendations, and related news items.
+ An academic technologist provided one-on-one consulting and support for instructors interested in integrating mobile technologies into their curriculum.
+ The academic technologist held trainings on apps for teaching and learning for instructors (e.g., iMovie and VoiceThread).
+ A weekly academic technology e-newsletter was distributed to instructor and student listservs with related news updates, suggested apps, and links to other relevant resources.

WHAT WE LEARNED

VALUE

When instructors were asked about how they perceived the value of iPads for enhancing their teaching:

+ 75% of instructors strongly agreed or agreed that iPads in the classroom encourage the use of inquiry, active learning, and/or experiential learning methods.
+ 61% believed that the iPad is important to their teaching.
+ 43% of the instructors indicated that participating in the iPad initiative transformed their teaching.

When students were asked about how they perceived the value of iPads for enhancing their learning experience:

+ 70% either strongly agreed or agreed that the iPad enriched their learning experience.
+ 60% strongly agreed or agreed that the iPad was important to their learning.
+ 78% strongly agreed or agreed that the iPad made doing course activities more convenient.
+ 73% strongly agreed or agreed that the iPad nurtured a variety of learning styles.

In their responses to open ended questions,

+ 30% of students expressed positive feelings about their iPads. These students used words like “love,” “awesome,” and “helpful” when talking about their iPad experience.

The iPad was not highly valued for learning by all students. In the open-ended responses, 18% of students wrote that the iPads were unnecessary, not useful, or not worth the expense. Many of these students wrote they would have preferred receiving a laptop computer or that the iPads were a distraction or a waste of time. 8% of students stated that they rarely or never use their iPads.
In the open ended responses, 19% of students wrote that the iPads should have been used more often in their courses. Many of these students indicated that iPads were rarely utilized in their courses and that using the iPads [as part of class] more often would have made courses more engaging or would have made the iPads more worthwhile.

An interesting finding in the data is that students enrolled in Access to Success and TRiO\(^2\) were more likely to agree that the iPad impacted their learning experience than those students who are not participating in either program (see Figure 1).

**UTILITY**

Our findings from the Year 2 survey data relative to utility can be organized into three themes: content consumption, media production, and learning beyond the classroom.

**ACCESS TO CONTENT**

When asked how they used the iPad for their courses, the majority of our students reported using the device to access content for their courses (see Figure 2):

- 89% of students used the iPad to look up information online for their courses.
- 87% of students used iPads to access Moodle for course use.
- 70% of students reported that they used their iPads at least once a week to look up information online.
- 66% of students used iPads to access information or resources from the U of M’s Library website for course use.
- 46% students used the iPads to read e-books or e-text books for course use.

Using the iPad to stay connected to instructors and peers was a strong theme in student responses. Students were able to use the iPads to check Moodle and their University e-mail easily to stay up-to date with their courses.

**STUDENT COMMENTS**

“I use my iPad almost every day when I need to look up assignments on Moodle, or have access to articles professors give us. On a regular basis, I would always use it for email, connecting with friends, setting up accounts, and making my access to my email easier than using a computer.”

“I download all the PDF files onto NeuAnnotate [iPad App] for my lit class and read them during the countless hours I spend on the bus every week.”

“The best way I used the iPad was when I pulled up the PowerPoints for class at home to help review what went on in class and help with my assignments as well as to access my e-books for course related topics.”

\(^2\)CEHD’s Access to Success program is designed for incoming freshmen whose experiences and previous school performance indicate a strong potential for success at the university level, but whose high school rank and test scores may not meet the typical criteria for admission. TRiO is a program of Access to Success that provides academic development services for students with low-to-modest family incomes, disabilities, and/or who are first generation to attend college.
“I think the best way we used the iPad was to read PDFs instead of having to print 20 pages for one article. Convenient and earth friendly!”

Many instructors delivered course content to their students in an iPad-ready format—taking advantage of the device’s affordances to build student engagement. When asked about digital course content instructors responded:

- 54% indicated a preference for giving and receiving course assignments digitally (as opposed to paper).
- 79% of the instructors acknowledged that it is important to reduce paper usage for course-related activities.
- 86% strongly agreed or agreed that it is important to give students a choice between digital and paper course materials.

**INSTRUCTOR COMMENTS**

“Portability is key. My students and I can have course readings, assignment sheets, videos, and research tools with us at all times by opening up our course Moodle site on the iPad. The apps that allow us to annotate PDFs have been a great boon. I should learn to use the Photo-plus-exposition assignment that some of my colleagues use.”

“My commitment to eliminate the expensive paper textbook and move to digital documents and media for class assignments facilitated my adoption of the iPad for instruction. Being freed from the temptation to let the textbook chapters guide my classroom experience was eliminated, and now I have much more creatively revised my class to new arrangements of topic and themes along with a much wider array of learning assignments for students. Plus the ability for students to create course materials through the iPad has been enriching.”

“For a lesson about the social construction of race I had students use their iPads to access internet resources showing census data from 1790-2010. The objective was for them to see the changing categorization of race and ethnicity in the U.S., using a brief class period to cover a broad range of time. Students worked in groups assigned by decade and used classroom whiteboard to present their findings. So the iPad was primarily useful by allowing everyone to have internet access in the classroom, while the tablet format encouraged group participation by removing the physical barrier of the laptop screen.”

**STUDENT-CREATED MEDIA**

In Year 2, students received the iPad 2. In addition to being lighter and thinner than its predecessor, the iPad 2 featured two cameras and a microphone. These additional hardware features improved the capabilities of the device for media production. The media production capabilities (photo, video, audio) increase the options available to instructors—assignments are no longer limited to the written word. With the iPad, students can demonstrate comprehension and mastery of learning objectives through digital stories, documentary videos, photo essays, and multimedia presentations.

- 68% of the students strongly agreed or agreed that the use of the iPad helped them learn about multimedia.
59% of students used iPads to take or edit photos for a course.
+ 24% of students used iPads to record or remix music or other sounds for a course.
+ 44% of students used iPads to record and/or edit video for a course.

STUDENT COMMENTS

“The most engaging way that one of my instructors had my class use our iPads was using the Story Robe app to create a presentation.”

“We had to make an iMovie for one of my classes on my iPad and it actually got me very interested in iMovie.”

“In my art class, we had to make a visual notebook. And I made the whole project on my iPad.”

“In my FYI class we used our iPads to create a photo/video storyboard that I found to be very engaging.”

INSTRUCTOR COMMENTS

“[iPads give me] the ability to expand assignment formats and provide additional ways for students to demonstrate mastery over content.”

When asked how they incorporated these affordances of the iPad into assignments, instructors replied:

“Students took pictures related to a theme from class independently and shared the images with peers, then used them with audio to present a narrated collage…”

“…Audio taping or videotaping an interview. Adding a photo to a written essay.”

“I think students like opportunities to collaborate with each other using technology instead of multiple face to face meetings. I have assigned Google Docs for collaboration, and iMovie.”

“I love iMovie...I use it in both my courses that I teach.”

LEARNING BEYOND THE CLASSROOM

The affordances of the iPad—always on, internet-connected, lightweight, camera, microphone, and abundant software options—enable students to conduct research in the community more easily.

+ 66% of students agreed or strongly agreed that the iPad provided opportunities to participate in learning outside the classroom.
+ 24 of the 27 instructors who completed the survey agreed or strongly agreed that they value the iPad’s ability to expand learning beyond the classroom.

STUDENT COMMENTS

“I think that my creative identity class, PSTL 1312, did the best incorporating the iPad with class. We used it as a tool to express ourselves, capture moments of the world around us, and as a tool to learn more about the campus.”
“[The best use of the iPad was] probably in PsTL 1131, where we used it to take pictures at the Bell Museum and show around pictures of spring. It did a really good job of connecting with the rest of the class.”

INSTRUCTOR COMMENTS

“[We used the iPad for] fieldwork: Visual Notebook assignment which required students to go en masse to Weisman, take a guided tour, then use iPads to create photos, capture audio. Students also capture impromptu experiences which we usher into class, due to the ease of the iPad. It’s around, you know? It’s near, so they grab it and record an a cappella group singing in the hall, or photograph the river and skyline, or graffiti, etc.

“This term I had the students work in small groups to use their iPads to conduct an interview with someone about a historical event from another country. The students used the iPad to record the video interview. The interview was then edited on the iPad using a free app or they purchased iMovie app. Other print documents accompanied the five to ten minute video interview. This brought the community into the classroom. It empowered the students to create part of the course learning experience. Many gave permission to share their products with students enrolled in future semesters. This was a highly rated class activity by the students since they had control over the topic choice, interesting use of the iPad, and conducting their own fieldwork to complete the assignment outside of the classroom.”

MOVING FORWARD

Year 3 of the iPad initiative will continue to build on what we learned with regard to content consumption, media production, and learning beyond the classroom.

Responding to what we learned in Year 2 of the iPad project, the project team has identified additional support mechanisms for instructors and students. These will be implemented in Year 3:

+ A revised system for iPad distribution/orientation
+ A CEHD-authored student quick-start iPad guide
+ Revisions to the resources on the Mobile Learning website
+ A graduate assistant to provide iPad support for students
+ An “iPad help” email address for students
+ Individual consulting sessions with iPad Initiative instructors and teaching teams

Additionally, The First Year Inquiry courses (taken by all first-year students) will include a core assignment that requires the use of the iPad.

A digital course pack project will also be piloted with First Year Inquiry instructors. The goal of the pilot is to reduce costs to students by replacing paper course packs with iPad-ready required readings.

Research and evaluation in Year 3 will continue to look at the iPad as a tool for teaching and learning—focusing on utility and value as perceived by students and instructors. An additional
The research component will expand on the finding from Years 1 and 2 of the iPad project—that students in the Access to Success program value the iPad as a tool for learning to a greater extent than students who are not in the program.

**Figure 1. Access to Success Students**

<table>
<thead>
<tr>
<th>Statement</th>
<th>Access to Success</th>
<th>Non-Access to Success</th>
</tr>
</thead>
<tbody>
<tr>
<td>The iPad has engaged me in the learning process</td>
<td>81</td>
<td>62</td>
</tr>
<tr>
<td>The iPad has helped me develop confidence in my understanding of the course material</td>
<td>69</td>
<td>51</td>
</tr>
<tr>
<td>The iPad encouraged my active participation</td>
<td>70</td>
<td>47</td>
</tr>
<tr>
<td>The iPad helped me develop connections with my instructor</td>
<td>68</td>
<td>43</td>
</tr>
<tr>
<td>The iPad helped me achieve my learning goals in classes</td>
<td>73</td>
<td>55</td>
</tr>
<tr>
<td>The iPad helped me manage my time</td>
<td>60</td>
<td>37</td>
</tr>
</tbody>
</table>

**Figure 2. Course Related iPad Use by Students**

- Looking up information online
- Accessing Moodle
- Reading articles and texts online
- Recording or editing videos
- Accessing information from U of M library’s
- Annotating and taking notes on documents
- Viewing videos
- Taking or editing photos
- Creating documents
- Writing brief notes or messages
- Listening to music or other audio
- Accessing social networking sites
- Reading e-books or e-text books
- Recording or remixing music or other
- Playing games
- Using video or text chat

Legend:
- several times per day
- once per day
- several times per week
- once per week
- less than once per week