

# The Fine Art (and Architecture) of Mobilizing Student Learning

## *A Snapshot of Disciplinary Use of Library Tablets*

**Patrick Tomlin**

### **Abstract**

*Focusing on the implementation of an iPad loaning program at the Art and Architecture Library at Virginia Tech in the fall of 2010, chapter 8 of Library Technology Reports (vol. 48, no. 8) “Rethinking Reference and Instruction with Tablets” examines the ways in which the academic library intersects with mobile learning and student engagement. The author reviews the development, implementation, and reception of the project among library users. In the process, the broader issue of discipline-specific utilization of the tablet computer for mobile learning, particularly in the fields of art, architecture, and design, is discussed.*

### **About the Author**

**Patrick Tomlin** is an assistant professor and head of the Art and Architecture Library at Virginia Tech. His areas of research include open access publishing and scholarly communication in the arts and humanities. He is currently completing a dissertation in art history.

### **Introduction**

Built more than five thousand years ago, the royal library of the ancient Assyrian ruler Ashurbanipal

consisted of more than thirty thousand clay tablets.<sup>1</sup> One of the first truly mobile technologies, enabling the preservation and transportation of recorded information across vast distances and durations, it is perhaps fitting that the tablet has resurfaced, alchemically transformed by the digital age, to once again find its place within the library. From the oldest library to the newest, what are we to make of the tablet’s “return”? How might libraries engage the specific modes of learning, literacy, and communication fostered by tablet computing? Put simply, why do tablets matter for the library?

This chapter addresses these questions. Focusing on the implementation of an iPad loaning program at the Art and Architecture Library at Virginia Tech in the fall of 2010, it examines the ways in which the academic library intersects with the tablet computer and its forms of mobile learning and student engagement. Reviewing the development and reception of the project, the chapter also addresses the broader issue of discipline-specific adoption of the tablet, particularly in the fields of art, architecture, and design.

### **Mobile Technology, Mobile Learning, and the Library**

Buttressed by a technical infrastructure of anytime Internet access on the one hand and a progressively

dense fabric of media applications (apps) and third-party services on the other, the relative cheapness and ubiquity of mobile devices like the tablet have rapidly redefined when, where, and how students interact with information. Converging with the wider proliferation of user-generated content associated with Web 2.0 applications, including social networking sites, wikis, blogs, media-sharing sites, and mashups, mobile devices further promote the Web as a medium designed as much for active participation as passive consumption: users are able to easily and quickly capture, create, and disseminate information on the move, untethered from a desktop. The growing pervasiveness of cloud computing will likely further weaken the traditional relationship between computing and locational fixity.

It is no surprise, then, that mobile technology is also fundamentally changing how students relate to learning and learning institutions. The pedagogical theory and practice of mobile learning, or “m-learning,” first emerged roughly two decades ago in response to these changes. Though there has been little consensus about the definition of the term across academic communities in the intervening period, mobile learning, at its core, recognizes that learning “can take place in any environment using technologies that fit in the palm of the hand or can be easily carried from one place to another.”<sup>2</sup> The pedagogy of mobile learning is thus tied not simply to the mobility of the tools themselves; rather, it recognizes the fundamental situatedness, or personal and context-specific dimensions, of learning. As Agnes Kukulska-Hulme, John Traxler, and John Pettit have contended, “With widespread ownership of mobile and wireless devices, learners are increasingly in a position to take the lead and engage in activities that are motivated by their personal needs and circumstances of use.”<sup>3</sup>

Yet, as Traxler has argued elsewhere, mobile learning’s emphasis on the informal attributes of much contemporary learning places it “at odds with formal learning,” especially higher education, “with its cohorts, courses, semesters, assessments, and campuses, and with its monitoring and evaluation regimes.”<sup>4</sup> To this list we might add the library, an institutional space and service provider not typically associated with either informal learning or mobile technology. Indeed, despite the significant changes in information practices initiated by digital content and its modes of delivery, academic libraries themselves have changed remarkably little in their approach to research and learning.<sup>5</sup> That is, the conventions of library engagement of students have been slow to respond to the fundamental significance of the rapidly expanding realm of collaborative, customized, active learning afforded by the congruence of mobile and Web-based technologies.<sup>6</sup>

It is not difficult to see the potential that mobile learning might have for library-based support of student research. Mobile devices represent “an opportunity for

crafting new library services such as in-library exploration, social engagement, and outreach to traditionally underserved populations, as well as micro-instruction and learning,” librarian Jim Hahn has written, “all of which . . . enable the possibility of turning the tide on the unequal dispersion of information resources and perhaps one day closing an unjust digital divide.”<sup>7</sup> Less clear, however, is how libraries are to actually meet the challenges associated with the evolving information needs of mobile students, thereby enabling them to learn at the moment of discovery or point of need and seamlessly switch between formal and informal contexts and between individual and social learning.

With such questions in mind, the Art and Architecture Library at Virginia Tech set out to explore mobile technology use among its users and the various learning communities it supports. In August 2010, the library made twenty iPads available for general circulation. In the process, it was hoped that the library’s exploration of the tablet as an information tool would generate opportunities to engage new learning contexts that would go beyond the library (in either the virtual or physical sense)—yet might, through the tablet, remain intangibly connected to it as an extension of its services.

## The iPad in and around the Art and Architecture Library

Falling somewhere between the portability of the smartphone and the computing power of the laptop, the tablet computer—and the iPad in particular—has quickly become a leading personal mobile device. It is also the latest device to enter the toolkit for mobile learning. Although the iPad’s popularity was enormous from the beginning, the sphere of higher education was quick to seize upon it for its potential as an e-book reader, data collection device, and presentation tool, among many other uses. A number of recent articles have discussed the tablet’s use by libraries, particularly within the contexts of roving reference and instruction.<sup>8</sup> Yet few accounts have discussed its significance for the library’s place within the expanding pedagogy of mobile learning.

From the beginning, the Art + Architecture Library’s iPad project was conceived as a case study in utilizing mobile technology to target the specific information needs—both formal and informal—of the faculty and students of the College of Architecture and Urban Studies (CAUS), which encompasses programs in architecture, industrial design, landscape architecture, building construction, studio art, and art history. The iPads were advertised largely by word of mouth within the college and as users passed through the library. This proved effective in limiting the project largely to its intended audience, although it also necessarily limited the visibility of an early adoption

of this much-publicized device. An e-mail compiling iPad-related course and assignment ideas, useful web-sites, and news articles detailing educational uses of the iPad was sent to faculty to generate awareness of and interest in the new devices. An online reservation system was also created to accommodate faculty who wished to use multiple tablets in their courses for extended lengths of time.

The relative low cost of the iPad (\$499–\$699 at the time of purchase) when compared to netbooks and laptops, combined with the cheapness and near-instant accessibility of apps, or downloadable software applications, made the implementation of an iPad lending program possible in a matter of weeks rather than months. Nearly three dozen apps were preinstalled on each iPad before checkout, ranging from art, architecture, and design-related resources, such as the digital sketching and computer-aided design (CAD) programs SketchBook Pro and iRhino, to general productivity apps, like Pages for word processing and Keynote, Apple’s presentation software. The tablets were configured to work with campus wireless networks and made available for checkout for a three-day period, with one renewal, making for a total loan time of just under a week. Upon reviewing the library’s loan policies and checking the device out, users were able to download additional apps during the loan period; they would retain access to individually selected apps, whether paid or free, via their personal iTunes accounts after the loan period for the device ended. Following the iPad’s return to the library, all personal information and postcheckout downloads were erased from the machine by an automated restore process.

*Virginia Tech’s iPad loan policy*  
[www.lib.vt.edu/artarch/ipad-policy.html](http://www.lib.vt.edu/artarch/ipad-policy.html)

As befits the personalized nature of the device, most students and faculty initially checked out the tablet for individual, informal use rather than academic work. As expected, users were simply curious about the new device or were perhaps considering purchasing one for themselves and wanted hands-on experience with it before doing so. The tablets were soon requested by faculty eager to explore the devices’ potential in a classroom or studio setting, however, and by students wanting to complete assignments using them.

Thus the iPad was utilized in discipline-specific teaching and learning environments, both within and beyond the classroom or studio. For example:

- Industrial design students incorporated the tablet into competitions and design lab work (figure 8.1). Approached by an industrial design professor and his third-year studio in the School of



**Figure 8.1**

The iPad used in an industrial design student competition. Photo copyright Ed Dorsa.

Architecture and Design, the library loaned ten iPads for use in their course-long research project on senior living sponsored by a local architecture firm. As the partnership came to a close at the end of the semester, the collaborative project culminated in the presentation of the class’s designs at a regional conference. The tablets were integrated into the students’ individual presentation posters, where they enabled dynamic slide shows of concept sketches and provided a springboard for hands-on discussion of the evolution of the design brief with conference attendees.

- Multiple architecture courses have used the iPads during sketching sessions in and around campus. These drawings are subsequently included alongside the models and full-scale printed images produced by students for the studio pin-ups frequently held throughout the building during the semester (figure 8.2). Utilizing sketching and visualization apps such as Brushes, ASketch, AutocadWS, and SketchBook Pro, students are able to wirelessly exchange sketches, “tag” field sketches with geospatial information, modify them collaboratively, and access topical information on the Web regardless of their proximity to a physical studio space.
- An undergraduate art history course, working with the Art and Architecture Librarian, used Lino, a “web sticky note” app, for collaborative brainstorming. Small groups, designated by the color of their sticky notes, analyzed a designated work of art and posted their comments about it to the app’s shared canvas space (figure 8.3). Each group’s sticky notes appeared online in real time as they were posted alongside the image. The work of art could be magnified with the flick of a finger for detailed analysis. This exercise then led



**Figure 8.2**  
The iPad used in an architecture course display.

to a discussion about visual information literacy, the steps leading to the formulation of a research topic, and art history–focused library resources.

- The iPads were incorporated into a faculty proposal for a fall 2012 course in the Department of Building Construction, where students will employ the tablets onsite to collect field data, access plans, and sketch design ideas for mock clients. Again, the device’s built-in GPS system will allow for a number of tasks, from real-time mapping to surface leveling, while building information modeling (BIM) and construction calculation apps will also play an important role.

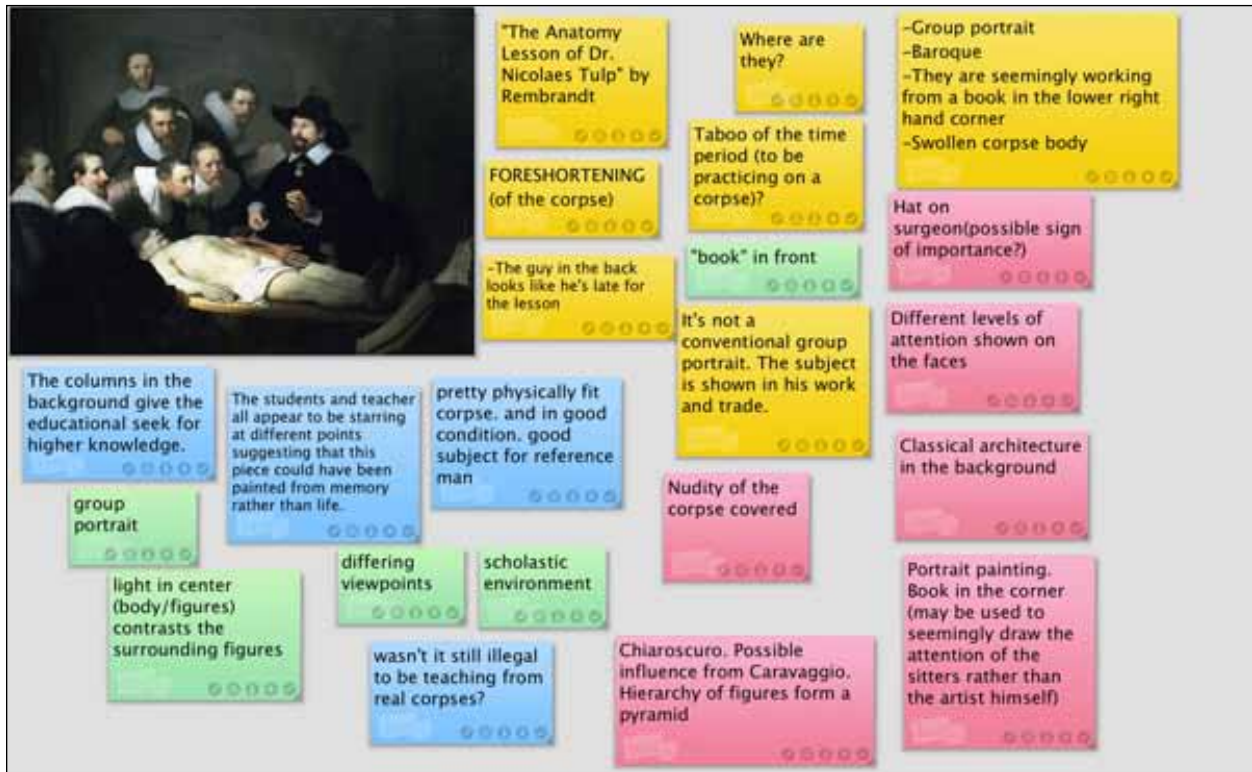
These four examples begin to suggest the diverse forms of student engagement and specific disciplinary modes of research output fostered by the tablet. In each case, the device’s portability and distinct adaptability presented opportunities for learning opportunities and creativity that enhanced traditional teaching and research scenarios, and in some cases went beyond those models altogether. What is largely absent in each of the above cases, of course, is the direct presence of the library. This was intentional as much as it was, to some degree, unavoidable: the iPad project

represented an opportunity to extend the reach of the Art and Architecture Library beyond the physical spaces and collections of the library itself, in the process enhancing and extending its broader mission of facilitating learning and access to information, in both formal and informal contexts, in the art and design disciplines of the college. The library, in other words, served as a mobilizing agent for networked learning.

## Feedback and a Few Conclusions

The Art and Architecture Library’s iPads collectively circulated more than 500 times within the first year of their release, exceeding expectations. While the project had been advertised principally through informal means, a concerted effort was made to formally record feedback from users regarding their experience with the iPad. First-time users were asked to complete a five-question survey at the circulation desk upon returning the device. Eighty surveys were completed over an approximately three-month period. The survey revealed that:

- 85 percent of respondents were undergraduates,



**Figure 8.3**  
Illustration of Lino app with student group sticky notes.

- 10 percent were graduate students, and 5 percent were faculty.
- 50 percent used the iPad for course-related work or research.
- 41.25 percent used the iPad for media use, including apps and/or video and photo viewing.
- 71.25 percent used the iPad for e-mail or surfing the Web.
- 10 percent viewed an e-book.

Patrons were also given space to recommend apps for future purchase and to provide any additional comments or questions they had about the device.

Although user feedback in the open-ended portion of the survey was almost overwhelmingly positive, their comments did prove useful. It was quickly apparent, for example, that the majority of respondents desired longer loan periods. Several expressed hesitation in investing the time necessary to complete a presentation or suite of design drawings on the iPad with the knowledge that it was likely to be returned before the project could be completed. Loan periods were quickly modified—extended to four days, with an additional four-day loan period, for a total of eight possible days—with satisfactory results. Given the iPad’s lack of a USB port, other users expressed encountering obstacles with getting content they had created or purchased either on

the device or off of it before returning it. Difficulty reading various file formats (PDFs, Photoshop files, and so forth) on the iPad was another common complaint. This led to the purchase of multiple file sharing and conversion apps to enable easier transfer between the iPad and users’ personal computers.

More generally, as a device that seems to give as much weight to the production of content as to its consumption, the iPad provided a point of entry into informal discussion with users about the library’s relationship to mobile technology ostensibly deemed “personal.” Although they were free to download apps using individual iTunes accounts and retained use licenses to whatever software they downloaded from the Apple App Store (thus enabling them to download the software again in the future), owning the apps was of little use without the device itself. Moreover, access to certain network and administrative controls was restricted from general users, reducing some degree of customization. At the time of the project’s launch, Apple had not yet developed an educational or institutional licensing program for the iPad, making the process of single app downloads for multiple devices something of a legal gray area as well. In subsequent months, Apple did unveil a volume purchase program enabling educational institutions to purchase apps and other programs in bulk quantities for large-scale distribution.

*The Apple Volume Purchase Program*  
www.apple.com/education/volume-purchase-program

Unsurprisingly, the number of students owning personal iPads has grown dramatically since the Art and Architecture Library first began circulating them in the fall of 2010. But that permeation is, in a way, precisely the point. The characteristics that the iPad and the growing coterie of tablets like it stress—portability, interactivity, collaboration, and end-user focus—progressively blur the boundaries that have traditionally separated formal and informal, academic and nonacademic information needs. Providing device-friendly interfaces for its virtual services is one well-documented way for the academic library to “go mobile.”<sup>9</sup> Serving the more fundamental role of acting as a mobilizing agent for fluid, connected, participatory modes of learning and research throughout the academic community is another. In any case, confronting the realities of mobile learning will likely be crucial for academic libraries in the years to come. Indeed, it is increasingly apparent the “mobile future” has already arrived.

## Notes

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