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**Mimi and Homeroom: Homegrown Educational Software Solutions at PNCA**

This article is a revised version of a presentation from the "Remix, Reuse, Rework: Fostering Learning Beyond the Classroom" session at the ARLIS/NA Annual Conference held in Toronto in 2012.

**Introduction**

Software applications are increasingly integrated into the mix of resources art librarians and their users rely upon, especially in academic environs. Whether working with an integrated library system, digital institutional repository, subscription database or course management system, art librarians are often the evaluators, purchasers, implementers and trainers for the sophisticated, specialized technology solutions our patrons now expect to work just as seamlessly as ubiquitous software platforms such as Google and Facebook.¹ And while we rarely have the luxury of grand-scale user testing, or coordinated teams of scores of high-powered engineers in the Silicon Valley working on most library software for art libraries, it doesn’t necessarily mean we need to settle for applications that aren’t meeting our needs.

It’s not unusual for library staff to be charged with collaborating on or even overseeing institutional software packages that have profound impact well beyond the library walls.² In the academic milieu, librarians often work with course management systems and institutional repositories, but both pose special challenges in the context of the art college, where users tend to have an acute visual sensibility, and a strong aesthetic intelligence.³ Web-based tools with a high adoption rate for our students, faculty and staff, such as Google Images, Flickr, Facebook and YouTube, tend to have several attributes in common. They work very quickly. Navigation tends to be intuitive. Interesting, dynamic content abounds. Perhaps most important of all, the applications have attractive, visually engaging interfaces, which are in a nearly continuous state of development.

And despite the bar of expectation being high, our budgets tend to be remarkably challenged. The affordable choices available from vendors are limited, while open source solutions are sparse and generally need advanced skills even for the initial implementation. Whether using vendor supplied or open source products, most institutions rely on the support of outside consultants, especially for any customizations put forth to more successfully tailor the products to their users. Compounding the complexity of choosing a given application is the rapid rate of change for software products due to continual development and instability in the high-tech market. Vendors merge, initiate new versions, discontinue software, are the subjects of hostile takeovers or go out of business altogether. And let’s not get started on customer support, but there are other choices available.

**Mimi, ARLIS/NA and Homeroom**
Last year at the ARLIS/NA 39th Annual Conference in Minneapolis, Anne Hepburn and other staff members from Pacific Northwest College of Art (PNCA) presented a view of Mimi, our innovative software platform for digital archiving and portfolio creation. The software was created from open-source tools by our library and IT departments to meet the specific needs of the PNCA community, a private art college with around 600 students, 100 faculty, 10 BFA programs and five graduate programs.4

Attendees were excited to see this innovative repository of images, text documents and multimedia files up and running after less than a year of development time. The system looks beautiful and operates quickly and smoothly, but Mimi is only part of the story; Homeroom, another PNCA-created software application paved the way for Mimi development and proved that the institution could build customized software tools to meet the unusual needs of its community.

Homeroom is a hybrid application, a platform for course management augmented by social networking. Students, faculty and staff all have personal pages and the ability to create additional pages for groups, causes or special interests. End users can also share information about their art or their studies with equal aplomb. It’s a place for discussion and transfer of ideas. Teachers can upload syllabi and course assignments; students can upload documentation of class work, communicate with classmates and create portfolios.

Periodically examples of student work move from Homeroom to Mimi, where a fuller set of searchable metadata can be applied. Thesis work will all be housed in Mimi, where it will be available to the students, their families and accrediting bodies alike. As of fall 2011, students are required to submit a PDF of their final thesis papers as well as digital documentation of their thesis work to a special drop-box in Homeroom. As qualified library staff approves each thesis submission, it automatically moves to Mimi.

PCNA’s IT department initiated Homeroom development in 2005 following a discovery process that showed dissatisfaction with available proprietary and open source platforms for course management, portfolio development and campus communication.5 Mimi development followed much later, in 2010, after a similar evaluation of available proprietary and open source tools including Equella, DSpace, Luna, and CONTENTdm.6

Allocating Resources to Meet the Needs of Our Community

When considering course management software in 2005 and institutional repository platforms five years later, we came to a similar conclusion: to truly meet the specialized needs of our users we would need considerable customization to the products available to us from external sources. As we examined our goals, we realized we would probably need to hire additional IT staff or contract with outside consultants, even for open source applications, a potentially costly proposition when coupled with other start-up expenditures. Furthermore, the expense of software modification was likely to reoccur as a result of unavoidable external forces, at unpredictable intervals, causing continuous budgetary uncertainty. The alternative for us was to ideate the applications and launch a prototype quickly, and continually refine the product in an iterative design approach. Much of the work on
these products was made possible by a generous grant from the Meyer Foundation. The process was also made possible through the expertise and additional hire of in-house personnel, after carefully considering all the costs associated with each application and applying a similar amount to personnel instead of paying vendors and/or consultants.

As of this writing our IT department employs a full-time Web Developer, Brennen Florey, and a part-time Software Programmer, Jason Williams, who support Mimi and Homeroom, dedicating about half of their time throughout the year toward development for the applications under the direction of Michael Ambrosino, Director of Information Technology. The library dedicates labor to the population and refinement of Mimi and testing and training for Homeroom; about half of the hours worked by our full-time Technical Services and Archives Librarian, Serenity Ibsen, are directly in support of these efforts, with the bulk being applied to population, refinement, training and evaluation of Mimi. In addition, several library volunteers and one student worker are hard at work testing and adding items to Mimi.

Before developing Homeroom or Mimi we looked for applications available on the market, and the way they were being used in higher education. In examining their use, we considered how these products would work in our specialized environment, where user satisfaction and adoption were very important to us. For both products we considered the following characteristics to be minimum functional requirements for successful adoption by our community:

- Outstanding visual appeal
- Easy to use and navigate
- Flexible
- Interactive
- Reflective of current Web-based tools
- Fun
- Fast

These provisions originated in development meetings and through the course of product evaluations, and evolved through a literature review and discussions with our users, especially our faculty and library staff.

And while we were keen to identify these key attributes, we were also painfully aware of potential pitfalls members of our community had previously encountered with the implementation of academic software, and the generally slow adoption rate for new applications in academia. Some of the major expenses we avoided by creating our own applications included paying annual licensing fees, and large initial start-up fees. We also avoided paying for software upgrades, debugging mandatory software upgrades, and paying for new features or add-ons. As we examined successful installations of existing software, we noticed many cases of customization by institutions that wanted to modify the products to their own special needs, a likely proposition for PNCA. And while the changes were generally very successful, these users had the added task of adapting their customization to any software upgrades, adding another unpredictable element to the process. The final noteworthy possibility worth circumventing is the discontinuation of software
platforms as a result of corporate mergers or bankruptcies, less common than one might think in today’s volatile business atmosphere.

A primary motivation of creating our own software applications for education was to appeal to our unique population, a cutting edge group of artists who are very resistant to adopting tools that aren’t aesthetically pleasing and easy to use. And while we were chiefly motivated by the idea that we could most adroitly meet the needs of our users, the students, faculty, staff and alumni of PNCA, we were also swayed by other positive factors. We found the ability to control our own applications to be empowering, both initially, but also as we looked to the future, as new uses will inevitably arise. Using this iterative design approach we found that we can produce the software we want in the short term, and maintain the ability to refine the applications as circumstances warrant. This was a more natural drawing point as we researched institutional repository software, eventually developing Mimi, well after the successful development and subsequent refinement of Homeroom.

In the course of evaluating the many institutional repository and portfolio management systems available, the budgetary ramifications were an ongoing factor in the eventual decision to build our own system. Ultimately we judged the in-house development model to be more economically viable than several other less appealing options, and not simply because we were able to avoid the troubles outlined in the previous paragraph.\textsuperscript{10} We also found that support models for the platforms we examined were problematic and expensive, whereas the prospect of in-house product support from the development team was much more appealing. Furthermore, paying for a dedicated software programmer and an additional librarian translated to institutional flexibility, with a greatly improved ability to work on a variety of projects in need of professional attention. For the library, the capacity for original cataloging, student training, archives management and bibliographic record improvement are all greatly bolstered as a result of hiring for the position directly related to Mimi development. For our IT staff we now have the expertise to customize several systems, including our accounting and enrollment management platform, as well as improve interactivity and interoperability across all Web-based platforms and applications.

After almost two years of development on Mimi, we are realizing that, while every member of the PNCA community is a stakeholder for—and user of—Homeroom, Mimi has some unusual stakeholders with diverse and unusual uses for our digital institutional repository:

- Thesis Department—Mimi as a cumulative holder of thesis documentation.
- Museum of Contemporary Craft—for documentation of museum exhibits.
- Academic departments—to create portfolios that highlight student work and as a tool to evaluate the work over time.
- Communications and Public Programming—as a system to house artist lectures, to power the back end of Untitled, PNCA’s online journal, and for a way to access promotional images.
- Faculty—for storing items that support teaching and learning.
- Archives—for digital records of PNCA history.
• Continuing Education—as a highly searchable, metadata-rich container for a
century of artwork created in classes for children and adults.
• Institutional assessment—to evaluate the creative output of the college over
time.
• Students, faculty, alumni and staff—to create and manage portfolios of
creative work.
• IT—as a driver and repository of images and multimedia work for all PNCA
Web properties.
• Admissions—as a system to collect and manage admissions portfolios.

Nuts and Bolts
Mimi already houses almost 60,000 items, and our development continues. The
basic building blocks we used to build the application are Ruby on Rails, Apache
Lucene and Solr, and HTML5. After a careful analysis of expected uses for the
database, we devised a Dublin Core/VRA Core hybrid for metadata fields.
Acknowledging the unpredictability of future uses for Mimi, we also allowed for the
flexibility to add fields as unanticipated needs arise. The initial feature set includes
support for tagging by end-users, addition of LC subheadings by trained staff, a
hover-over magnifier, grid view, spreadsheet view, and slideshow. High resolution
files are downloadable, and Mimi can store and support text, video, image and audio
files including JPG, TIFF, GIF, PNG, AVI, WMV and PDF, up to 200MB.11 PNCA’s
extensive Web properties tend to be media-rich, and an added benefit of Mimi is the
ability to efficiently house and drive the various files we feature on our many sites.12

Where Are Mimi and Homeroom Heading Next?
As our school places renewed emphasis on student portfolios, Homeroom
becomes the natural submission point for this work. Our thesis portfolio submission
interface was rolled out just before the 2012 ARLIS/NA conference in Toronto, and
this semester will be our first opportunity for user testing and feedback. We expect
modifications to follow, including auto-text and drop-down menus for some of the
data fields to encourage uniformity. Now that a more robust set of portfolio tools are
apparent in Homeroom, we expect user-generated portfolios to proliferate. This will
include informal collections made to suit a variety of user needs and formal
portfolios created by faculty and academic departments to showcase and evaluate
the creative output of our constituents. All the portfolio work will transfer to Mimi,
where it will be easily searchable, and library staff will have the opportunity to
enhance metadata.

Our ideas for Mimi improvements include a sliding timeline view for the slide
show, which will allow date sorting for search results. We imagine that this would
be useful for assessment purposes, as individual departments look to evaluate
student work over time. New fields will inevitably be added to our database as well,
as new uses arise. The first new addition is likely to be a location field, which would
be very useful in the event that PNCA-owned artwork is documented in Mimi. There
may also be a field added to track provenance of physical holdings. Finally, we are
considering rebranding the institutional repository software and the increasingly
important portfolio drop system, which may have product differentiation in the
future. Our purposefully flexible database architecture allows these changes to be made without undue disruption to the rest of the system, and it would be much more difficult to add or modify Mimi or Homeroom without production control over the software.

Conclusion
PNCA has a history of 'Colouring Outside the Lines.' Showing the courage and ingenuity to eschew traditional vendor-supplied software in favor of creating innovative solutions for our users is no exception. We are encouraged by how quickly our tiny art college in Portland, Oregon has built these software applications to enhance accessibility and functionality for our community. Together, the two cover quite a bit of ground for PNCA, including documentation of archival material, coverage of visiting artists and museum exhibitions, distance education, e-learning, social media, and assessment support. You can do it too! Having the will to control your own software applications is half of the battle; if we can do it, so can you. Whether developing digital collections, enhancing learning, managing change or embracing a tradition of entrepreneurial spirit, the future of arts librarianship is being willing to say it can be done!

Notes


7 Yvonne Hultman Özek, “Implementing Web 2.0 Design Patterns in an Institutional Repository May Increase Community Participation.” Evidence Based Library and Information Practice 6, no. 3 (October 2011): 74–76.

8 Jingfeng Xia, “A Comparison of Subject and Institutional Repositories in Self-archiving Practices.” Journal of Academic Librarianship 34, no. 6 (November 2008): 489–495. This article offers some helpful ideas on why scholars can be slow to adopt new repositories.
This unfortunate scenario occurred in two local institutions of higher learning, much to the duress of their librarians.


**Figures** (attached)

Figure 1: *Home page of Mimi.*

Figure 2: *Home page of Homeroom.*

Figure 3: *Metadata in Mimi. Original artwork by Daniel Frazier.*

Figure 4: *Thesis documentation in Mimi. Original artwork by Daniel Frazier.*

Figure 5: *Museum of Contemporary Craft items in Mimi.*

Figure 6: Untitled (http://untitled.pnca.edu/).

Figure 7: *Example of PNCA archival documentation in Mimi.*

Figure 8: *Children’s artwork from the PNCA Continuing Education department in Mimi.*

Figure 9: *Hover-over magnification in Mimi. Original artwork by Daniel Frazier.*

Figure 10: *Album grid view in Mimi. Original artwork by Daniel Frazier.*