

Duke Digital Initiative 2009-2010

Since 2004, the Duke Digital Initiative has fueled innovation at Duke and enabled faculty and students to put new and emerging technologies to use in support of teaching and learning. Over the last four years, digital video has spread to a broad number of disciplines and academic use cases. In 2009-2010, DDI provided the resources for further innovation with video with an emphasis on creation and collaboration technologies. DDI also supported exploration of social web publishing tools, most notably WordPress MultiUser. The initiative also continued to support faculty exploration of mobile devices, social networking and remote collaboration technologies. Overall this year's initiative increased creation, collaboration and use of digital media content with increasingly powerful and easy-to-use tools.

Highlights of DDI in 2009-10

Detailed findings begin on page 2

- 1. Usage of all types of video equipment increased, including a notable increase in the use of high definition video.** Video creation spanned all academic areas as well as co-curricular usage. Over 1800 faculty and students captured and collaborated with video with direct DDI support (up 80% over last year). Over 3000 equipment loans supported projects in over 480 courses across 77 different subject areas, with increases across all discipline areas. Experiments in video-enabled online collaboration continued, particularly in academic programs delivering distance learning programs and hybrid courses.
- 2. WordPress MultiUser was successfully piloted as a flexible publishing platform for teaching and learning, meeting the needs of a wide range of student and faculty academic projects.** Use more than tripled from Fall 2009 to Spring 2010; the number of sites increased from 43 to 135 and users from 261 to 881 users. WordPress was used as a course website alternative to Blackboard as well as to publish blogs, student-led project websites, student portfolios and faculty portfolios.
- 3. Explorations of new mobile technologies included microprojectors and the use of cell phone functions to engage students with social and collaborative technologies.** Faculty explored using cell phones with social technologies, such as Twitter and PollEverywhere.
- 4. Faculty showed continued interest in mobile, touch screen technologies, such as the iPod Touch and the iPad.** Faculty interest in academic exploration with touch-screen multimedia mobile technologies was continued through exploration with iPod touch mobile devices and re-invigorated with the release of the iPad in Spring 2010.
- 5. Changes to the administration of the program were effective in reducing barriers to participation by streamlining processes.** New training programs for staff and student workers were aimed at improving support and the scalability of the equipment circulation process. Fines for late equipment were also enforced to ensure prompt return of high demand equipment.

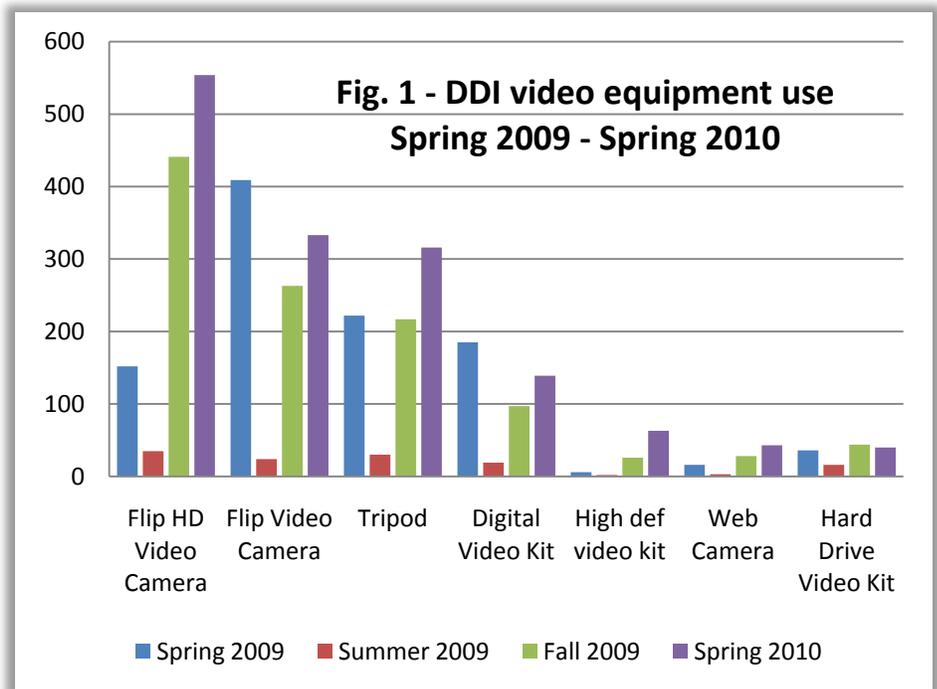
The **Duke Digital Initiative (DDI)** is a multi-year program of experimentation, development and implementation with new and emerging technologies in support of the university's mission. Funded by the Provost, this initiative is collaboratively planned and implemented by staff from CIT, OIT, and Arts & Sciences, with input from the Nicholas School of the Environment and the Pratt School of Engineering. DDI sponsors grants and loans of equipment, consulting, training and technical assistance, and showcases effective uses of technology for teaching and learning. DDI also supports exploratory investigations of new and emerging technologies.

Detailed Findings about DDI Programs, 2009-2010

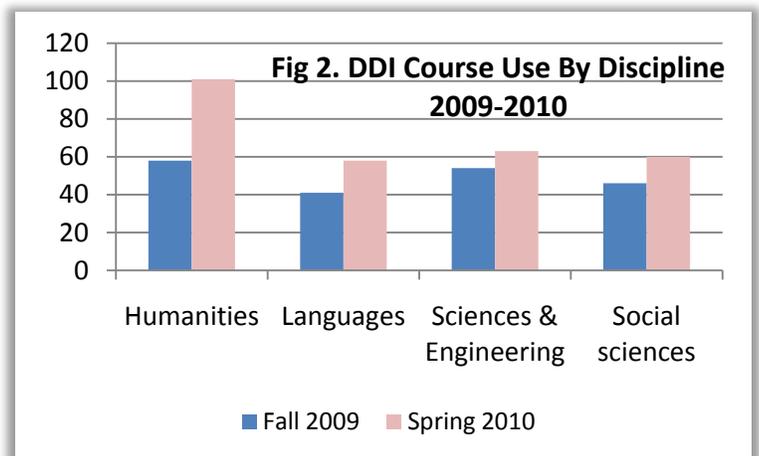
1. Usage of all types of video equipment increased, including a notable increase in the use of high definition video.

Over 3000 DDI equipment loans supported student projects in over 480 courses and 77 different subject areas (up 20%). The multimedia equipment pool located at the Link continued to primarily support video creation activities spanning all academic areas. In addition, this equipment supported significant co-curricular usage, including several notable high impact projects and many DukeEngage projects. Over 1800 unique faculty and students used this equipment to capture and collaborate with video, an 80% increase over last year. Although the

number of cameras available remained constant, loans of Flip cameras increased 58% from Fall 2009 to Spring 2010, reaching the capacity of the loaner pool. High-definition Flip cameras borrowed by undergraduate users represented the single most common use case, and overall usage of high definition video equipment increased tenfold from Spring 2009 to Spring 2010 (Figure 1). Increases in video equipment use were driven by a growing interest in higher quality video capture as well as simpler processes for borrowing for some types of equipment.



Loans of web cameras for video-enabled web collaboration and basic video capture also increased, doubling from Spring 2009 to Spring 2010, although demand relative to other types did remain low. Surplus web cameras and headsets not needed for the multimedia loaner equipment pool were distributed to academic programs to support ongoing experiments in distance learning and hybrid courses through video-enabled online collaboration. In addition to these video equipment loans, approximately 200 loans each semester of 5th generation



iPods supported individual recording and playback of lectures, interviews and oral assignments in languages, music, and a small number of large lecture courses in the sciences and social sciences.

The initiative continued to support the creation and use of multimedia across all disciplines (*Figure 2, above*). Students and faculty reported DDI equipment was used to support academic work in approximately 200 courses in the Fall and over 280 courses in the Spring. The greatest percentage of the increase in course use from Fall to Spring occurred among Humanities courses.

Curricular uses of multimedia at Duke

Some of the many curricular activities reported by users of DDI equipment are listed below, along with a few specific examples of student and faculty use.

- **Accessing multimedia resources on mobile devices** – watching video recordings, listening to audio recordings for music quizzes
- **Creating audio** – recording language exercises, recording lectures, conducting interviews
- **Creating video** – creating tutorials, virtual tours, and video blog posts; capturing performances for audition tapes or video examples for student portfolios
- **Collaborating with video** – participating in web conferences via Skype and Adobe Connect, annotating video using VoiceThread

In addition to course-related use, DDI also supported a diverse array of field work, independent studies, service learning projects, and student life projects. Many students specifically cited DukeEngage projects as their intended use of DDI loans in both domestic projects across the United States as well as international work in Central and South America, Africa and Asia. DDI equipment also supported an award-winning nonprofit educational project (see box, right). Additional examples of co- and extra-curricular projects and groups which benefitted from DDI support his year included:

- Clubs such as the Duke Debate Team, Duke Robotics and Duke Swing Dancing Club
- Service learning and engagement projects such as Habitat for Humanity and Teach for America
- Kenan Institute for Ethics Retreat
- Student communities such as the Native American Student Alliance and Center for LGBT Life
- Smart Home Renewable Energy Team
- Athletic groups, including Duke Women's Rowing and Club Sports
- Performing arts groups, such as the Djembe ensemble, Temptasians a capella group, Rhythm and Blue, the Defining Movement Dance Troupe, and Duke University Percussion Ensemble
- Greek life activities, such as a fraternity-produced documentary and Alpha Kappa Alpha Choreography

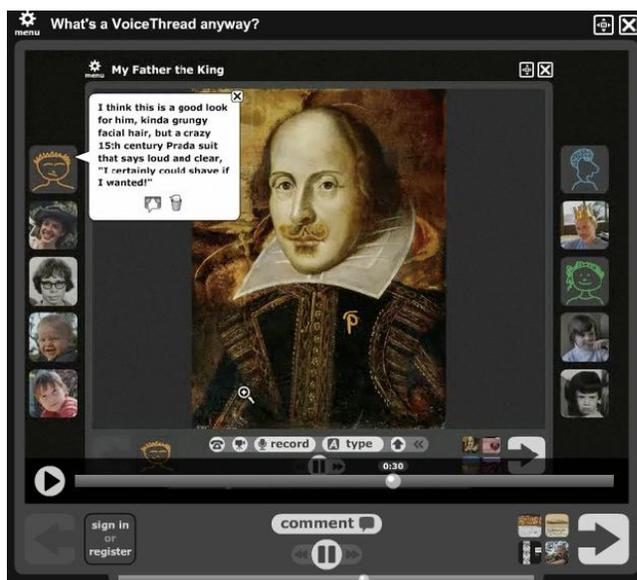
Fighting poverty through service learning and social entrepreneurship

After using DDI equipment to film a promotional video, a team of four Duke students won \$25,000 in April 2010 for their ChangEducate proposal to Pepsi Refresh Project to fund a year-long initiative to create an innovative DVD-based curriculum for high school students on poverty and social entrepreneurship. *More on this project:* <http://tinyurl.com/2c783pr>

- Religious groups, such as Cru Cares (Campus Crusade for Christ) and the Adventist Christian Fellowship

Based on these usage trends and feedback from users about the current model of equipment circulation, usage of most of the video equipment will likely remain restricted to faculty and students and the current inventory of Flip cameras and hard drive camera kits may need to be expanded due to high demand.

In some cases, loans of web cameras and headsets from the equipment pool were connected to the use of VoiceThread, an online tool for annotation and collaboration with video and other media (*screen shot, right*). Faculty can use VoiceThread for a wide range of activities, from commenting on a document or PowerPoint, discussing an image or analyzing a video. Access to VoiceThread was expanded in Spring 2010 so it could be used by any Duke user with a NetID. VoiceThread did continue to meet the needs of at least 15 courses per semester, mostly in language programs (Chinese, French, Italian, ESL, Russian, and Spanish); usage also included courses in Physics, Nursing and Biomedical Engineering. The tool's support for timeline based commentary in multimedia appealed to these groups because this functionality isn't currently available through YouTube's commenting and annotations. Drawbacks cited by users included an awkward interface for text commentary and a lack of support for using streaming video from YouTube. A variety of minor technical issues also caused some user frustration. Some faculty reported that other tools (track changes and commenting in Word, Jing and other screen capture tools or Wimba) are easier to use and fit with their teaching style and goals. Overall, the user base of VoiceThread at Duke has remained fairly static over the past two years and remains almost exclusively within the Language disciplines. Based on these findings, the level of support for VoiceThread currently provided by DDI is no longer needed; other less costly models of licensing could be explored for next year that would continue to provide sufficient access for departments and courses where the tool is used.



In another application of video, needs for synchronous collaboration technologies such as web conferencing appear to be growing as awareness and availability of these options increases generally with the popularity of Skype and similar tools. However, to apply the use of these tools in settings other than one-on-one collaboration, faculty and students often require significant consultation and support to successfully use these technologies in conjunction with course activities. Interest in web conferencing has been strongest among the professional schools, with less expressed interest from faculty in Arts & Sciences using these kinds of tools. Overall, the current supply of web cameras appears to be more than adequate to meet the existing needs, so access to this equipment pool may be expanded in the future beyond the current restrictions to only faculty and students.

2. WordPress MultiUser was successfully piloted as a flexible publishing platform for teaching and learning, meeting the needs of a wide range of student and faculty academic projects.

The WordPress flexible publishing platform provides faculty and students with a user-friendly option for creating attractive, media-rich websites that can be collaboratively edited and can easily be enabled with social features such as commenting by site visitors. The 2009-2010 Duke DDI WordPressMU pilot explored the uses of this flexible publishing platform for teaching and learning. The pilot expanded from 43 sites/261 users in Fall 2009 to 135 sites/881 users in Spring 2010. WordPress was used as a course web site alternative to Blackboard as well as to publish blogs, student-led project websites, student portfolios and faculty portfolios. The server recorded 328,055 pageviews on all pilot WordPress sites from August 2009-May 24, 2010.

Emerging uses of WordPress at Duke

Over the course of the pilot, sites built by faculty and students fell into one of six general categories. An example of each use is also listed.

- **Public blogging:** A faculty member administers a public WordPress site based on a course topic. Students participate as authors of public content. Faculty typically invite scholars outside of Duke to participate in the conversation. See *"World Cup and World Politics," right*.
- **Course web sites / LMS replacement:** Faculty have found that WordPress offers a simple solution for providing a syllabus, reading list, calendar and other course resources using one of several attractive design templates. WordPress allows the faculty member to make some of the site public, and some of it private and/or password protected. *Multiple faculty in the Writing Program used WordPress to build flexible course web sites for their sections of Writing 20 instead of or in addition to using Blackboard.*
- **Project teams / Website projects:** Faculty assign student groups to work on semester-long research projects which culminate in the design and creation of a web sites as a final assignment. Students administer their own WordPress sites, making design and information architecture decisions selecting appropriate themes and widgets, and publishing multimedia-rich content. Frequently students keep these sites private until complete, then publish their sites to get feedback from the instructor as well as others on the web. *In Daniel Foster's introductory Theater Studies course, students created websites as digital theatre notebooks as they designed the production of a play. A main WordPress site functioned as a portal linking all the student sites together. In Gary Gereffi's Sociology 142 course, students built team sites (see <http://blogs-dev.oit.duke.edu/soc142/>) that explored the economic impact of various industries.*
- **Student portfolios:** Individual students become administrators of their own WordPress sites to collect, organize and publish portfolios of their work for a class or series of courses in a program or department. *Students in German built portfolios to showcase their language development over the course of several semesters.*



WordPress site from Laurent DuBois' Fall 2009 Cultural Anthropology course, "World Cup and World Politics"

- **Faculty portfolios:** Faculty administer a site they design and develop to link to publications, display their current work, and blog about current issues. Merrill Shatzman (<http://blogs-dev.oit.duke.edu/mjs/>) and Caroline Bruzelius (<http://blogs-dev.oit.duke.edu/cbruzelius/>) built WordPress sites to showcase their visual arts portfolios and research.
- **Research, conference and other miscellaneous sites:** Faculty and students often need a quick way to develop and publish a website for academic work not connected with a formal course.

The vast majority of feedback from faculty and students via project surveys has been positive. Most student complaints were connected to a lack of training. Based on faculty and student surveys and feedback from the CIT and OIT staff supporting the pilot, recommendations for future use of this tool at Duke include:

- **Develop a scalable model for consulting, support and training** – A scalable model for providing training and information for new WordPress users is needed. Duke-specific support materials (handouts, video, web updates) developed during the pilot must be maintained and active community of involvement for WordPress users at Duke needs to be fostered.
- **Address privacy** - improve information for faculty and students on private vs. public publishing and settings
- **Simplify access** - Duke's WordPress instance needs to use the same NetID authentication that faculty and students are familiar with. A scalable policy is needed for requesting and supporting the creation of new sites, and a mechanism is needed for Duke faculty and students who administer sites to authorize non-Duke participants as authors or commentators.
- **Improve access to and discoverability of WordPress sites** - The most common technical complaints from users involved the lengthy and confusing URL of the pilot server and the fact that sites were hidden from being indexed by Google. A new, simpler URL is needed along with the removal of any global restrictions to search engine crawling (leaving this to the discretion of individual site administrators).
- **Identify a core set of plug-ins and design themes** - a core set of the most important themes and plug-ins were identified during the pilot; however, the greatest advantage and flexibility of WordPress comes from the continued exploration of new themes and plug-ins. A process is needed to test new themes and

Sample feedback from WordPress pilot participants

"It was really meaningful for my students to see that their work could be consumed outside of the classroom." - faculty

"It was pretty easy to use, and I'm not super tech savvy. It's a great way to create a multi dimensional project (not just video or just text, etc)."- student

*"I think students found working in WordPress really enjoyable. They were also really excited to get feedback from the organizations that they had posted about."
- faculty*

Supporting WordPress at Duke

- 14 drop-in Office Hours sessions per semester (28 total)
- 19 additional faculty meetings/trainings (12 Fall, 7 Spring), plus 1 group training for Writing 20 faculty
- 20 student group/full class training sessions (11 Fall, 9 Spring), plus 6 additional small group sessions
- Presentations for Writing 20 program and Duke Trainers Group.

plug-ins and allow end users to recommend or request specific themes or plug-ins. A set of Duke-specific, branded themes for users that want a Duke-branded look and feel should also be developed. Finally, a process for requests for customization beyond the typical WordPress offerings (likely fee-based) will need to be established with OIT web development.

- **Explore and expand mobile device support**

–The ease of making mobile-ready sites via WordPress will continue to be more and more relevant; some preliminary exploration of the mobile plugin (WP Touch) was completed but further investigation of these features is needed.

- **Determine an upgrade path** - A timeline for upgrading to the newest major release (WordPress 3.0) is needed. Also, a procedure for performing minor monthly and/or major semesterly upgrades is also required.

- **Develop plans for archiving** – options for maintaining access to non-active sites and preserving important content built in WordPress should be collaboratively explored by technical staff from OIT in conjunction with staff from CIT and Duke Libraries.

Presentations about WordPress at Duke

EDUCAUSE ELI, “Teaching and Learning with a Flexible Publishing Platform: Duke’s WordPressMU Pilot,” Jan 2010 (*Shawn Miller, CIT*)

CIT Showcase Presentations

- Mapping Self Identity (*Merrill Shatzman*)
- Using WordPress to Facilitate Multimodal Student Writing (*Seth Dowland & Susanne Hall*)
- Using Blogs to Make Text Public (*Christine Erlie*)
- WordPress in a Spanish Language Course (*Lisa Merschel*)

3. Explorations of new mobile technologies included microprojectors and the use of cell phone functions to engage students with social and collaborative technologies.

One new area of exploration for this year’s DDI program was a specific investigation into new models of small, lightweight microprojectors beginning to proliferate in the consumer market. The objective of this program was to evaluate the leading models on the market and determine whether any of these offer functionality or benefits for teaching given their small form factor and low cost. Five different models ranging in price from \$187 to \$560 from five different vendors with different features and potential benefits were purchased and circulated to users. A total of 26 requests were received. Three models were found to be useful, although each had some drawbacks; also, the main obstacle to use for faculty and students was the ‘business hours only’ circulation option available during the pilot.



Interest in these devices was evenly split among faculty and students. In addition to classroom presentations (11) and conference sessions (4), other needs included art installations / art class projects (4), a dance project (1), a theater performance (1), to support student teaching in a local school (2), mobile study sessions (1), a Divinity worship service (1), and Model U.N. activities (1). Based on feedback from users and staff as well as investigations of newly released models, a key feature set was identified and a recommendation has been made to purchase a small number of one type of projector for circulation via the

Sample user feedback on microprojectors

“EXCELLENT! This machine has been an amazing help to our program. Our presentations are in smaller room settings and must be moved multiple times in a day; because of the smaller size it makes this process very quick and easy.”

“the device worked well when connected to the ipod touch... picture quality was very good considering the size.”

standard equipment pool.

Explorations of mobile devices this year also included efforts to gather data about what devices students have now and to identify and document easy and effective uses for these devices that can be implemented for low or no cost. A survey was conducted in a large enrollment (340 student) computer science course where the faculty member wanted to explore the use of mobile device applications. Although reported use of Twitter among these students was relatively low (20%), heavy use of text messaging (receiving >10 text messages per day) was reported by over 80%. Several faculty at Duke continue to explore ways that Twitter can enhance their academic life and classroom communication.

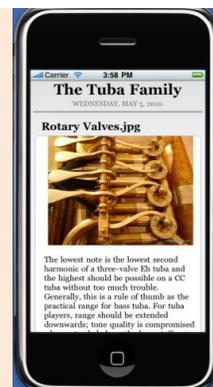


The most significant interest in leveraging student cell phones during class was in Poll Everywhere software. This web-based tool was interesting to faculty for its ability to deliver interactive classroom polling using a wide range of existing mobile devices. CIT staff demonstrated the tool in applicable workshops, CIT blog posts, monthly mobile devices meetings, and faculty consultations. Ultimately three requests were received for Poll Everywhere licenses from Computer Science, FroshLife film competition (to implement a 'Viewers Choice Award'), and for a large Psychology course scheduled in Fall 2010. Early experiments with this tool have been promising. A growing set of ideas about the use of mobile technologies is being published to the Duke community via the CIT blog: <http://cit.duke.edu/blog/category/mobile/>

4. Faculty showed continued interest in mobile, touch screen technologies, such as the iPod Touch and the iPad.

With its existing small pool of iPod Touch devices, DDI supported several additional pilots of touch-screen wireless mobile technology. The most successful project involved creation of materials about the history of musical instruments that were accessible by mobile device, as tested on the iPod Touch devices (see box, right). Also, the Trinity College Office of Assessment successfully used iPod Touch devices as unobtrusive data collection tools in conjunction with ViewsFlash to support its assessment of the 2010 Winter Forum. Finally, a languages faculty member experimented with ways the iPod Touch could support Japanese language education and found that

Building on her experience in the 2008-09 CIT Video Fellows program, Brenda Neece and her students explored MemoryMiner software to create web-based interactive museum tours combining text, images, sound and video. Tours included organs in Duke Chapel and instruments in the Duke Musical Instrument Collections, and a [version for mobile devices](#) is available (*iPod Touch version, right*).



the primary limitation of existing iPod Touch equipment is its lack of recording capability. More recently, the introduction of the iPad in Spring 2010 has invigorated faculty interest in this area; since the device was announced, over 40 faculty have shared ideas or expressed an interest in borrowing an iPad to explore its potential for their teaching.

5. Changes to the administration of the program were effective in improving communication and reducing barriers to participation.

Improvements to program administration were made in the areas of communications, training and management of the loaner equipment pool. The DDI web site (hosted on Ning) was given an improved look and feel based on extensive feedback from users. Information on the site was enhanced with some material published originally on the TechExpo DDI blog including stories about DDI equipment and other technology in use in classrooms and beyond. Outreach to faculty was channeled through two main venues: CIT consultants distributed DDI flyers to departments to stimulate interest, and information from the flyers was duplicated on display screens across campus.

Training and support for faculty and students was improved in several ways. A “DDI Certification” program for the OIT student employees who work at the LINK, MPS and with OIT Training provided knowledge of DDI programs, available resources, and trained students on the basics of using the equipment (*photo, right*). A graduate student intern created materials for these sessions and also updated and organized training materials and other DDI web site content. Internal training sessions were held for staff: A “Train-the-Trainer” Bootcamp in August 2009 led by staff from CIT and OIT focused on digital video, and a December 2009 session for staff focused on how to use VoiceThread. Ten on-demand group training sessions were also delivered to 138 students to support academic use of multimedia on topics such as filming with Flip cameras, using iMovie, creating podcasts, and a session for DukeEngage students on using technology in the field.

In several program areas, requirements for faculty or students to fill out application forms were removed and most equipment was shifted to open availability for any faculty and students with no reservation via the OIT Service Desk in the Link.

Finally, the DDI Logistics group implemented a process this year to collect fines and lost equipment charges from patrons, along with a better process to inform borrowers of upcoming due dates. In 2008-09, all fines had been waived in the absence of a mechanism for billing. These new processes were put in place primarily to motivate borrowers to return equipment in a timely fashion; overall these new processes appear to have had a positive impact on returns. However, fines disputes and complaints did require a considerable amount of staff time required to resolve. In 2010-11, a standard process for quickly resolving fines issues will be implemented to reduce staff time spent administering the loaner program.

Summary

This year’s Duke Digital Initiative successfully supported increased creation, collaboration and use of digital media content with increasingly powerful and easy-to-use tools across disciplines. DDI also enhanced the student experience beyond the classroom through its support for co-curricular projects, summer learning experiences and student life activities. A successful pilot of WordPress for collaborative web publishing, increased interest in high definition video, and continued exploration of mobile technologies were the hallmarks of this year’s initiative.



Michael Faber (OIT) and Shawn Miller (CIT) at one of the DDI Certification training sessions (*Photo: Christine Vucinich*)