Partner for More: Creating and Sustaining Collaboration to Support Campus-Based Rich Media

Mara Hancock
UNIVERSITY OF CALIFORNIA, BERKELEY

Education in the 21st century is diverse not only in content and discipline but also in format and delivery. Today's students have access to a broad range of information, knowledge, ideas, and opinions well beyond their classroom. Platforms such as Wikipedia help develop shared knowledge, and students directly engage through a variety of media: on-demand, using webcasting and podcasting tools such as YouTube and iTunes U; synchronously, via Adobe Connect or Skype; and through social networking sites, such as Twitter, Flickr, and blogs, which provide access to a rich store of textual and image-based content. Never before have learners been able to interact so closely with instructors, mentors, subject-matter experts, and peers, and yet be so dispersed. And as the possibilities for educational institutions have increased, so have the challenges.

Currently institutions of all sizes—from small liberal arts colleges to large research universities—are beginning to utilize existing video and podcasting channels to disseminate content to their students and often to learners around the world. However, institutions are challenged to keep up with rapidly evolving technology and to cover costs for outfitting classrooms with high-cost hardware, proprietary software, long-term media and data management. Open-source, rich-media platforms such as Opencast Matterhorn 1.0 and Kaltura promise to make the capture, delivery, and access of video and audio content easier and less expensive. However,

institutions have to address a long-term value proposition: If they invest staff and monetary resources in the capture and dissemination of such content, how do they justify the expense and ensure that a rich learning experience is preserved?

Answering such questions is difficult, requiring a broad range of perspectives and stakeholders at the table. This challenge crosses traditional institutional boundaries and extends well beyond the IT or Ed Tech department, blending strategic, technological, and pedagogical concerns. It can also extend beyond the edges of an institution and necessitate broader partnerships or collaborations. The premise of this article is that institutions, learners, and teachers will fare better by looking to a combination of interdisciplinary local (campus) and extended (higher education) partnerships to navigate successfully in a complex and dynamic environment. The experience of UC Berkeley's Educational Technology Services (ETS) and the Opencast Community will serve as examples that reflect the value of collaborations that serve our campus communities and the aims of the next generation of learners.

MODEST BEGINNINGS

As with many initiatives, online delivery of educational material began with the efforts of an individual. In 1995, Professor Larry Rowe of UC Berkeley's College of Engineering began a small research project to explore the application of multimedia technology in education by webcasting his course. His success attracted the attention of colleagues, and although he had no intention of scaling up the project, he and his research group worked with other faculty to broadcast their courses over the web. By 2001, Professor Rowe was ready to hand off the program to an organization—ETS—that could provide systematic support for webcasting and build partnerships to secure operational funding for scaling the project across the campus. Within a year, Webcast.Berkeley was formed and, by 2008, it had become one of the world's largest producers and distributors of high-quality university lecture content, attracting 22 million views of 3,600 published "events."

For Webcast.Berkeley to succeed, key campus partnerships were essential. ETS provided faculty with a simple way to support large lecture courses and ensured the process was not disruptive to their classroom teaching. It also worked with departments to create a cost-share funding model that distributed the costs and, with the Berkeley Public Affairs and

University Relations Offices, extended the infrastructure and services to campus events and public lectures.

Another decision that contributed to Webcast.Berkeley's success were external partnerships in 2006, the cusp of a technology tipping point that enabled easy access to and downloading of podcasts and web video. Through agreements with Apple iTunes University and YouTube, Berkeley expanded its vision of partnerships to commercial organizations that provided distribution channels that would help bring visibility to the Berkeley content and new features to learners. These partnerships provided technology platforms that ETS could not provide on its own, and bought it time just as the technology behind Webcast.Berkeley was beginning to show its age.

BEYOND CAMPUS BORDERS

While Berkeley was charting its path, other universities were developing their own programs for capturing and distributing audio and visual content. In 2006, Stanford became the first university to publish its public lectures on iTunes U. In 2008, the Massachusetts Institute of Technology added video to its open courseware to an overwhelmingly enthusiastic viewer response. Universities around the world were building their own lecture capture systems. In Eastern Europe, Slovenia's Jozef Stefan Institute developed VideoLectures.net to stream lectures from leading academics at universities throughout the world. VideoLectures.net saw a 40 percent increase in viewers per week since its launch in January 2007 and, in April 2010, announced the release of its 10,000th lecture recording.

Many of these capture systems had unique features but also many overlapping ones; each system had its particular strength and built directly on the workflow and business practices of an institution. While commercial platforms were an option, many schools rejected the high entry costs and proprietary platforms as inflexible and counter to their goals of innovation within a rapidly evolving technology landscape.

Through one-to-one conversations among individuals from different organizations, it became clear that those of us responsible for developing, supporting, and upgrading these delivery systems had common experiences and needs, and that we were part of a larger community. And while we were happy to share knowledge and experiences, the UC Berkeley staff believed that a more expansive and formalized partnership could open and expand the exchanges in ways that would lead to better products and practices.

ACTING GLOBALLY

Since 2004, we had been participating in the Sakai project, which involved both the creation of a collaboration and learning environment (CLE) and a community of educational and commercial partners, and we knew the value and power of collaboration. In March 2008, with funding from the Andrew W. Mellon Foundation and the William and Flora Hewlett Foundation, UC Berkeley launched a yearlong planning process—"Opencast"—to assess the viability collaborating on an open-source podcasting (audio and video) system. Based on our experience at Berkeley and many hours of conversation, we believed that there was significant interest in the higher education community in lowering the cost of creating and hosting a scalable and robust podcasting infrastructure that was flexible enough to meet the requirements of many universities. Within a year, the Opencast community grew to 590 members representing 27 countries and 134 organizations.

One objective of the planning grant was to gather best practices regarding podcast systems, program management, and institutional support and disseminate the shared knowledge broadly through the Opencast community. Best practices were identified through a number of sources: interviews at workshops, mailing list discussions, in-depth interviews, and descriptions posted in the "Showcases" section of the website. Information from these sources was cultivated and used to populate the initial content for the "Shared Best Practices" wiki (http://www.opencastproject.org/category/resource_categories/best_practice_showcase).

While cultivating a community of practice helped to expose common concerns and best practices, there continued to be a sense of peering over the fence at each other's solutions. As interesting, locally developed products were spotlighted, one question remained: How could we truly share overlapping feature-sets or hybrid proprietary systems? This resulted in a prioritized list of requirements for an open-source, rich-media capture, processing, and distribution system. In the summer of 2008, two workshops were held, one in Berkeley and one in Oxford, UK, that focused on sharing workflows, gathering and prioritizing requirements, and establishing and cultivating an active community. Both meetings were well attended, with a combined total of 43 participants from eight North American institutions, 10 European institutions, and the Australian National University. The requirements-gathering workshops were critical to the formation of a more meaningful partnership, allowing potential collaborators to engage

and share their current solutions, strategies, and issues of concern, and envision the potential for a shared solution and a process to get there.

ENLIGHTENED SELF-INTEREST

As we brought together organizations and individuals with common concerns and needs regarding rich media, we became increasingly optimistic about the possibility for collaborating on a shared technology platform. Following the community-source philosophy based on enlightened self-interest, there seemed much to be gained—increased design and development resources, stronger product vision, shared costs—by partnering in the design, production, and maintenance of the platform rather than going it alone.

Berkeley hosted a workshop in October 2008 to plan an open-source development project. The event was attended by 43 participants from 21 organizations that expressed an intent to participate. The outcomes of this meeting included a first draft of a system architecture, a roadmap, a management model, and the emerging Opencast "Matterhorn" project. It also exposed some key "learnings" that helped frame our commitment as we moved forward:

- *The shared platform can also be individualized.* Participants recognize that it is possible for a common-enterprise platform to meet the needs of many schools while also allowing for customization.
- *"Knowledge pockets" must be spotlighted.* The Opencast community must continue to work to expose these areas of expertise and highlight and align them toward a common goal (e.g., Matterhorn). A variety of solutions have been pieced together in local configurations—some home grown, some vendor solutions, some hybrid. The experience and expertise of those engaged in developing those systems are an invaluable resource.
- *Institutions desire guidance, leadership, and community.* Institutions want to participate in Opencast and feel a sense of urgency to engage quickly and deploy a pilot in order to show its value. Many schools are looking for answers and guidance in areas such as costing, value, and technology that can be communicated and used for planning. Most participant institutions lack direct experience with open-source software development, and warmly welcome leadership. It is crucial to assist institutions in constructing a flexible governance model and help them avoid mistakes.

- *Opencast resides in a necessarily diverse and dynamic technological environment.* The project must embrace technological flexibility and organizational diversity. The final architecture must be a loosely coupled, service-oriented architecture, where possible. This will enable institutions to leverage the platform in the appropriate places while preserving existing investments so as to decrease the barriers to entry and change. There are many research activities focused on this domain, and Opencast provides an ideal platform and community to test and implement these technologies.
- *The ultimate result is improving the learning experience and transforming models for teaching and learning.* Matterhorn applications must be focused on helping students engage with the material and allow for the material to be embedded in the learning context. Further, many of the existing systems are predicated on supporting the lecture method. Many schools are interested in going beyond this so that podcasts can aid the transition toward more active learning and collaboration environments.

The Opencast Matterhorn project was formally launched in the summer of 2009. It was funded by significant contributions from 13 institutions located in the United States, Switzerland, Canada, the United Kingdom, Spain, Denmark, Germany, and Slovenia, and from the Andrew W. Mellon Foundation and the William and Flora Hewlett Foundation. The deliverable, in the project's own words, is as follows:

> …a free, open-source platform to support the management of educational audio and video content. Institutions will use Matterhorn to produce lecture recordings, manage existing video, serve designated distribution channels, and provide user interfaces to engage students with educational videos.

The first year of the Opencast Matterhorn project has focused on developing a flexible and modular open-source platform. That platform in and of itself is an important infrastructure for delivering lecture capture and media processing to a campus. We hope that lowering implementation and scaling costs will result in more media captured and delivered for educational consumption.

However, providing such a foundation is only the beginning. As the community noted in its early learnings, a shared platform provides a unique opportunity to develop tools that will directly improve teaching

and learning activities. Over the next year, the Matterhorn partnership has put community development and support at the center of its strategy. The strategic goals are:

- to encourage and support adoption and implementation of Matterhorn within core partner and additional targeted institutions to prove it is fully functional within diverse institutional profiles;
- to create an active community of practice and contribution around Matterhorn, to bring more resources to expand and enhance the product, provide distributed support, and evangelize the product and the community;
- to further develop and enhance Matterhorn to meet the expectations of Matterhorn partners, adopting institutions, the wider community, and users (instructors and learners);
- and to transition the development and management processes and infrastructure around Matterhorn to the Opencast community by June 2011.

These are ambitious goals that reflect an expanding view of partnership. They recognize that to gain support from a diverse set of institutions with particular needs, transparency and understanding are essential in successfully achieving a shared vision.

ENVISIONING THE FUTURE

Having participated in the Sakai and Opencast projects, I believe that the partnerships and the associated communities we have formed so far serve not only to further the technology but also to deepen our vision of how technology can support and enhance teaching and learning. I am also convinced that we can nurture partnerships around rich media with other groups:

Pedagogues

Instructional designers and educators need to be directly involved in re-envisioning how these technologies will "disrupt" and reconfigure the design of physical learning spaces (from the classroom to the home office) as well as virtual ones. What will the new, integrated learning environment look like?

Textbook publishers

Rich media plays an increasing role in our textbooks. Common formats and the specifications to support unbundling, accessing, and interacting with this media are important.

Researchers

Rich media has historically been impenetrable. Researchers are improving speech to text, automatic transcription and chaptering, contextual awareness, and more. Their findings should improve our learners' experiences.

CONCLUSION

Higher education has transitioned from a "build vs. buy" mentality to one that embraces a philosophy more akin to "co-create / leverage vs. buy," as shown by the success of Opencast, Sakai, and Kuali. As a result of these initiatives, we have recognized that through strategic partnerships within higher education and with a growing landscape of commercial entities (sporting new business models that support open- or community-source efforts), we can all come out ahead with better products, more control, and less long-term expense. Finding ways to leverage these tools and content sources, and establish new channels to expose the riches of academia, while simultaneously improving the quality and discoverability of available content on the Internet, is a ripe opportunity for higher education and invaluable for lifelong learners everywhere.

Formal partnerships and collaborations such as Opencast, Sakai, and Kuali are still in their infancy. There is much work still to be done on assessing the long-term cost and product benefits from these partnerships. However, these efforts have brought benefits to the partners directly engaged, and to the wider community of higher education, by providing focused opportunities to engage and co-create with one another. These efforts should be recognized for their strategic as well as real gains. Through these collaborative engagements the path forward is informed by a broader range of perspectives tempered through debate and experimentation and over time, the result will be a shared vision that can reshape and enrich the educational experience.