One Week, One Tool: Practical Lessons from a Digital Humanities Barn Raising

SIGNIFICANCE

With a decade of successful digital tool-building experience under its belt—its tools are now used by over a million researchers, museums, and libraries worldwide in forty languages—the Center for History and New Media at George Mason University has come to the conclusion that effective digital tools for scholars are forged mostly in practice rather than theory. Although inspirational ideas and disciplinary training are necessary, the creative process succeeds or fails due to pragmatic, often hidden or ignored fundamentals such as good user interface design, thorough code commenting and documentation, community engagement, dissemination and "marketing," and effective project management. We may have a vision for an ideal end product, but frequently a tool is made or broken in seemingly more mundane aspects of software development.

Too often these practical aspects get lost in our conferences and workshops, only to be encountered by inexperienced tool builders—too often unexpectedly—at later stages of development and release. We thus believe a useful institute should involve a great deal of *doing* in addition to basic instruction. There is no reason that a weeklong institute can't both teach and produce something useful to the community—an actual digital humanities tool—while also laying the foundation and skills for future endeavors by the participants. Indeed, the act of doing, of building the tool, should be the best way for participants to learn what digital humanities really is and how it really happens.

We therefore propose a unique kind of institute: *One Week, One Tool* will teach participants how to build a digital tool for humanities scholarship by actually building a tool, from inception to launch, in a week—a digital humanities barn raising.

One Week, One Tool won't be for the faint of heart. For one week in June 2010, from early mornings to late nights, the Center for History and New Media will bring together a group of twelve digital humanists of diverse disciplinary backgrounds and practical experience to build something useful and useable. A short course of training in principles of open source software development will be followed by an intense five days of doing and a year of continued community engagement, development, testing, dissemination, and evaluation. Comprising designers and programmers as well as project managers and outreach specialists, the group will conceive a tool, outline a roadmap, develop and disseminate a modest prototype, lay the ground work for building an open source community, and make first steps toward securing the project's long-term sustainability.

One Week, One Tool is inspired by both longstanding and cutting edge models of rapid community development. For centuries rural communities throughout the United States have come together for "barn raisings" when one of their number required the diverse set of skills and enormous effort required to build a barn—skills and effort no one member of the community alone could possess. In recent years, Internet entrepreneurs have likewise joined forces for crash

"startup" or "blitz weekends" that bring diverse groups of developers, designers, marketers, and financiers together to launch a new technology company in the span of just two days. *One Week, One Tool* will build on these old and new traditions of community development and the natural collaborative strengths of the digital humanities community to produce something useful for digital humanities work and to help reset the balance between learning and doing in digital humanities training.

INSTITUTIONAL PROFILE

Since its inception in 1994, the Center for History and New Media (CHNM) at George Mason University has used digital media and technology to advance historical education and understanding, preserve and present history online, and transform scholarship across the humanities. CHNM boasts a staff of nearly 50 people (a dozen of them with doctoral degrees) and more than three-dozen active projects. It has conducted over $20 million of grant-funded research, and has freely given away all of the educational materials, archives, and software it has created. Its websites and software are among the most popular in academia—and outside of it. Each year CHNM's many project websites, staff blogs, podcasts, and open access publications receive more than 16 million visitors, and over a million people rely on its digital tools to teach, learn, and conduct research. CHNM's work has been recognized with major awards and grants from the American Historical Association, the National Humanities Center, the National Endowment for the Humanities, the Department of Education, the Library of Congress, the Institute of Museum and Library Services, the National Historic Publications and Records Commission, and the Mellon, Sloan, Hewlett, Kress, Rockefeller, and Kellogg foundations.

As both a scholarly and public humanities center, CHNM's work addresses multiple audiences—scholars, students and teachers, as well as the general public. Although it is somewhat artificial to separate these audiences—indeed, new media blurs historical audiences and genres—they nevertheless help define CHNM's three main areas of work and its main administrative branches: the Division of Education, which provides free access to primary sources, builds high quality online teaching modules, and offers instruction on critical thinking skills through award winning projects like *History Matters* (historymatters.gmu.edu) and the *National History Education Clearinghouse* (teachinghistory.org); the Division of Public Projects, which brings history to audiences worldwide by collecting born-digital records of the present, archiving documents of the past, and presenting historical exhibits through landmark projects such as the *September 11 Digital Archive* (911digitalarchive.org) and *Gulag: Many Days, Many Lives* (gulaghistory.org); and the Division of Research, where the proposed institute would be located.

CHNM's Division of Research plays a leading role in advancing and defining digital humanities scholarship. It does so in two major ways, both of them vital to the success of *One Week, One Tool*.

First, CHNM's Division of Research has been a key location for exploring the ways in which digital technologies will reshape humanities. Through the work of the Division of Research, CHNM has established itself as a focal point for collaboration and communication within the emerging discipline of digital humanities. A decade of organizing colloquia, workshops, and instructional events such as the bi-annual *Rosenzweig Forum for Technology and Humanities*

(chnm.gmu.edu/dcforum) has taught us the importance of practical training in the digital humanities. Our 2003-2007 series of four weeklong and three two-day *Doing Digital History Workshops* in Washington, New York and Chicago, reinforced the lesson that to remain engaged with technical details for extended periods, aspiring digital humanists need to put that technology to use for themselves and see it in action. Our more recent experience with *THATCamp* ("The Humanities and Technology Camp" at thatcamp.org)—an interactive, work-oriented, participant-generated unconference—has proven the benefits of a more hands-on and agile approach to training and dissemination in digital humanities. *THATCamp* has also demonstrated CHNM's ability to attract participation and mount a successful event for many people at low cost and minimal infrastructure: in just the first day of its call for proposals, *THATCamp* 2009 received applications for two-thirds of the available slots. *One Week, One Tool* will be led by the same team, adhere to the same values, and utilize the same venues that has made *THATCamp* a success.

Second, the Division of Research builds digital tools to facilitate the research, organization, and dissemination of scholarship. CHNM currently leads two major open source software development projects, one designed to assist the consumers of digital content (i.e. researchers), the other to help producers of digital content (i.e. authors, publishers, libraries, museums, and archives). The experience of working on these popular, complementary projects perfectly positions CHNM to host a institute on tool building, and our agile, pragmatic, results-based approach in both projects has informed the agile and practical approach we will take with *One Week, One Tool*.

For content consumers, CHNM offers *Zotero*, a free, open source, easy-to-use research tool that helps researchers gather and organize resources, and then annotate, organize, and share the results of their research. Funded by major grants from IMLS and the Mellon and Sloan Foundations, *Zotero* includes the best parts of older reference manager software—the ability to store full reference information in author, title, and publication fields and to export it as formatted references—and the best parts of modern software such as del.icio.us or iTunes, such as the ability to sort, tag, and search in advanced ways. Using its unique ability to sense when one is viewing a book, article, or other resource on the web, *Zotero* will—on most major research sites—find and automatically save the full reference information in the correct fields of the researcher's personal database. *Zotero* users will soon be able to share their collections with other users, collaborate on research projects, send their collections to other free web services (such as mapping or translation sites), and receive recommendations for new resources. *Zotero* is currently used by 1.6 million researchers in over 100 countries, in languages ranging from Arabic to Vietnamese.

For content producers, CHNM offers *Omeka*, a web publishing tool that is oriented toward the needs of humanities scholars and cultural heritage institutions, especially those who want to incorporate interactive features in their websites but lack the technical staff to do so. From the Swahili word for "display," *Omeka* is free and open source. It offers low installation and maintenance costs, promotes compliance with accessibility guidelines (e.g. Section 508) and prevailing metadata standards (e.g. Dublin Core), and brings Web 2.0 technologies and approaches to cultural heritage websites. Less than one year after its public launch, *Omeka* has already seen tremendous success with nearly 5,000 downloads and robust, growing, and active

open source development and user communities. Institutions that have adopted *Omeka* include the New York Public Library, the Newberry Library, the Ohio Humanities Council, and the University of California, Berkeley.

One Week, One Tool will be held for one week in June 2010 in CHNM's main offices on the Fairfax, Virginia campus of George Mason University. In addition to nearly twenty private and semi-private staff offices, CHNM possesses a 20-seat digital humanities lab; three large collaborative workspaces; a kitchen; a comfortable lounge area (the "Owl Lounge") for breaks and informal conversation (and the occasional Wii bowling); and a 25-seat conference room. The main work of *One Week, One Tool* will be centered in the conference room, but each of these spaces will be available to participants for break out discussions, whiteboarding, pair programming, and relaxation. We will encourage participants to join in the life of the CHNM lab during their stay, and indeed we see this interaction with CHNM's staff and immersion in CHNM's way of doing things a key part of the training *One Week, One Tool* will provide. Lodging will be modest, in dorms on campus. Breakfast and lunch will be provided each day in the meeting rooms. Dinner on most days will also be taken with the group, in some cases while working late in the meeting rooms.

CURRICULUM AND WORK PLAN

One Week, One Tool will proceed in three phases, the first two on site at CHNM and the third during the year after the initial "barn raising" is complete. (See also Course Outline, Appendix A).

Learning (Days 1-2):

The first two days of *One Week, One Tool* will introduce participants to the basic elements of digital humanities tool building. On the morning of Day 1, CHNM and *Zotero* Director Dan Cohen will provide a brief introduction to CHNM, outline the week's schedule, and lead a brief discussion of participant and organizer expectations. This introduction will be followed by a presentation by CHNM Managing Director and *Omeka* Executive Producer, Tom Scheinfeldt, who will discuss key issues in conceiving, funding, launching, and managing digital humanities tool building projects. Following lunch on Day 1, *Omeka* Technical Lead, Jeremy Boggs, will introduce participants to open source software development best practices and environments.

On the morning of Day 2, *Omeka* Development Community Lead, Dave Lester, will provide an overview of lessons learned in building a community of open source developers for digital humanities projects. In the afternoon, *Zotero* Community Lead, Trevor Owens, will discuss end user outreach and dissemination strategies. Dan Cohen will close the first phase of *One Week, One Tool* by leading a discussion of the near future of digital humanities tool building, providing a keynote for the week's second phase.

Doing (Days 3-7):

On the morning on Day 3, we will jump immediately into the tool creation process. Our first task will be deciding what to build. The morning will consist of a free-form brainstorming session led

by Dan Cohen. After lunch Tom Scheinfeldt will facilitate a narrowing of ideas presented during the morning and a practical assessment of scope and scale. Participants will also research what has already been done in the group's areas of interest. At the end of the day, a vote will decide the tool we will build.

Day 4 will begin with assigning project roles. Participants and organizers will be self-selected into three groups: project management, design, development, and outreach. Dan Cohen and Tom Scheinfeldt will facilitate the work of the project management team. Jeremy Boggs will take responsibility for the development team. Trevor Owens and Dave Lester will coordinate the outreach team. By afternoon on Day 4 these teams will be hard at work. The project management team will begin brainstorming sustainability approaches for a finished tool. The development team will make decisions about which technologies are best suited to the tool, prepare technical specifications, start outlining a development roadmap and implement the SVN repository and Trac ticket management system. The outreach team will begin discussions about how best to reach end users. These preparatory discussions will continue through a working dinner on Day 4.

Day 5 will likely be the longest day of the week. By the end of the day the project management team will have outlined the basics of a funding proposal and sustainability plan. The development team will have made technology choices, finalized a roadmap for the prototype, assigned roles, and started coding. The outreach team will have outlined the most promising avenues for marketing and publicity, started work on dissemination products, and begun the work of establishing feedback channels (user forums, listservs) for end users and developers. Finally, during a working pizza delivery dinner, teams will convene in plenary to report on their progress and coordinate efforts. Very likely, organizers will suggest changes to the schedule for the final two days of the week to accommodate unexpected difficulties and bottlenecks.

Like Day 5, Day 6 will consist of long hours of writing, coding, and development. Implementing work plan refinements decided the previous evening, the management team will write the bulk of the funding and sustainability proposals, the development team will complete most of the essential coding work, and the outreach team will finish developing its dissemination products. By the end of the day a pre-release "alpha" version of the software will be ready for initial testing and bug fixes.

On the morning of Day 7, we will make last minute bug fixes, finalize the prototype, do an initial focus group test with staff from CHNM and the wider George Mason community, finish setting up feedback channels, and launch the tool. After a brief celebratory lunch, all participants will turn to assist the dissemination team in a coordinated publicity push, disseminating the products they developed, live blogging the launch and the week's activities, pinging Twitter and other social networks, and answering public inquiries in the forums and other feedback channels. The day will end with assignment of next steps for continued planning, development, and dissemination during the first weeks, months, and year of the tool's release.

The First Year

The launch of a tool, as we have learned, is only the beginning. After the institute has ended, we will continue to collaborate on funding proposals for a production-grade tool and on

development and outreach through the channels (SVN, Trac, dev list, forums, wikis) established during the on-site institute. This will be as much a part of the training as the weeklong institute itself. For the duration of grant period (approximately one year after the institute's end), the team built at the institute will work together as the seed of an active open source community to advance the tool, expand a developer community, increase its use, and secure continued support:

• *Spreading the circle*. Open source projects—and indeed most digital tool projects—eventually whither because the original developer or developers run out of steam, move onto other projects, or change institutions. Guided by the team at CHNM, participants will work during the year following the on-site institute to recruit, train, and involve additional developers in the effort.

• *Internationalization*. Tool-builders often ignore the fact that 80% or more of the potential market for their tool does not speak the same language as they do. Yet language localization is not only a social good, it is also good for a project's sustainability because it is a simple way to multiply a user base without adding new features. Therefore, in addition to providing instruction and making preparations for internationalization of the tool during the weeklong institute, CHNM will help participants build a worldwide translation team during the following year. As CHNM has done on other projects, the *One Week, One Tool* team will reach out to open source translation teams such as those at Babelzilla and counterparts at foreign universities for help.

• *User Community Development*. It has never been enough simply to put a tool up on a download site and hope for the best. Successful projects create vibrant communities of users around their tools. Users expect not only to find a dedicated site for a tool, but also to find active forums (preferably with moderation from the tool's team), FAQs, documentation, screencasts/videos from introductions to specialized features, and other support mechanisms. Trevor Owens, community lead from the *Zotero* project will lead an ongoing effort by the *One Week, One Tool* team to continue building strong end user ties to the project and improve supports for them.

• *Feature Requests/Upgrades*. As we have noted, a digital tool is never fixed; it will always encounter new uses and new technologies, and thus the need for new features and overall upgrades. But how to prioritize, schedule, and launch these new versions? This process can only be dealt with in the course of the project rather than at a workshop. Over the first year, we will train the institute's team in the management of feature requests including how and when to roll out hidden upgrades like database tweaks or more disruptive upgrades like user interface changes.

• *Alliances/Partnerships*. Tool projects are rarely islands unto themselves—or at least they should strive not to be. Over the first year we will help institute participants forge relationships with complementary projects, standards organizations, and academic institutions, something that could never happen in just the first week. Not only will collaborations of this sort provide new avenues for development and uses for the institute’s tool, collaborations often also suggest new avenues for continued funding and support. Participants will learn to identify and pursue opportunities for collaboration, but we will also discuss situations in which linking to an outside tool, technology, or group presents a distraction from the core mission of the project.

These and other unexpected sub-projects undoubtedly will keep institute participants and their

training and support staff at CHNM busy throughout the first year after the initial institute. By the end of that first year of hard work, a reunion will be long overdue. Thus graduates of the *One Week, One Tool* institute will return to CHNM one year later to report their progress at a featured session of *THATCamp 2011*. Not only will this give them an excellent venue for showing off the progress of the project, but it will introduce them to an energized group of other potential users and developers.

Sustaining and Growing the Tool Beyond the First Year

Even a year of sustained effort is not enough to ensure the long-term viability and continued innovation of a digital tool for humanities scholars. Technical infrastructure constantly changes, new technologies come online and must be accounted for, and new features are imagined by the user community. At the end of the first year, CHNM will work to put in place permanent social structures to handle these eventualities.

First, CHNM and institute participants will discuss a permanent home institution (or network of home institutions) for the project, and exactly where the project should reside for the greatest chance of sustainability—e.g., in a library, a digital humanities center, etc.

Second, we will set up a plan for the continued renewal of project managers and developers. For instance, both *Zotero* and *Omeka* have cultivated new developers by noticing particularly promising commenters in the forums and on the developers' listserv. We will discuss what to do when an institute participant must inevitably move onto other pursuits.

Third, we will go over various strategies for the economic stability of the project (should it need significant resources to evolve), including merging with other projects, finding other funding sources, and potentially fostering revenue opportunities while keeping the code open source.

PARTICIPANTS

Twelve participants will be drawn from an open call for applications, which will be announced in February 2010, giving ample time for review and selection. As we hope to draw a diverse group of aspiring digital humanists possessing the entire range of skills necessary to conceive, manage, build, and disseminate a tools project, we will encourage applicants to argue their qualifications for themselves rather than seeking specific criteria in advance.

We have successfully implemented such a system for *THATCamp*, eschewing easy markers of qualification (e.g. a CS or MLS degree) and instead looking for signs of self-initiative, such as picking up a programming language on one's own, tinkering with new technology, or skills parallel to the ones necessary for the institute. Since CHNM itself consists largely of humanists who have learned (often on the job) highly technical roles, we will also be sure to include a selection of humanities scholars who show an eagerness to learn new things.

Given the importance of intra-team dynamics to the success of any open source project—especially at its inception—we will also look for signs of teamwork, patience, and flexibility. In addition, we will likely balance for geographical and institutional breadth, since this breadth of

engagement will help the project achieve sustainability goals in the mid- to long-term.

IMPACT AND EVALUATION

Impact. Along with the actual tool that will be created—a good in and of itself—we believe that *One Week, One Tool* will have a wide-ranging impact by disseminating the practical skills necessary to create successful digital tools for the humanities, even well beyond the workshop participants. Because the structure of the institute (and our philosophy of tool building in general) encourages the involvement of additional participants and outside collaboration and alliances, we anticipate an ever-widening circle of impact from the project.

Moreover, we expect that the institute will raise and directly address many of the other weaknesses—beyond the lack of collaboration—identified in an October 2008 NEH-, IMLS-, and NSF-sponsored workshop on digital tools for the humanities. Co-hosted by CHNM and the Maryland Institute for Technology in the Humanities, the conference of 50 expert software developers, humanities scholars, technologists, and funders expressed three needs for the continued advancement of tools for data-driven scholarship: 1) tool-builders need to understand better how to connect tools with other tools and with humanities content; 2) scholars often have trouble finding tools that are potentially useful to them, thus in the importance of "marketing" and awareness efforts; and 3) tool-builders are often ill-equipped to deal with problems staffing and project management (i.e., concerns beyond the code itself).

We believe the structure and content of both the first week and the first year of this institute confront each of these weaknesses, and we anticipate that as a group participants (and the support team at CHNM) will come to creative solutions for each problem. The project will thus become an exemplar that other tool projects can look to for lessons about strategy and execution.

Dissemination. CHNM has an unmatched long track record of delivering tools and resources for digital humanities scholarship. CHNM's websites receive more than 16 million unique visitors each year, and more than one million cultural heritage professionals and scholars use CHNM's tools. We will build on this strong track record in the *One Week, One Tool* project, harnessing existing connections and building new ones.

To reach end users we will publicize the tool using digital humanities listservs (e.g. CenterNet), H-Net lists, and the *History News Network*, a CHNM affiliate that sends a newsletter to 13,000 people three times per week. Equally important, CHNM sponsors a number of widely read professional blogs, and these blogs have proven to be a very effective means for rapidly disseminating news to those interested in digital tools. Additionally, we will make occasional use of the *Zotero* and *Omeka* project blogs to encourage existing users of those tools to try the tool developed for this institute. We will also explore designing and passing out t-shirts, thumb drives, stickers, or other promotional items to reward tool adopters. Finally, we will heavily use the services of del.icio.us, Flickr, and Twitter to create a sense of involvement and community for our constituencies.

To reach potential developers and attract a strong development community we will maintain open forums, an open documentation wiki, and a development listserv on Google Groups.

Members of the development and outreach teams will engage remote developers via IRC, enabling real-time response to questions and concerns. Most importantly, as described in the project plan, we will work to insure multiple pathways into the development community, for instance, by allowing community members to contribute not just code, but also less technical contributions such as internationalization and quality assurance assistance.

Evaluation. CHNM has a long track record of iterative evaluation, gathering, responding to, and implementing feedback from diverse project stakeholders at each stage of planning, development, and dissemination. Evaluation of *One Week, One Tool* will follow this model and fall into two main categories.

First we will conduct a thorough exit survey of institute participants to see whether the practical model of training embodied in *One Week, One Tool* in fact increased participant knowledge and skill in digital humanities tool development. We will conduct a second survey at the end of the first year of community development to see whether the weeklong institute and follow up activities have set participants on a path of successful continued learning. A key metric for this second formal assessment will be ongoing engagement with the community—whether participants continue to feel connected to the project.

Second we will track usage and continued development of the tool itself. One measure of this will be total numbers of software downloads and unique visitors to the project website. Another measure will be activity in the public forums. We will also track broader market indicators of mind share like blogs and Twitter "tweets" mentioning the tool. In addition to end users we will track the size of the tool's developer community as measured by total membership of the development listserv, frequency of postings, tickets and comments added to Trac, and community code commits to SVN. A last measure of project success will be whether the project's management team has secured additional funding for continued development and long-term sustainability.

STAFF

Dan Cohen, Director of CHNM and Director of *Zotero*, will have shared responsibility for all aspects of institute planning and implementation, provide a thorough introduction to digital humanities software development, lead the institute project management team, and oversee ongoing community development and long-term sustainability plan.

Tom Scheinfeldt, Managing Director of CHNM and Executive Producer of *Omeka*, will have shared responsibility for all aspects of institute planning and development, provide specific training in project management, facilitate tool choice, lead the institute project management team, oversee project evaluation, and mange project budgets and funder relations.

Jeremy Boggs, Creative Lead at CHNM and Lead Developer of *Omeka*, will provide specific training in open source best practices, lead the institute software development team, implement and maintain project technology, including SVN repository and listserv, and contribute design, programming, and project management expertise to ongoing community development.

Trevor Owens, *Zotero* Community Lead, will provide specific training in end user outreach and dissemination, lead the institute outreach team, and contribute to ongoing product dissemination and support.

Dave Lester, *Omeka* Development Community Lead, will provide specific training in open source community building, lead the institute outreach team, recruit open source community involvement, and contribute programming and support to ongoing development.

Amanda Shoemaker, Special Assistant at CHNM, will assist institute planning, venue scheduling, participant travel, and provide general logistical support.

BUDGET NOTES

Personnel. The project will be led by Dan Cohen and Tom Scheinfeldt, each of whom will participate directly in the workshops and provide leadership throughout the life of the grant. They will meet periodically with one another and with other program staff and participants to plan institute events, provide strategic direction, and evaluate progress. Dan Cohen's academic year costs at 15% of salary will be borne by George Mason University as in-kind contribution. Additionally, during the first summer when the first workshop will occur, the budget includes 5% for Cohen's summer research pay. Tom Scheinfeldt is likewise budgeted at 20% for the two-year period of performance.

During grant year one, Amanda Shoemaker will coordinate the workshop event. She will manage the logistics and work with the other team members to design the agenda and workshop activities. Content expertise and technical assistance will be provided by Jeremy Boggs, David Lester and Trevor Owens both during the workshops and throughout the life of the grant. The budget includes costs to cover 15% of their salaries and benefits.

Fringe benefit costs are standard George Mason University rates for Faculty (30.69%), Summer Faculty (7.65%) and Classified staff (42.11%).

Supplies. The supply budget consists of $500 for miscellaneous workshop supplies, things such as folders, nametags, and audio-visual equipment rentals. We have also included $4,500 for software licenses to provide institute participants with the necessary development environments for tool building. The particular licenses required will depend on the technical specifications of the tool participants choose to build in the early days of the institute.

Participant support. We have budgeted for 12 institute participants to attend the nine-day (one week plus travel time) workshop in year one. We have also budgeted for these same 12 individuals to attend the three-day *THATCamp* workshop during the second year of the grant. For each participant we have budgeted $700 for travel expenses and $124 per day for food and lodging in George Mason University housing. In addition to transportation, food, and lodging, we have budgeted a stipend of $100 per day to cover miscellaneous expenses and provide nominal compensation for sharing their expertise and time.

Facilities & Administrative Costs. Research administrative overhead costs are calculated at a

federally negotiated rate of 45.5%. Overhead calculations exclude all participant support costs.