The Future of Digital Scholarship: Preparation, Training, Curricula

Report of a colloquium on education in digital scholarship, April 17–18, 2009
Sponsored by the Council on Library and Information Resources and Emory University
Libraries

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Background

In recent years, the topic of digital scholarship has gained new significance in scholarly
arenas around the world. The growing number of digital studies centers has provided an
alternative to the tenure-track academic path for recent Ph.D.s in the humanities. In the
United States, two recent examples of digital scholarship's continued growth are the
creation of the Office of Digital Humanities under the National Endowment of the
Humanities and the attempt by the American Council of Learned Societies (ACLS) to
encourage new methods for collaborative research through grant initiatives.

Although digital scholarship is creating new professional avenues, it is still unclear what
kinds of skills or training will best equip young scholars to avail themselves of these
opportunities. Many of those already at work in digital centers came of age during the
popularization of the Internet in the 1990s; these individuals relied upon individual
extracurricular interests to provide skills in digital technology. Still other scholars gained
exposure through fortuitous participation in early digital projects, such as the production
of a CD-ROM or Web site. But today, as digital technologies begin to have significant
impact upon disciplines,[1] the question of curricular training arises: should there be more-
formalized preparation in digital technologies for scholars now emerging on the scene?
And if so, what should this training look like?

Participants in the colloquium "The Future of Digital Scholarship: Preparation, Training,
Curricula" held April 17–18, 2009, addressed these questions. Cohosted by the Council
on Library and Information Resources (CLIR) and Emory University Libraries in Atlanta,
Georgia, the event brought together experts from a variety of disciplines to discuss the
preparation needed to engage in digital scholarship. Participants, many associated with

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[1] There are many examples, but take, for instance, "digital history" from the Center for History and New
Media (http://chnm.gmu.edu) at George Mason University, which is tied to the Department of History and
Art History; former and current directors Roy Rosenzweig and Dan Cohen literally wrote the book on it,
Digital History: A Guide to Gathering, Preserving, And Presenting the Past on the Web (University of
Pennsylvania Press, 2005). Or, scholars of the nineteenth century in the United States and the United
Kingdom can have their digital work peer-reviewed through the community formed by NINES
(Nineteenth-century Scholarship Online) at http://www.nines.org. Text-mining tools such as TAPoR (Text
Analysis Portal for Research, http://portal.tapor.ca) are already having an impact on the study of texts, as
well as disciplines such as literary criticism or linguistics.

centers or institutions involved in producing digital scholarship, came from the United States, Canada, and the United Kingdom.

This paper offers an analysis of the presentations and discussions that took place during the conference. We chose an open format to encourage wide-ranging conversation. Our aim is to summarize the points of consensus over the two-day event, as well as markers of difference, and next steps desired by the group.

Key topics and questions

Digital scholarship, for the purposes of this symposium, was broadly construed as research, publications using digital media, and digital "projects." Though the disciplinary focus of this discussion was the humanities and social sciences, it was not strictly limited to them. Because research in digital scholarship continues to emerge and because of its collaborative nature, we structured the colloquium to encourage as much discussion as possible. Participants were presented with three overarching themes:

> *The current state of digital scholarship (education)*. We asked the participating scholars to take stock of the current state of digital scholarship training or education in their respective fields. Implicitly, this required the participants to define what digital scholarship entailed. We asked them to think about what specialized coursework or programs prepared students for digital research or projects at their institutions. We also asked them to think about the aims and philosophies behind these courses and programs.

> *The problem of training and methodologies*. We asked the scholars to consider what kinds of training and preparation—beyond the standard disciplinary training afforded by most graduate programs—would best benefit undergraduate and graduate students for subsequent work in digital scholarship. In particular, we asked them to consider methodologies, technical knowledge, or other specific instruction they found to be in particular demand, especially if they were affiliated with a digital studies center.

> *The future of digital scholarship in the academy*. Finally, we wanted to address the question of digital scholarship production in the university more broadly. Consequently, we asked participants to consider whether certificates and other specialized preparation for digital scholarship activities did in fact provide doctoral graduates with a competitive advantage in seeking tenure-track and other kinds of appointments in academia. We also asked the group to make projections, such as whether they thought the growth in digital scholarship would continue, and what its impact might be upon the current university structure.

The three themes were organized into five roundtable topics. We asked participants to contribute a brief presentation to one of the roundtables, which were structured so that each presenter represented the perspective of a different discipline or academic context. After these presentations, discussion and response were open to all participants in each roundtable. The following paragraphs describe the roundtable presentations and provide a sampling of the ensuing conversations.

How is the injection of digital scholarship or digital humanities transforming your field?

In Roundtable 1, presenters Stephen Ramsay, Holly Willis, and David Germano addressed the question of transformation. Ramsay argued that the digital humanities were, in fact, **not yet** transforming the field of English literature. He believed that this would not occur until the publishing model of his discipline moves away from the book or monograph. However, he suggested that we do not have long to wait; the transformation of the publishing model will eventually make digital skills and computational modes of thinking obligatory for all scholars in the humanities. Future changes include the abolishment of the university press system as we know it, complete, open access to all scholarly products, codex printing by subscription only, university presses as the print works for their own universities, and scholarly societies as brokers of peer review.

Willis expressed frustration concerning the lack of widespread transformation to humanities disciplines by digital tools and methodologies. She claimed that advocacy within and across universities will be a vital component of advancing digital scholarship and its value in traditional processes such as tenure review. She argued that digital scholarship has led to the development of curation as a scholarly practice, and that this new methodology promises to significantly transform the humanities.

Germano suggested changing perspectives within digital humanities itself in order to enact transformation throughout the academy. He urged digital humanists to focus on service instead of products, arguing for the need to reconceptualize the academic endeavor toward community service and away from personal accomplishment.

The presentations sparked lively conversation about how best to leverage innovation within digital humanities to revive the humanities writ large. The importance of effective collaboration across disciplines was a common theme, though various participants also highlighted the need to translate collaborative work into existing review and evaluation processes. Finally, the group discussed the need to promote both the continuities and differences that the digital humanities has with the larger field, in order to establish relevance while demonstrating the transformative potential of digital methodologies, tools, and approaches.

Roundtable 2: Identifying the skills
What is the ideal skill set with which you would want to equip your student in venturing further in digital scholarship? (Or what are you looking for when you hire?)

Jeremy Boggs and Allen Tullos tackled the question of digital humanities practice on the basis of the experience gained in specific projects and initiatives at their respective institutions. Boggs, creative lead at the Center for History and New Media at George Mason University, addressed this question from the perspective of a doctoral candidate in the university's History and Art History Department. The symbiotic relationship between the center and the department creates many opportunities in graduate training, and Boggs offered four roles and sets of experiences that he has witnessed there. The roles of project

manager, information manager, creative director, and outreach coordinator demand a wide range of skills, from basic programming in HTML/CSS to information management to people management. The end goal was clear, however: to foster collaborative work in the digital realm.[2]

Tullos's experience as senior editor of the peer-reviewed digital publication *Southern Spaces* has allowed him to observe how graduate students encounter, become interested in, and acquire skills in digital scholarship. Arguing that Woodruff Library has acted as an incubator for the digital humanities at Emory, Tullos discussed how library-based digital scholarship projects have given Emory graduate students the opportunity to develop technical, analytical, and critical skills.

Following these presentations, discussants ruminated on the difficulty of balancing theory and practice in undergraduate and graduate curricula and wrestled with the difficulty of establishing a set of fundamental skills required of any given digital scholar. Participants agreed that training should focus on fundamental concepts, such as media editing, rather than on specific tools, like Final Cut Pro. Participants concluded this roundtable discussion by suggesting some tactical objectives for curricula in digital scholarship: to educate students on how to teach themselves new software and technical skills; to develop peer-to-peer support among both faculty and students; and to prepare students to work without the support of well-staffed centers.

Roundtable 3: The question of professionalization
How are you approaching the guidance of students into a profession in digital scholarship/humanities? Does your institution help you with this responsibility?

The disciplines of history and environmental studies were represented in the presentations made by Douglas Seefeldt, Peter Wosh, and Michael Page. Seefeldt presented the perspective of a program in digital history at the University of Nebraska-Lincoln that takes advantage of the presence of a Digital Humanities Center. Both a faculty fellow at the Center for Digital Research in the Humanities and a professor in history, Seefeldt elaborated on the objectives and products of the digital history curriculum, including providing undergraduate and graduate students the opportunity to engage directly with the methods and purposes of history while experimenting with new theories of digital history and its tools[3]; making efforts to disseminate the theory and practice of digital history to the discipline at large[4]; and hosting the *Nebraska Digital Workshop*, an annual event that recognizes the best digital humanities scholarship by early-career scholars.[5]

Historian Wosh drew parallels between the current digital humanities movement and the mixed success that history departments have had in integrating public history and archival education into graduate programs since the 1970s. In developing a digital history dimension for the M.A. in archives and public history program at New York University, the department encountered challenges such as departmental infrastructure, relationship

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[2] Those interested in learning more about the four roles may wish to consult Boggs's slide presentation, which is available at http://www.slideshare.net/clioweb/four-roles-for-digital-scholars.

[3] Examples of the courses are available at http://segonku.unl.edu/.

[4] http://digitalhistory.unl.edu/

[5] http://cdrh.unl.edu/opportunities/neb_digital_workshop/index.php

with the humanities computing area, and absence of a digital humanities center.

As the geospatial librarian at Emory University Libraries, Page supports a data center that provides stewardship of data, supports specialized applications, and provides space and access for collaborative and individual work. However, Page noted that faculty and students tend to work in their own preferred spaces, such as offices or departmental labs. Therefore, Page distributes data across campus using network technology and liaisons with labs and classrooms across campus, and encourages the individual transformations of scholars and emerging scholars through workshops and consultations. This approach allows scholars to do innovative things with data they have been working with for years, or even decades. While new labs would not be particularly useful, Page argued that collaborative spaces that offer specialized applications are desperately needed. Many institutions lack such spaces; in other cases, those that exist have not been fully funded.

Participants discussed similarities between the public history movement, described by Wosh, and the digital humanities, considering the possibility of becoming a specialized academic field and the danger of marginalization. Members also discussed the need for more effective, flexible collaborative spaces. Some argued that the spread of collaborative scholarship throughout the humanities depended upon work spaces that enable and encourage collaboration and new means of evaluating such work for tenure review.

Roundtable 4: Tomorrow's outlook
How do you believe your scholarship or this field will grow over the next 10 years, and what challenges will it encounter?

Dean Rehberger, Andrew Mactavish, and Ted Friedman projected future developments and challenges in digital scholarship. Rehberger focused both on current needs and future directions in digital humanities. He maintained that we need to understand more about how faculty members are currently using technologies for research in order to improve points of enhancement and intervention with digital humanities; at the same time, he predicted that the future will emphasize the harnessing of high-performance computing for qualitative analysis of both large archives of digital materials and global cultural data flows.

Mactavish focused on funding and interdisciplinary collaboration. He argued that the future of digital scholarship depends on securing reliable, ongoing funding and on composing truly interdisciplinary teams that will be ready to begin work in earnest as soon as funding is in place. Assembling cross-disciplinary teams presents a significant challenge—one that will require the creation of networks and relationships across disciplines so that scholars know what faculty in diverse fields are researching and studying.

Friedman discussed current convergences that he believes will soon lead to shifts in disciplines. For instance, convergences of technological innovation and the media industry will likely make academic specializations such as TV studies irrelevant. Instead, Friedman imagined a future of *transmedia* scholars who study core concepts and theories across media and explore the interactions between consumption and participation. Friedman also discussed the possibility of using gaming theory and gaming studies as a

means of studying interaction and collaboration and transporting those activities and values into scholarship more broadly. The participants showed much interest in the intersections of gaming and academe, and discussed the difficulty of championing play in academia. This difficulty, however, was countered by the promise of creating educational environments centered on pleasurable activities, which may well accelerate the process of learning.

Roundtable 5: Methodologies
Is there such a thing as methodology for this field or subsets of this field?

Laura Mandell and Harold Short shared their perspectives on whether a methodology exists for digital scholarship, however defined. This panel offered an interesting split: while Mandell argued that future humanists need training in skills such as digital preservation, Short maintained a contrasting point of view. Mandell, for example, talked about her efforts to create a graduate certificate in digital humanities, noting that they were similar to those of a colleague responsible for a digital humanities track within the computer science undergraduate major.[6] But rather than training scholars to have diverse skill sets, Short, in his program at King's College London, focuses on teaching people to work together as "interdisciplinists." Significantly, King's College's Department already offers the same kind of course that Miami University has developed. Mandell suggested that this similarity reveals an agreement about goals and techniques, even if the meaning of those techniques arises from different theoretical perspectives.[7]

An important point that emerged from the discussions that followed Mandell's and Short's presentations dealt with the relationship between technology and scholarly work. Echoing comments made during the second roundtable, various participants argued that technology should not be prioritized over the intellectual work that fuels digital scholarship. Thus, descriptions of digital scholarship and training of students for that field should focus on methods of analysis rather than on technologies or tools.

Digital scholarship: points of consensus and departure

An analysis of the discussions during the symposium reveals several areas of broad consensus, though their particular meaning for each participant may have differed. The following section attempts to translate these thoughts into a general reflection on three dimensions of digital scholarship: its pluralist nature, its collaborative character, and its transformative potential.

The pluralist nature of digital scholarship. Participants agreed that it is not possible at present to define the precise nature of digital scholarship. Is it mostly the product of tools and processes, a set of practices, a new methodology, or even a field unto itself?[8] This

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[6] Part of the Miami curriculum is available at http://unixgen.muohio.edu/~chat/xslt.
[7] For the King's College course, refer to http://www.cch.kcl.ac.uk/legacy/teaching/7aavdh06/xslt/html/index.html.
[8] Participants' observations mirror other attempts in the literature to define the nature of digital scholarship. The 2006 ACLS Commission on Cyberinfrastructure report emphasized digital tools and collections when it noted that digital scholarship meant "several related things," including "creating appropriate tools for

raises a number of questions: for example, the difficulty of locating digital scholarship is not merely a matter of its novelty; it also lies in the inability to ascertain how fundamental a shift is occasioned by the introduction of technologies to research overall. As one participant expressed it, is digital humanities [or scholarship] like eighteenth-century French history, or is it more like writing? In other words, is there enough work surrounding digital scholarship that it constitutes its own discipline—with a set of methodologies, theories, and even scholarly canon—or is digital scholarship as basic to all research as the skill of clear composition? And in either case, how does the introduction of these methodologies into different disciplines—for example, in history compared with environmental science—compare?

Depending on their context, our participants differed in the degree to which they felt that digital scholarship comprised a distinct field as opposed to transforming practices across subject disciplines in general.[9] Harold Short, for example, came from a context that already provides M.A. and Ph.D. programs; Laura Mandell, by contrast, is attempting to build a program at her institution. The very existence of this spectrum reveals the multiple nature of digital scholarship. Multivalent in its forms and using a wide array of methodologies, digital scholarship—according to the consensus of participants—has a multiple future in parallel and complementary, if distinct, efforts.

The collaborative character of digital scholarship. In addition to diversity, all participants agreed that a key character of digital scholarship was *interdisciplinary collaboration*. Because the nature of digital scholarship brings together at least two areas of development—digital technologies and disciplines of research—its very form requires interdisciplinarity. In fact, one might say with *The Digital Humanities Manifesto 2.0* that "Digital Humanities [or Scholarship] = Co-creation."[10]

The collaborative aspect of digital scholarship, however, is not the simple result of the collision of different worlds. Rather, it is something that demands thoughtful planning

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collection-building," "creating appropriate tools for the analysis and study of collections," and "using digital collections and analytical tools to generate new intellectual products," J. Unsworth et al., "Our Cultural Commonwealth: The Report of the American Council of Learned Societies Commission on Cyberinfrastructure for the Humanities and Social Sciences," *American Council of Learned Societies* (2006): 7. The Digital Humanities Manifesto 2.0, however, argues that at least when it comes to humanistic inquiry, "Digital Humanities is not a unified field but an array of convergent practices," "The Digital Humanities Manifesto 2.0," http://dev.cdh.ucla.edu/digitalhumanities/2009/05/29/the-digital-humanities-manifesto-20/ (accessed 4 August 2009). A past attempt of Sehat's to define digital scholarship straddled methodology and discipline: "a new field of study that addresses both the *problems* and *opportunities* that digital technologies present to the development of traditional methodologies of scholarship," Connie Moon Sehat, "What Is Digital Scholarship?" *Digital Scholarship Commons*, December 2008, http://disc.library.emory.edu/about/what-is-digital-scholarship.

[9] In fact, there is the question of whether the term *digital scholarship* has a future. As Diane Zorich observes, "As scholars ponder how to promote digital scholarship in the humanities, many believe the term 'digital scholarship' is destined for obsolescence. They argue that the distinction between 'scholarship' and 'digital scholarship' becomes meaningless as research and cultural production increasingly occur in a digital realm," "Digital Humanities Centers: Loci for Digital Scholarship," in *Working Together or Apart: Promoting the Next Generation of Digital Scholarship* (Washington, DC: Council on Library and Information Resources, 2009), 77.

[10] "The Digital Humanities Manifesto 2.0."

and appropriate contexts. Structural transformations in the university are therefore prerequisites to further developments in digital scholarship, especially if a campus aspires to large projects distributed across several disciplines. Participants agreed that a mix of tactics and strategies is necessary to build the capacity for effective interdisciplinary collaboration and partnerships. Examples of crucial next steps include the following:

- developing curriculum for digital scholarship;
- creating spaces for collaboration;
- advocating for digital scholarship or "evangelizing" its merits within the campus or seeking potential partners and allies;
- developing demonstrations of successful digital scholarship that showcase the benefits of collaborative scholarly production.

The transformative potential of digital scholarship. In addition to the structural transformations demanded by digital scholarship production, we could ask another question: what kind of new *scholar* can or will digital technologies require? As noted earlier, the impact that digital scholarship will have on academic research has yet to be determined. Addressing this shift involves not only outlining practices related to research but also considering the needs of the persons involved.

Participants felt that there is a lot to be done for the next generation of scholars. All agreed that faculty members have an ethical and a professional responsibility to develop graduate students for the changing field of humanistic inquiry. In terms of providing that training, we first need to develop better fundamental concepts and methods that ground digital scholarship practice; while the development of applications and tools are important, they also change—seemingly—weekly. What kinds of knowledge are necessary to carry young scholars through the multiplicity of new tools? Participants felt that the balance between theory and practice must be addressed. In addition, humanists need to become more informed about the computational sciences and technological innovations.

Given, however, that humanists are *not* computer scientists or technologists, and vice versa, there is a real need for more cross-campus cooperation in order to best support digital scholarship work. Moreover, given the variance in perspective and approach to the digital humanities itself, there is much to be gained from extrainstitutional cooperation. Leveraging faculty within the campus or across a group of universities to fulfill advisory or even coteaching roles in a cooperative curriculum are examples of the kind of collaborative activities that digital scholarship invites, if not demands. By providing a way to blur the "two culture" divide of humanities and the sciences or institutional boundaries—processes that are reinforced by cultures of diversity and collaboration— digital scholarship has the potential to transform research as it is currently practiced.[11]

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[11] C.P. Snow's "two culture" formulation of a split between sciences and the humanities has provoked much conversation within intellectual circles since his 1959 lecture. Snow later suggested that a "third culture" might emerge to bridge the two. Whether this has occurred, or is occurring, is debatable, but certainly the possibility of a merged culture is supported by the kinds of exchange that digital scholarship affords. See C.P. Snow, *The Two Cultures and the Scientific Revolution*, The Rede Lecture 1959 (Cambridge [Eng.]: University Press, 1959); and interviews with E.O. Wilson, Janna Levin, Lazslo

Points of challenge and departure. Despite its transformative potential for research practices at universities, the scholars agreed that digital scholarship itself is in need of support. Its growth is uneven across institutions; in general, participants expressed frustration with the slow pace at which digital scholarship is being introduced into the various disciplines. This issue is not "new," according to Andrew Mactavish, who noted that the slow growth of digital scholarship research has been discussed for about a decade. Ultimately, many felt that the academy does not fully value explorations into the digital humanities or scholarship. The lack of consideration is most reflected in the tenure-review process, which largely ignores accomplishments in digital scholarship.

Given the multiple, collaborative, and transformative nature of digital scholarship, it is not surprising that opinions varied. When participants disagreed, they did so not in terms of the possibilities and challenges that continued development in digital scholarship required but rather in terms of degree and approach.

For example, though the scholars agreed that the training of today's graduate students should include more from the sciences or non-humanities curricula, they were not sure about precisely *how much* more. Scholars also debated the definition, role, and function that productive service versus creative play should have in digital humanities and its curriculum. They were not certain as to the kinds of support would best benefit digital humanities: was centralized or decentralized support better, and did the presence of digital studies centers always benefit the broader adoption of digital scholarship across campus? Other open questions remain regarding the place of digital scholarship within the university: should digital scholarship operate as its own field, and therefore through its own program or department, or be integrated into existing departments? And in either case, *how* would this be accomplished? The "how" question also was echoed regarding the development of collaborative capacities across disciplines and universities.

Suggestions for moving forward

The discussions demonstrated that the three main issues that this colloquium covered—the current state of digital scholarship, the problem of training and methodologies, and the future of digital scholarship in the academy—were important and in much need of further research and development. Participants were asked to suggest next steps. The suggestions covered a range of areas—from theoretical analysis to simple practices. As a whole, they fell into four discernible categories: research and assessment, policy recommendation, community building, and program building.

Research and assessment

The following reports and studies were recommended. Given that digital scholarship is still defining itself, the request for these assessments will help address the issue of institution building.

To gain a better sense of the field:

Barabasi, Steven Pinker, Marc Hauser, Rebecca Goldstein, "Are We Beyond the Two Cultures?," *Seed Magazine*, http://seedmagazine.com/content/article/are_we_beyond_the_two_cultures/.

1. A study of other fields and disciplines (such as public history) that have undergone transformation in order to identify useful models or cautionary tales.
2. A map of the current state of institutional support, staffing, and resources for digital humanities and digital humanities training at large. Points could include projects, centers, tools, type of work, and, especially, a list of programs and courses already offered in the digital humanities/scholarship (with links) so that people can easily survey these activities.[12]
3. A detailed assessment of potential of institutionalizing digital humanities or digital scholarship as an independent discipline.

For current scholars:
4. A report (with Web presence) that assesses the current state of digital humanities scholarship and provides exemplars of the kind of work that can be done with digital humanities/scholarship methods and tools. Different from a mere map of the institutions involved with digital scholarship work, an index of actual digital scholarship production could be valuable in tenure and promotion evaluation and might inspire new work.
5. A study on alternative methods of publishing scholarly work.
6. A paper that challenges the top-down assumptions of conventional academia by articulating the engagement of Web 2.0 and game studies concepts such as user engagement, play, and crowd sourcing.

For future scholars:
7. A study of doctoral students with experience as "hybrid scholars," with specific attention to the presence of hierarchical assumptions about traditional versus digital scholarship production, and to any trends that discourage collaboration that would prevent truly hybrid scholars.
8. A CLIR report about the need for training graduate students in the skills and methods of digital humanities, emphasizing abstract, portable aspects of the digital. The report would have a strong pedagogical focus and would consider what school/department/college should teach digital humanities. Aspects of the report focus on the emerging roles and practices for young scholars (e.g., technical editor, as-yet-unnamed roles in Harold's methodological commons). It might also describe emerging methodologies and workflow patterns (service, gaming) and other models of "tacit teaching," noted Willis. Finally, the report could explain the value of technology methodological training for graduate students and compare it with similar training in the sciences.
9. A report on digital literacy in undergraduate and graduate curricula in regard to both current practices and future needs.

Policy recommendations

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[12] Diane Zorich's 2008 report does much to address this need for the United States. (Zorich, Diane. 2008. *A Survey of Digital Humanities Centers in the United States*. Washington, DC: CLIR). The report is available at http://www.clir.org/pubs/abstract/pub143abst.html. An example of a next step might take Zorich's points of analysis to isolate models or types of centers that have successfully negotiated support within the university context and to maintain this information dynamically. Having this information available, perhaps via the Web, would not only aid in the holistic comparison and contrast of working models but also help the process of institution building in fledgling programs.

As mentioned earlier, assessments and studies are required to support institution building. Reports such as those suggested in the previous section can help those already involved in the field, such as the experts gathered for the colloquium, transform the contexts of the academy in order to better support digital scholarship production.

Participants suggested the following:
10. A white paper on how universities can foster cross-department collaboration that offers structural models for collaborative research or programs.
11. Recommended methods or standards for departments in the evaluation of digital work and service for tenure and promotion. Boggs suggested that this should be fundamentally cross disciplinary, and any recommendation should help open networks of "approval" or peer review of digital work across disciplines. Such standards could serve as a foundation upon which faculty could work to change requirements for promotion and tenure both at individual institutions and broadly within the humanities.
12. Developing broad-range, grant-supported institutional support for postdoctoral positions that focus on developing skills in grant writing, digital publication, and design, among others.

Community building
To be effective in digital scholarship, digital humanists or scholars need to undertake institution-building activities such as shaping policy recommendation. But before then can do so, they need a more coherent constituency or community among themselves. A number of participants felt that overcoming the digital humanities "silo," as it was termed in the CLIR publication *Working Together or Apart: Promoting the Next Generation of Digital Scholarship,* is a major challenge.[13] To this end, the following practices were suggested:

13. Aggregate the continued work of the colloquium participants! Collecting the output of members of the colloquium could help build the necessary community, at least with respect to digital scholarship education.
14. Build a network of people in digital scholarship using existing Web 2.0 technologies such as Facebook and Twitter.
15. Create an updated blog listing with institutional needs for the digital humanities that are specific and can addressed by other group members or a collective grant.
16. Organize a panel at the Digital Humanities conference or create a virtual conference series organized around projects, shared problems, and themes.

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[13] As Amy Friedlander has observed, the new digital humanities centers "risk becoming silos and may constitute barriers to the evolving trans-institutional cyberinfrastructure, collaboration, and resource management necessary to achieve efficient allocation of expensive resources and to enable research at a scale that takes into account the wealth of heterogeneous digital source material as well as computational and analytical power," "Asking Questions and Building a Research Agenda for Digital Scholarship," in *Working Together or Apart: Promoting the Next Generation of Digital Scholarship* (Washington, DC: CLIR; 2009), 2-3. Community-building efforts like HASTAC (Humanities, Arts, Science and Technology Advanced Collaboratory, www.hastac.org) and the annual Digital Humanities conference by the Alliance of Digital Humanities Organizations are growing; the sentiment expressed by participants underscore the need to continue to build these networks.

17. Create a sustainable dialog between centers, collaboratories, and initiatives that can be archived online. One discussion forum could focus on issues of methodology, for example.
18. Extend the community. Invite computer science and engineering researchers to meetings like the CLIR colloquium and involve them in the conversation
19. Extend the community. Convene public workshops, and invite all interested individuals to attend and participate.

Program building
Building programs in digital scholarship could help form a digital scholarship community in practice. The following suggestions were made:
1. Develop curriculum guidelines or a common body of theoretical foundations that cuts across disciplines for the training of graduate students. Guidelines would include "real, working" suggestions for curriculum, lesson plans, and project ideas for students. The curriculum would also emphasize the need for more opportunities for graduate students to practice building tools. Wosh suggested the formation of an "educators' institute."
2. Convene an interdisciplinary workshops program.
3. Hold collaborative M.A. and Ph.D. programs across universities. Such programs could incorporate joint virtual teaching and supervision. They would promote cross-fertilization and communication among digital humanities courses across institutions in real time.

Concluding thoughts
In one way, the colloquium was inconclusive. Instead of providing any definitive answers to the questions raised regarding digital scholarship education, participants raised a good many more. If the theory and practice of digital scholarship is to advance, there is a need for clarification regarding issues like methodology and structural support.

However, the results of the colloquium were not disappointing. As one participant observed, there is the question of whether anything like consensus in humanistic scholarship—whether digital or not—could or should be achieved: "Digital humanities actually strikes me as *more* unified on this question [of training] than most disciplines, but that's not to say that there's anything like consensus, and I'm not sure there could ever be," noted one participant. And if the connections and conversations provided by the conference continue, then this CLIR colloquium provided precisely the kind of support that participants deemed necessary and in the very collaborative spirit that defines digital scholarship.

Acknowledgments

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