

Digital Humanities Scholarship and Electronic Publication

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Discussing the creation of the Office of Digital Humanities (ODH) within the National Endowment for the Humanities (NEH), the director, Brett Bobley, explains that most digital humanities (DH) work funded by the NEH involves “collections of cultural heritage materials, which are one of the primary objects of study for researchers across all humanities disciplines. Books, newspapers, journals, paintings, music, film, audio, sculpture, and other materials form a primary dataset for study” (Bobley 2008, 1). What is missing in this description is the development of collections of new cultural materials that are “born digital”—that is, texts that are authored to use affordances of screen-based interactions and new media technologies and are neither digitizations of print-based materials nor reproducible in print forms. Following, what is also missing from the ODH description of DH texts is the development of methods and methodologies for both studying and producing these new forms. While ODH’s intended corpus of DH materials has certainly expanded in the intervening years, the focus of many start-up grants funded by NEH are still primarily linguistic (e.g., language driven) instead of multimodal (e.g., linguistic, visual, spatial, aural, and/or gestural; see Cope and Kalantzis, 2000). As the

realm of DH matures, we suspect that there will be a strong turn toward screen-based scholarship—what we are calling *scholarly multimedia* or *Web texts*—and suggest that digital rhetoric is well positioned to participate in and contribute to DH when it does so.

The term *digital rhetoric* is perhaps most simply defined as “the application of rhetorical theory (as analytic method or heuristic for production) to digital texts and performances” (Eyman, in press). In this chapter, we take up the relation between DH and screen-based scholarship as a form of digital rhetoric practice. One of the ways in which we can further the study of Web texts is to develop scholarly approaches that partake of the same digital rhetoric methods and practices as the works we study. To that end, we argue that DH scholarship that takes advantage of digital, networked media and platforms serves as an enactment of digital rhetoric practice. And, as we develop scholarly approaches and platforms that further these practices, it is important to pay attention to the affordances and constraints of these platforms and to carefully consider the intellectual, social, and technological support structures that need to be used in the construction and dissemination of scholarly multimedia work. In this chapter, we reflect on a DH project that we undertook as editors of *Kairos: A Journal of Rhetoric, Technology, and Pedagogy* to discuss how digital rhetoric informs the scholarly, social, and technological infrastructures of this Web-textual journal.

Publishing Web-Textual Scholarship: Digital Rhetoric and Infrastructure

In a recent review of four books about digital scholarship, Cheryl Ball (2010) notes that most books on this topic address the institutional or technological activity systems of print-based scholarship put online. There is no coherent body of scholarship that offers a sustained analysis of scholarly multimedia and its growing impact on digital scholarship in the humanities, although there are several journals that publish this kind of work. Readers familiar with *Kairos*, for instance, know that it is a peer-reviewed, independent, open-access journal that has been publishing screen-based, media-rich DH scholarship since 1996 (see <http://kairos.technorhetoric.net>). Since its first issue, the mission of *Kairos* has been to publish scholarship that examines digital and multimodal composing practices, promoting work that enacts its scholarly argument through rhetorical and innovative uses of new media. *Kairos* authors design their own Web texts, drawing on whatever technolo-

gies, genres, and media they need to enact their arguments. Underlying each design is a unique information architecture of file names, file types, and directories. Every Web text is different, and, as editors, we cannot know or dictate (for the most part) what these combinations might be, which means that our submission, copyediting, and publishing infrastructures must be flexible enough to work with whatever architecture an author creates. (However, there are certain technologies that, for preservation purposes we do not accept. If we cannot host a Web text on our server, we will not publish it. This is an infrastructural issue that will, despite its importance, fall outside the scope of what we are able to discuss in this chapter.)

Because the journal is independent and totally open access, it has no budget. This means that the editorial team has historically relied on in-kind donations (of servers, staff time, software, etc.) to fulfill its mission. In addition, the unique designs of Web-textual publications as well as the length of time the journal has been publishing have meant that the journal's staff has had to rely on creative hand-made social and technical infrastructures to support its editorial work flow and the unique design needs of Web texts. That is, everything *Kairos* does to publish an issue is done manually since its staff uses the same technologies that were available in 1996: e-mail, listservs, SFTP, and HTML editors. We have not had the time, technology, or funding to change our process in the intervening years. Only recently, and only in response to the DH project we discuss below, did we create a wiki to track some parts of our editorial work flow outside this hacked-together, low-tech system.

In 2010, after several years of brainstorming ways to build an editorial-management system that would help us automate our submission, review, and copyediting processes in ways that were suitable to the multimedia content that *Kairos* publishes, we realized that we could not continue to rely on volunteers to build and maintain such a massive system. So we applied for and received an NEH Digital Humanities Start-Up Grant (Level II, \$50,000) to explore building scholarly multimedia plug-ins for open journal systems (OJS). OJS could automate our back-end work flows such as uploading and tracking submissions, initiating the review process, and tracking the copyediting process. It had a built-in user base of over ten thousand journals worldwide that might use or expand on our plug-in prototypes. It seemed an ideal avenue to explore because we would have a community to help support the software instead of a very small group of overworked English professors in primarily teaching-intensive faculty positions. A large part of

our choosing OJS was based on the infrastructural support we hoped it could provide *Kairos* and the digital rhetoric community.

Based on our tenure as editor and publisher of *Kairos*, we offer a three-part framework to analyze the underlying structures that support DH work: (1) the importance of design as a rhetorical vehicle for scholarly argumentation; (2) the available means of assessment and peer review; and (3) questions of the sustainability of the scholarly work, regardless of form, in the rapidly evolving technological ecosystems of the Internet. We apply these scholarly, social, and technical infrastructural issues to our uptake of OJS for *Kairos*'s use. Although this chapter approaches infrastructure from the perspective of editors and publishers, this framework will be useful to DH scholars as they consider whether to engage with publication outlets that can support DH production, as opposed to reporting in traditional, primarily textual forms.

The Scholarly Infrastructure of Digital Scholarship: Design as Rhetoric

The first challenge for scholarly multimedia in the humanities is the rhetorical function of design in the presentation of digital work. Just as Buchanan (1985) argued for the necessity of a theory of rhetoric in design, we posit that there is a need for a more explicit theory of design as an integral element of digital rhetoric practice: design as rhetoric. For digital rhetoric, design is equivalent to style; thus, scholars must be concerned with understanding all the available elements of document design, including color, font choice, and layout as well as multimedia design possibilities including motion, interactivity, and appropriate use of media. Style in this sense is also an important quality in terms of a given text's use and usability. Bradley Dilger (2010) reminds us that, for rhetoric, "style is never optional, as the common sense opposition of style to substance wrongly indicates" (16). Rather, it is an integral element of all rhetorical communication, and the question is not whether we want style or substance but what kind of style we want to deploy as a component of substance.

The function of design as an enactment of rhetorical practice for digital scholarship is a relation that we have attempted to champion and promote in each issue of *Kairos*, and the work that we publish has helped demonstrate how meaning making need not be solely textual. As we continue to promote the idea that digital scholarship can and should make arguments through the design of the work itself, we call

on authors to take up Anne Wysocki's (2004, 15) approach to composing texts in which their designs are overtly enacted through new media. In practical terms, engaging design as rhetorical practice means that digital humanists need to critically wield both rhetorical and aesthetic principles and bring together the particular design affordances of the *medium* of scholarly multimedia. The digital rhetorician (and, by extension, the DH scholar) must be able to work equally well with rhetoric, design, and code, if not alone, then in collaboration. Either way, academe's scholarly infrastructure—the ecosystems in which scholarship is an expected product of our reading, teaching, learning, and composing—must support design as much as it already supports content (as if content can ever be divorced from its form; see, e.g., Ball and Moeller 2008; Wysocki 2001).

At *Kairos*, as at several other online Web text journals in digital rhetoric, including *C&C Online* and *Vectors* and, more recently, *Enculturation* and *Harlot of the Arts*, design is treated as an equivalent form of argument to written content. Go to any of these journals' Web sites, and peruse the table of contents for a few minutes. It will not take long to discover how Web texts look like and draw on but function differently than linear scholarship (Ball 2004; Purdy and Walker 2010, 2012). Yet design as argument is mostly absent in DH journals such as *Digital Humanities Quarterly* or *Journal of Digital Humanities (JDH)*. The Winter 2012 issue of *JDH*, on the visually stimulating methodology of topic modeling, is a great resource, but, within the journal's narrow-columned Wordpress template, the articles are primarily print-like. Screenshots capturing examples of topic modeling are included as small, in-line figures, but they are difficult to read because they are shrunk to fit a narrow column (see fig. 5.1). *JDH* is not a singular example here: illustration do not make a print-like article into a Web text. Peruse most any online journal in DH, media studies, or game studies—fields whose missions *require* some form of multimedia as a corpus for close reading and, in some cases, production—and you will find only print-like articles talking *about* new media, not *with* and *through* new media. *Kairos*, on the other hand, is situated within a field built on researched practice, and authors do not have these same infrastructural constraints and are expected to highlight the visual and interactive designs as a main feature of the Web text (see fig. 5.2).

We mention *JDH's* use of Wordpress not to denigrate that choice. Many other online journals use similar content-management systems, such as Drupal, CUNY Commons, MediaCommons, and OJS—and for good reasons relating to those fields' journals' scholarly (print-based)

JDH Journal of Digital Humanities

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What Can Topic Models of PMLA Teach Us About the History of Literary Scholarship?

ANDREW GOLDSTONE AND TED UNDERWOOD

Of all our literary-historical narratives it is the history of criticism itself that seems most wedded to a stodgy history-of-ideas approach — narrating change through a succession of stars or contending schools. While scholars like John Guillory and Gerald Graff have produced subtler models of disciplinary history, we could still do more to complicate the narratives that organize our discipline's understanding of itself.

Figure 1: A browsable network based on Underwood's model of PMLA. Click through, then mouse over or click on individual topics.

5.1. Design is backgrounded in this typical DH article published online.

values. But we do want to point out that, as Selfe and Selfe (1999) said, interfaces are political, and technical-infrastructure choices are based on scholarly infrastructural values. Wordpress, for instance, allows only certain kinds of media types to be embedded in its pages, and HTML (the primary medium basis of Web text construction) is not one of them. So, if a journal's technical infrastructure does not support scholarly multimedia as an equivalent rhetorical tool to linguistic content, then the scholarly infrastructure of that journal and its discipline is au-

Views from a Distance: A Nephological Model of the CCCC Chairs' Addresses, 1977-2011

Thursday, April 2, 1998 - Chicago, IL
Technology and Literacy: A Story about the Perils of Not Paying Attention
 Cynthia L. Selle
 Michigan Technological University

access american attention citizens communication complexities
 computers continue critical cultural development economic
 education effects effort expand help individuals information involved issues
 literacy million national own pay political professional
 project provide responsibly schools save social students system
 teachers teaching technology understanding

Legend
 Move the sunburst icon left or right to see trends in word frequency.
 Large type indicates high frequency.
 Small type indicates relatively lower frequency.
 Deep hues indicate longevity in the series.
 Light hues indicate brevity in the series.

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Opening: Mrs. Peterson and Network Sense

More than three decades ago, Richard Lloyd-Jones (1978) recognized the pressures that accompany an accumulating record of scholarship when he noted in the first Conference on College Composition and Communication (CCCC) address that "keeping up with new work is getting harder all of the time" (p. 28). He expressed concern for challenges that come with growth and expansion in any disciplinary domain; "keeping up with new work" is a contemporary exigency facing many established disciplines (also emerging interdisciplines, fields, or subfields). In partial response to these challenges, Lloyd-Jones' address, "A View from the Center," also sought an adequate metaphor for making sense of who we are—as time-spanning audiences and as those identifying by proxy with a more or less shared domain of knowledge and practice. Lloyd-Jones deliberated on several metaphors in his address—mechanical, political, and anatomical—before settling on a network metaphor, although he never referred to it directly as network-based. The metaphor's exemplar was Mrs. Peterson, a small town telephone operator otherwise known as "central," who acted as a hub for connecting, filtering, and relaying all as a function of her work. Remaining connected and tied-in with current, accumulating conversations was the value Lloyd-Jones identified with Mrs. Peterson in response to "keeping up with new work."

The interconnected image of Mrs. Peterson may serve us well today as we continue to face challenges anticipated and described by Lloyd-Jones. There is conceptual alignment in his trope, the ideal of being centrally connected, in network-theoretic worldviews, and in abstract visual models that can provide different perspectives on changing disciplinary formations. The word clouds offered here are designed using distant reading methods to reduce and intensify patterns in one slice of a growing collection of materials: the CCCC Chairs' addresses delivered over the last 35 years. With this treatment, the addresses become visibly interconnected, an assemblage whose vocabularies fold unevenly forward through each subsequent address. Their rolling, semantic, congeries productively foreground an evolving disciplinary lens associated with rhetoric and composition¹. As the scholarly record grows there is an escalating value in realizing connections. This is exceedingly important for newcomers to the field who must make inroads however they can: by conversation and

- 5.2. Design is foregrounded (through the interactive word clouds, screen left) in this typical Web text from *Kairos*.

tomatically constrained to valuing print-based, linguistic scholarship. Or worse, authors link out to their rich DH project from a print-like article they have written, effectively doubling (or tripling) their workload without ever getting credit for the original, designed work. This retroactive unmediation, which serves (to get digital projects to count within our traditional scholarly ecologies), performs what Gresham and Aftanas (2012) called the *second-shift work* of digital scholarly production. We argue that, until authors, editors, and publishers assume that design as argument can be a fundamental part of our scholarly infrastructure in DH, we will continue to see scholars shoehorn their screen-based projects (think large-scale DH projects like Hypercities, Writing Studies Tree, CompPileCritical Commons, etc.) into print-based, linear, traditional peer-reviewed articles so that designers can get institutional credit (Anderson and McPherson 2011; Godkin 2012). We at *Kairos* knew, for instance, that OJS was built to publish print-like scholarship and that it would be more work than a \$50,000 grant could accommodate to make it suitable to hosting Web texts as a front-end, reader interface, so we focused on modifying. We did not want to ask authors to shoehorn their work into a print-like system. Instead, we hoped to modify OJS to use for our back-end, social and editorial processes, such as peer review, discussed next.

The Social Infrastructure of Digital Scholarship: Collaboration and Peer Review

The infrastructure of scholarly practice for DH work is primarily the responsibility of the scholars and publishers of that work; what we are calling the *social infrastructure* is the most difficult of the challenges facing the publication of digital scholarship because the outcomes are dependent on the reception and use of that work. Traditional notions of scholarship and the institutional practices that rely on them (academic recognition, particularly in the form of tenure and promotion) represent a status quo that does not align well with new practices. DH work tends to redefine and complicate what constitutes a scholarly work as well as what should count as scholarly work (see Schreibman, Mandell, and Olsen 2011; Purdy and Walker 2010). It also tends to be collaborative, which serves as an additional challenge to the humanities status quo, which valorizes the scholar as an individual contributor to knowledge in the field (Spiro 2012). One of the benefits of supporting the social infrastructures of digital scholarship is that it helps show the benefits of collaborative work, which has been a challenge for scholars who publish in traditional forms as well.

Social infrastructure, then, concerns both assessment and peer review of digital scholarship. We have noticed that DH practitioners at conferences such as the Humanities, Arts, Science, and Technology Alliance and Collaboratory and the Digital Media and Learning Competition are beginning to wrestle with the frictions that arise between traditional mechanisms for evaluating the quality of scholarly work and their limited applicability to the assessment of new media scholarship. Thus, we echo Fitzpatrick's (2011) call for additional venues and mechanisms for providing peer review for scholarly multimedia. Doing so need not look like a traditional journal. Indeed, there is a clear need for means of providing assessment for the tools built by digital humanists, the production of digitized and categorized data sets, and scholarly multimedia, and it is likely that the traditional structure and time-bound practices of the academic journal may not be the most appropriate framework for these new publication and review platforms. Newer journals such as the *Journal of Interactive Pedagogy and Technology* and *DHCommons*, established venues taking new directions such as *Enculturation* and *Basic Writing e-Journal*, and presses including C&C Digital Press, Sweetland Digital Rhetoric Collaborative, and the WAC

Clearinghouse are implementing this social infrastructure in measured ways through a variety of bootstrapped content-management systems.

At *Kairos*, the new platform we planned would merge the linear, double-anonymous model of traditional journals, replicated and automated in OJS, with the collaborative, multitiered model of *Kairos's* partially open peer-review process. During the second tier of review (see “The *Kairos* Editorial Review Process,” n.d.), editorial board members collaboratively review a Web text submission on a closed listserv. Any one of the fifty board members can participate over a four-week stretch of review. Most submissions receive feedback from at least five board members, but some receive more. One of the challenges that *Kairos* has faced over the years is a decreasing number of participants during editorial review, we suspect because of overloaded service commitments; reviewing, which takes place over three or four weeks, often gets reprioritized in our overloaded in-boxes since we know others are likely to take up the slack in this collaborative process. But *Kairos* prides itself on always providing a collaborative review, which simultaneously ensures rigor and helpful critique in this nonblind process. (Space does not allow us to justify here why it is pedagogically inappropriate and technologically impossible to anonymously review scholarly multimedia.)

So, in an effort to increase collaborative participation during editorial reviews, we wanted to add a synchronous review option to our OJS project. Ideally, we would continue to provide the social infrastructure of asynchronous discussion forums, as one feature of the *Kairos*-OJS codebase (as John Willinsky, the creator of OJS, referred to it during the 2011 Public Knowledge Conference). And we would provide a new feature to that social infrastructure by offering synchronous reviewing, made possible through individual navigation of submissions with annotation tools (sticky notes, highlighters, etc.), text-based chat, and “share” buttons so that other reviewers could see the markup on one reviewer’s screen.

Whereas the editorial board listserv discussions of around fifty scholars tended to make more junior scholars shy at responding when they were unsure of their asynchronous audience, we wanted to revive the communal idea of the late 1990s’ Thursday Night MOOs, as the TechRhet community that is *Kairos's* primary audience base called them (John Walter, personal communication, July 10, 2012). The idea for this multimedia-based OJS review interface was that, whenever we had a submission ready for the board, the editors would post a notice for a review about a week in advance and then whoever could show up



(drink in hand at that time of the evening if need be) would live-review the Web text for an hour. A week or two later, the editors would collate those responses with the asynchronous ones from the discussion forums and write a review letter to the author(s). The synchronicity of the so-called Thursday night review also meant that reviewers would have to do less transduction from nondiscursive elements such as images, navigation, and color into discursive elements for a written review when they could circle, highlight, and share their screens in a way the database could capture and export.

This last point was crucial for us as editor and publisher: we still use YahooGroups for most staff and editorial board work because it archives everything. But a good portion of the journal's work, especially with authors, is conducted through nonarchived e-mails. So our interest in migrating to OJS as a back-end for *Kairos* also lay in the fact that it would archive and preserve all our correspondence in a single place—a technical infrastructural issue not to be dismissed when one considers the amount of e-mail correspondence *Kairos* has produced in its nearly two decades of existence, given its one hundred staff and board members and alums and the nearly one thousand Web texts it has published.



Sustainability and the Technical Infrastructure of Digital Scholarship



The third issue in editing and publishing scholarly multimedia (and digital scholarship in general) is sustainability, which includes both access and maintenance. Because technologies and systems are in a state of constant evolution, it is critical to build and maintain sustainable platforms for the publication of DH work. Many DH scholars are working specifically on these issues of sustainability and preservation with regard to digital artifacts, and it behooves us to make sure that these concerns are addressed proactively in terms of publication. Sustainability has long been an important issue at *Kairos*, as evidenced by its status as the longest continuously running online journal in writing studies. Other journals in these areas have either stopped publishing or taken a significant hiatus (see, e.g., Tirrell's [2012] mapping of online rhetoric and composition journals that shows this stoppage). While it is beyond the scope of this chapter to present the full range of technical best practices and recommendations, we do want to call attention to a



few technical infrastructure challenges that are particularly pressing for DH scholarship—each of which affects the long-term usability and sustainability of DH publishing venues. Some of these challenges include a reliance on proprietary software, the preservation of and access to obsolete formats, and citation rot.

The first of these challenges is the reliance on proprietary software formats. While there has been a general championing of the use of open-source systems for DH work in general, many Web-textual forms and DH approaches rely on functionality that is not available via open-source systems. DH scholars are currently wrestling with the question of preserving and maintaining access to obsolete formats, and even in just the past decade we have seen a rapid shift in formats. As a case in point, one of the most innovative and compelling examples of new media scholarship that we have published in *Kairos*, Anne Wysocki's "A Bookling Monument" (2002), is no longer accessible in all current browsers because the version of Macromedia Director used to create it is no longer fully supported by the latest version of the Shockwave plugin needed to view the work; moreover, that plugin is not available for Linux-based systems. And, between 2006 and 2008, no Shockwave plugin was available for Macs either—which is emblematic of the difficulties of maintaining digital scholarship over multiple platforms and in formats that may change over time (in this case, changes in the platform were made when Adobe Systems bought Macromedia in 2005). Since there is no guarantee of stability, editors and publishers must push for greater use of open-source, sustainable, and flexible formats, an argument that Karl Stolley (2006, 2013), among others, has made repeatedly within the digital rhetoric literature. One of the problems, however, with pushing for open-source versus proprietary systems is that there is not always a good open-source alternative. For instance, "A Bookling Monument" could not be reproduced in current applications (although it would be possible to update it to work more efficiently with the latest version of Adobe Director/Shockwave, but that would require considerable time and energy and the purchase of fairly expensive software—none of which should become a requirement of scholarly production).

Another key issue for digital scholarship is the quotation and citation of other online works. We have found that almost every work that *Kairos* has published includes links or references to works that have since moved location or vanished entirely. In this case, the author does not have control over what happens to these external sources, so, un-

like the issue of format, it is not a question of asking producers to make better or more informed choices about which sources to use; rather, this is an issue that needs to be addressed by publishers directly. In terms of technical infrastructure, we do have some options that can help alleviate this problem. Publishers can support and encourage the use of standardized systems that help track and monitor the location and status of both the works we publish and those that our authors cite by using systems like the International DOI Foundation's document object identifiers (DOIs), which function as "persistent interoperable identifiers for use on digital networks" (International DOI Foundation 2010). Because DOIs cost money, however, *Kairos* is limited in implementing them, but we have been pointing to versions of no-longer-extant works archived at the Internet Archive (archive.org) whenever possible (recent policy decisions mean that the archive is no longer a stable repository, unfortunately).

For both the proprietary or obsolete format problem and the ephemerality problem, metadata (defined as data about data) will solve some of these problems. We discovered this solution when completing a metadata mining project associated with our push to use OJS as a searchable database for *Kairos* Web texts (see Ball 2013). Metadata provides information about the contents, format, ownership, and publication of a digital work whether that work is still available or not. It also aids in accessibility and research; for instance, if Wysocki's (2002) "A Bookling Monument" Web text becomes inaccessible again owing to bitrot or plug-in failures, having a long scholarly and technical description, mimetype(s), and other types of metadata included as part of the Web text will allow readers and researchers to interact with the text in fundamentally more sustainable ways, even if not the way the author or editors originally intended. Inclusion of metadata should be an integral part of an author's invention and production process for digital works as well as a standard feature in the digital publishing process.

Building Support for DH Infrastructures: A Call to Action

While each of the three infrastructure areas discussed above affects all the stakeholders who produce and publish DH scholarship, the responsibilities for engaging and developing the foundations for effective production and dissemination reside with different actors for each form—creators of DH scholarship are most concerned with the scholarly infrastructure of rhetoric and design; editors and publishers are

best situated to work on the technical infrastructure; and both creators and publishers need to focus on the social infrastructure challenges of these new forms of scholarly work.

Current economic trends affecting scholarly publishing and increasing development and funding of DH work seem to indicate that those of us who support digital rhetoric work find ourselves at an opportune moment to promote DH scholarship writ large. Thus, we end with a call to action with an outline of four key tasks that DH scholars and those who support them should undertake:

- DH scholars need to consider developing and publishing scholarly multimedia work that is effective and accessible—which means learning to deploy rhetoric, design, and code.
- Editors and publishers need to develop new publication and peer-review platforms for screen-based work—and they need to hold scholars to high standards of accessibility, usability, and sustainability.
- Both scholars and publishers need to pay attention to and effectively use technological infrastructure to ensure findability and accessibility of new media scholarship.
- All the stakeholders in DH need to educate their colleagues and administrators and push for broader acceptance of new scholarly forms.

Although our efforts at creating a version of OJS suitable to meet these challenges was ultimately unsuccessful (see Ball, Eyman, and Gossett, in press), our NEH start-up grant did allow us to discover that these are, indeed, key challenges and needs for a scholarly community engaged in DH publishing. If we can collectively continue to develop appropriate publication venues and educate those outside DH, we have an opportunity to fully support a wide range of innovative new forms of scholarship.

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