Valuing Digital Scholarship: Exploring the Changing Realities of Intellectual Work

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Because published research is a significant component of tenure-and-promotion cases, even at institutions with an explicit teaching focus, faculty members often plan their pretenure scholarly activities on the basis of their understanding of how different types of scholarly work will be valued. At the same time, new technologies have influenced tenure-and-promotion considerations, expanding not only available venues of publication but also definitions of scholarly activity and production. Because these new technologies include both new knowledge products and new approaches to knowledge construction, efforts to categorize the scholarly value of digital work have been difficult and complicated. While both faculty members using digital tools and committees charged with evaluating tenure-and-promotion cases have tried to create appropriate categories for digital scholarship, their success remains partial. Both continue to raise important questions and concerns about how to approach digital work.

The late twentieth and early twenty-first centuries have seen a range of discussions regarding the value of digital scholarship in tenure-and-promotion cases—both in the humanities in general (Andersen; Borgman) and in English studies in particular (Bernard-Donals; Carnochan; Lang, Walker, and Dorwick; Levine; Miall; Nahrwald; Janice Walker). Increasingly, these discussions have pointed to the need to account for

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and value digital work. The CCCC and the MLA, for instance, both explicitly argue that digital scholarship is legitimate and should be evaluated accordingly. The CCCC advises that tenure-and-promotion committees and candidates should "account [for] technology-related work" in research, teaching, and service (*CCCC Promotion*), and in its "Report of the MLA Task Force on Evaluating Scholarship for Tenure and Promotion," the MLA asserts, "Departments and institutions should recognize the legitimacy of scholarship produced in new media, whether by individuals or in collaboration, and create procedures for evaluating these forms of scholarship" (11).

These published recommendations, as well as anecdotal accounts of attempts to follow them, have been valuable to scholars interested in exploring the potentials of digital scholarship. However, they also highlight the limitations that remain embedded in current approaches to digital scholarship. Though we are beginning to recognize the importance of digital work, discussions have tended to focus primarily on establishing digital work as equivalent to print publications to make it count instead of considering how digital scholarship might transform knowledge-making practices.

Though well-intentioned, the statements of governing institutions such as the CCCC and the MLA, which guide the decision making of tenure-and-promotion committees nationwide, can inhibit the drive toward alternative forms of scholarship, because they, perhaps unintentionally, place digital and print scholarship into narrowly constructed, oppositional genres that often privilege print and reinscribe the creative-scholarly split that has long been a problem for English studies. Cheryl E. Ball and Ryan M. Moeller point to how "many tenure guidelines . . . label research as either creative or scholarly," counting only the scholarly. In this binary, because digital texts are more visibly and consciously designed, they usually fall into the creative category; print texts fall into the scholarly category, which situates digital work outside the purview of knowledge making in the discipline. Given the inclusive intention behind the MLA and CCCC statements, this division is not what English studies wants.

This narrow binary is perhaps the most significant (and problematic) aspect of current attitudes regarding the value of digital scholarship. W. B. Carnochan, for example, reinforces a print-based affiliation in his claim that

> you can evaluate an electronic publication in the same way you evaluate anything else, except that (being old school) you may want to read it in printed form. Doctoral institutions have little experience evaluating electronic publications not because they pose a unique challenge but because they are not, or not yet, accepted currency. (198)

Carnochan is accurate that electronic work is still not widely accepted, though this situation is slowly changing, but he is less accurate that evaluating such work does not "pose a unique challenge." Not all digital publications can easily be printed out—nor should they be.

This binary relation creates a number of difficulties, both for scholars who wish to compose in and for digital spaces and for tenure-and-promotion committees who need and want to evaluate this work:

Because a binary relation always privileges one term, this positioning inherently situates either print or digital as superior. While current sentiment usually prefers print, the sentiment might eventually shift in favor of digital, which is also problematic.

Because the current binary privileges print, the perception is that good scholars (who are understandably concerned about tenure and promotion as well as the intrinsic value of their scholarship) will choose print.

To prove its merit, then, digital scholarship must establish itself as equivalent to print, using criteria developed in response to the affordances and predispositions of print genres rather than through a process that explores the potential affordances and predispositions of both digital and print texts and publication spaces.

Finally, situating print and digital publications in a binary relation focuses on the contrast of their respective materialities (i.e., one is printed out, while the other is looked at on a computer screen) instead of allowing scholars and tenure-and-promotion committees to examine and evaluate other differences and similarities that may affect the dissemination, use, and value of these texts.

The field should consider both digital and print publications in relation to larger, more systemic issues regarding the nature and value of various kinds of scholarly work: design and delivery, recentness and relevance, and authorship and accessibility.

These three areas—because they extend beyond simple materiality—provide a framework for analyzing scholarship across media and therefore define the intellectual purview of English studies as meaning making in all textual forms, not just print. A more systemic look at the affordances of digital publications can help us not only discuss ways we might reevaluate print publications but also define a more comprehensive list of the scholarly activities that we value and wish to promote.

Design and Delivery

In this section, we consider the ways that digital scholarship affords and promotes different kinds of intellectual activities and can significantly alter perspectives regarding the design and delivery of textual information.

Awareness and Control of Design and Delivery Choices

Popular and academic discussions (see, resp., Jaschik; Levine) often argue that the most important selling point for a turn toward digital environments is their alteration of the form of textual delivery. While productive, such discussions tend to focus on improving the ease and minimizing the expense of bringing information to readers, thereby limiting the value of digital publications to practical aspects of delivery and framing publishing digital scholarship as a material delivery choice, not a knowledge-making practice. Other advantages, such as the promotion of nonlinear thinking, are overlooked. A more nuanced exploration of design and delivery is possible.

Opportunities for awareness and control are often unavailable in the naturalized systems of print publication, where attention to the rhetorical canon of delivery has diminished (see Crowley). For Kathleen Welch, this move is to the detriment of writing and society itself, because it "reproduces the form/content binary that drives the movement to relegate writing to skills and drills and perpetuates the status quo of racism and sexism . . . and the removal of student-written language from the larger public arena" (145). We would add that this neglect of delivery also precludes the possibility of new forms of scholarly knowledge making that might challenge this racism, sexism, and denigration of student writing.

Digital scholarship, because it requires authors to create texts that are publishable and readable online, renews the need for a consideration of delivery. As Dànielle DeVoss and James E. Porter point out, attention to how digital delivery differs from print delivery is crucial in recognizing new possibilities for textual production and distribution afforded by digital technologies—and in understanding and responding to the application of intellectual property and copyright law to online spaces. These technologies ask for "an expanded notion of delivery . . . that embraces the politics and economics of publishing" (194). Applying this expanded notion of delivery to digital scholarly journals like *Computers and Composition Online*, *Kairos*, and *Vectors* can help us better understand what it means to deliver and archive scholarship in a single venue. Practicing this expanded notion of delivery may better prepare us to recognize not only the unique forms of production and distribution afforded by digital texts but also the forms of production and distribution embedded in print texts.

We do not argue that digital publication spaces are the only locations where examination of the ramifications of design and delivery choices can occur; such considerations (e.g., about page layout and image inclusion) are also part of the decision making in which scholars engage as they publish in print venues. For example, Steve Westbrook explains how

he was unable to include a desired visual image, a student's parody of a Maybelline advertisement, because the copyright holders would not grant him permission (458). Anne Wysocki's "Impossibly Distinct," an argument about the centrality of visual images in textual arguments, had to be reprinted because of mistakes with image reproduction in the initial printing (Hawisher and Selfe). Design and delivery clearly matter in print, particularly when texts explicitly engage topics related to visual design.

Despite authorial consideration of design and delivery in print, the visibility of their choices in digital environments encourages us to alter our approach to these choices in both digital and print locations. Scholars can make more informed decisions about designing print publications by attending to the design of digital ones (e.g., see LaSpina 109). Explorations of digital publications, then, can highlight an author's ability (and responsibility) to control the design and delivery options available for disseminating scholarly information. As Stephen Bernhardt, Karen Schriver, Wysocki ("Impossibly Distinct" and "Multiple Media"), and others have reminded us, the visual design of a text shapes readers' interactions with it and therefore participates in the communication of its ideas. When we do not control textual design, we lose an opportunity to influence readers' engagement with our scholarship. Conversely, when we attempt to better understand and control publication choices, we can see more clearly that they are based on a range of influences and possibilities for arranging, organizing, and structuring information as well as for facilitating a reader's comprehension and use of a text.

Design is part of all scholarly production and should be considered by those who make tenure-and-promotion decisions. The design of our online article "Digital Breadcrumbs" mimics the design of *Google* and is part of our argument that scholars often use digital resources, including popular search engines like *Google*, in nonprescribed ways for academic research-writing tasks. In presenting this article as part of our tenure-and-promotion materials, we face decisions about how best to showcase the scholarly content of the article and to highlight the ways the visual and structural design are crucial to our knowledge making. That focus on design is often necessary in the composition of certain types of digital publication highlights an opportunity: tenure-and-promotion committees might include design and delivery choices as part of the range of scholarly activities that can be considered. Instead of making a binary comparison of print and digital compositions or relying on a hierarchical catalog of publication venues based on print sources, committees might examine how a scholar uses a range of venues, tailoring them to particular kinds of work. Different publications require different scholarly activities to achieve certain rhetorical effects or to reach certain audiences.

Use of Multiple Modes

The use of multiple modes for the delivery of scholarly information is perhaps the most visible way in which digital publication venues can alter our understanding of how we present information. Digital venues allow authors to integrate word, sound, image, and video in new ways (Hull and Nelson; Johnson-Eilola; Selfe; Wysocki, "Multiple Media"). They thereby open the door for conversations about the relation between multiple modes of communication and the scholarly value and legitimacy of these modes. Because print publications often do not (and sometimes cannot) offer alternative modal choices, we have learned to see the paragraph-based print text as containing the highest order of logical coherence and, ultimately, knowledge making. However, when we consider alternative modes, we must also reconsider the methods through which they produce knowledge.

We can no longer evaluate both print and digital publications only according to criteria developed for print-based communications. For example, the MIT Libraries podcast series on scholarly publishing and copyright offers both podcasts and video articles on issues related to scholarly publication. These webtexts are specifically designed for faculty members and students at the Massachusetts Institute of Technology but are available to any interested reader (*Podcasts*). By using sound and video, the authors have altered not only the audience for their texts but also the ways that an audience might be reached and make use of the information. The shift to audio and video may seem relatively simple, but these alternative modes affect when, how, and in what ways users will receive and interact with the information on the site. In considering the value of such texts, one cannot stop at mode of production or genre. A podcast in this series should be evaluated in a framework of the rhetorical situation: How broad or specific is its content? Were articles solicited or submitted? How were they reviewed? How have they contributed to disciplinary knowledge? When assessed in such a rich framework, a text can escape the print-digital binary and be valued more accurately for the work it does to make or share knowledge and for the appropriateness of the author's choices for the needs of content and audience.

Rhetorically Rich Composition Practices

Digital publication processes can raise awareness of the relation between textual form and content. New media technologies allow us to split form and content in composing (Ball and Moeller; Perkel; Stroupe). In turn, digital work asks us to think of textual design as a communicative practice—a notion new to many writers who have been conditioned to ignore or dismiss design. Web 2.0 (digital spaces, like social networking sites,

wikis, and blogs, that allow for dynamic and collaborative content construction) facilitates the coconstruction of meaning and social space. *Second Life*, for example, is a collaboratively authored digital world used for everything from games to language learning to academic conferences. Its multiple users design the space of interaction, creating visual landscapes and personal avatars, as in Katherine Ellison's *Island 18*, where students re-create streets and buildings in and clothe avatars in attire appropriate for eighteenth-century London, and Bryan Carter's *Virtual Harlem*, where students work to rebuild virtually 1920s Harlem. Such digital spaces expand what it means to compose.

Digital compositions are, in fact, providing us with exigency: to compose in many types of digital environments (e.g., webtexts, blogs, wikis, Web sites, databases), authors must develop a more complex rhetorical understanding of the nature of each composition. Interestingly, at the same time as some scholars have begun to examine the nature of multimodal composition using digital tools, other scholars in cultural-historic activity theory and actor-network theory have been working to develop theoretical frameworks for understanding and mapping rhetorical activity in complex ways (Latour; Prior and Bazerman; Prior et al.; Russell). That scholars and teachers are increasingly engaging in the study and production of messy texts provides an important opportunity for us to move beyond narrow, print-based, nonrecursive conceptions of publication for tenure and promotion. Explorations of more complex rhetorical mapping could significantly enrich our evaluation of scholarly work in English studies.

We would like to see the evaluation of scholarly work in English studies expanded to include not only the design and delivery for a particular textual production but also the entire range of choices made by authors for the development, production, dissemination, and reception of their ideas in various digital and nondigital venues. Such an evaluation would require a more flexible approach by tenure-and-promotion committees to the kinds of activities considered and a more comprehensive approach by faculty members to the compilation of tenure-and-promotion documents. Instead of limiting ourselves to discussions of the rigorousness of the peer-review process of a particular journal (whether digital or print), we might begin to ask about the relations among ideas and publication venues, design and delivery of content, and reader interactions and the dissemination of scholarly ideas.

Communication of Complex Ideas

While print scholarship has frequently been considered the venue in which complex ideas are best disseminated, privileging this method for

producing knowledge fails to take into account the fact that digital schol-
arship can also allow for the communication of complex ideas through al-
ternative modes, interconnectivity, nonlinear relations, and various kinds
of author-reader interactions. As Mike Rose points out, complex processes
and thoughts can be difficult to communicate in print texts because they
lend themselves to presenting chronological, step-based relations between
static elements ("Sophisticated Ineffective Books" and "Speculations").
Web 2.0 environments provide the opportunity for nonprint publication
(video, audio, image) and more interactive exploration and development
of complex ideas. In some cases, digital scholarship may provide a better
location for a more speculative, associational kind of knowledge making
(Joyce Walker), as in Wysocki's "A Bookling Monument," which suggests,
through an interactive textual body interface, that how we see texts shapes
how we see (our) bodies—and vice versa.

To take full advantage of these opportunities, we must move away from
a perspective on scholarly activity that regards this kind of knowledge
making as less than rather than different from a scholarly article published
in a print journal. A wiki or blog that allows faculty members to compile
and share resources related to their specialty has clear value as a teaching
tool and community resource, but its scholarly value can be harder to as-
sess. Gwen Tarbox's blog on children's literature, *Book Candy*, illustrates
that combining resources for colleagues and students with knowledge
production is indeed possible. Evaluating such a text, though, requires
an exploration of not only the site but also the associated conversation in
which an author endeavors to participate and its conventions and goals.

Recentness and Relevance

In this section, we discuss the recentness and relevance of various kinds
of digital scholarship.

Speed

That digital scholarship can be published quickly allows scholars to dis-
seminate promptly the results of their research and readers to gain ready
access to information for use in their classrooms or research. Conversely,
print scholarship, which affords a relatively slow pace of knowledge ac-
cretion because the process of publication is more extended, allows more
time for authors and editors to ensure accuracy. We draw this contrast
not to establish a fast-slow binary but to emphasize that, while the speed
of digital publication in scholarly journals can be important (especially
for scholars publishing in fields where the state of knowledge changes

rapidly), there are other, less formal scholarly venues where speed of interaction is generative. The ability to converse quickly, whether in person or across geographic distance, can stimulate and sustain knowledge making. Using Kenneth Burke's parlor conversation as our metaphor (110–11), we can envision scholarly work (e.g., participation in digital conferences, scholarly electronic discussion lists, chat spaces) that contributes to a lively, productive, ongoing conversation—where scholars at various stages in their careers and research both generate new knowledge and benefit from the insights of others. *Wikipedia* can serve this function: discussion from a range of scholars leads to new knowledge (see Bruns; Poe). Such work has long been a part of scholarly activity in the form of face-to-face conferences, but it is important to note differences created by digital spaces, such as the creation of archives of conversations that are used over time, the data mining of site archives for the production of resource materials or research, or even the production of audiovisual archives of conference proceedings that are distributed online.

Extended and Dynamic Knowledge Production

Not only can digital scholarship be published more quickly, it can also be elaborated more fully and thus do valuable rhetorical work. With essentially no limit on length, digital texts can include more material, such as appendices, questionnaires, data sets, and interview transcripts, which allows for more critical review and replication of research studies. *Kairos* Best Webtext Award winners, for example, are nearly all much longer than a standard print journal article (Purdy and Walker, "Scholarship"). Indeed, the authors of one such award-winning webtext said they chose digital scholarship precisely because of this possibility for expanded development. Thomas Rickert and Michael Salvo assert their webtext allows for "more detailed examinations of key themes and concepts," explaining:

> The web works on a proliferation model where it costs nothing to produce more, access more, and find additional resources. . . . In creating this [webtext], then, we have done our best to make available all the resources that are stripped away during the process of creating an authoritative print-based text.

These "resources" include a glossary of definitions, extended endnotes, a list of fifty-two links to follow for additional information, five full-color images, six audio compositions, two podcasts, and a *PowerPoint* slide show.

These extended digital texts can be updated and revised over time. Mistakes can be corrected, author affiliations (which can be important for tenure and promotion) updated, and citations added. Such work, then,

remains current and alive—reflecting new discoveries and perspectives and reinforcing the notions that scholarship evolves, that texts are dynamic, and that knowledge making is an ongoing process. While new editions of print books and articles can take years to be published, digital texts can be updated in days or weeks. Print texts, perhaps partly because of the slower speed of publication, tend to value knowledge produced as more permanent and less subject to (speedy) alteration. This more permanent view of knowledge creation has advantages in situations where either frequent revisions of knowledge do not need to occur or consistency over time is valued. To evaluate scholarly activity that extends across digital, face-to-face, and print venues, we need to create frameworks that allow us to consider the ongoing, recursive nature of knowledge production.

Authorship and Accessibility

This section examines aspects of the authorship and accessibility of digital scholarship to help us think about how scholarly value, in terms of both innovation and knowledge making, may contribute to social interactions.

Collaboration

The frequently collaborative nature of digital scholarship allows for renewed attention to the value of collaborative writing and the problems of automatically privileging single-authored publications in tenure-and-promotion decisions. The MLA task force calls for valuing "scholarship produced in new media, whether by individuals *or in collaboration*" ("Report" 11; our emphasis). Anne-Marie Pedersen and Carolyn Skinner reaffirm the vital role of collaboration in producing digital scholarship, contending, "[T]he composition of audio or video projects relies on collaborators' combined knowledge of the project's topic, its dominant modalities, the technology used for recording and editing, the medium in which the project is read or circulated, and the conventions or expectations of audiences" (39). Scholars must be proficient in multiple modalities and technologies to produce publishable digital work. For this breadth of knowledge and for greater control over design and delivery, collaboration is valuable and at times necessary. Given the rapid pace of change in digital technologies, it is difficult for any one scholar to be sufficiently conversant in all the "modalities," "technolog[ies]," "medi[a]," and "conventions" Pedersen and Skinner mention. Though authorial choices in these areas have traditionally been more limited in print, recognizing how collaboration allows for more informed decisions and production competencies can make us appreciate more its value in print as well as digital forms.

The collaboration encouraged by digital scholarship extends beyond coauthors producing texts: digital scholarship fosters more collaboration among readers, writers, and textual sources. Digital texts promote a culture of sharing as they can be circulated easily among many people— for example, through social bookmarking sites, e-mail, and discussion boards. As Ellen Cushman, Dànielle DeVoss, Jeffrey T. Grabill, Bill Hart-Davidson, and Jim Porter argue, such ease of sharing changes how we interact with and use others' texts:

> [A]udiences and writers are related to each other more interactively in time and space. Writers can easily integrate the work of others into new meanings—text, image, sound, and video—with a power and speed impossible before computer technologies[, which] may be one of the most significant impacts of computer technologies on the contexts and practices of writing.

Digital scholarship fosters not only interactivity among texts and people but also cooperation over agonism in academic endeavors—a shift consistent with theories of writing, including postprocess and feminist perspectives, that value nonadversarial approaches to knowledge production (see Breuch; Hutcheon; Mortensen and Kirsch; Moxley; Olson). The borrowing and communal engagement facilitated by digital technologies can lead to new textual forms and knowledge-making practices that enact these theoretical perspectives, so they too should be considered in the evaluation of scholarly work.

Reader-User Interactivity

New and dynamic trajectories of composition can arise from the user interactivity that digital publications promote. Digital composition spaces encourage alternative ways for authors and readers to interact (Joyce Walker), as in electronic literature like Emily Short's "Galatea" and scholarly webtexts like Adrian Miles's "Violence of Text," where readers determine how the text unfolds. The digital nature of such texts makes them not only more usable but also reusable. It allows readers to be authors and promotes remix and assemblage, as demonstrated by Eric Faden's video "A Fair(y) Use Tale," which argues for fair use by remixing short Disney movie clips (Faden et al.). Johndan Johnson-Eilola and Stuart Selber argue that these beneficial writing practices help students "learn ways to use existing information to solve real, concrete issues" and "move from a focus on representation (what things mean) to action (how things function, and to what effect)" (378, 387). When such writing practices arise from reader-user engagement, there is greater potential for knowledge to be spread and

used—which, after all, is the purported goal of scholarly research. Tenure-and-promotion committees judge work for its influence on the field.

The influence of print texts is traditionally measured with citation: authors provide in-text and bibliographic references. They can certainly do the same in digital scholarship, but viewing all scholarship through the lens of reader-user interactivity can help us better recognize, understand, and value other possibilities—in any medium. As Doug Eyman points out, there is a spectrum of citation possibilities in digital and print texts, including formal citation (explicit in-text and bibliographic references), informal citation (in-text mention of an author or title but no explicit citation), hyperlinks, and appropriation or quotation of part or all of a text with or without attribution (76–79). All these levels of engagement should be taken into consideration in assessing the influence of scholarship.

Public Scholarship

Given the increasing calls in English studies to make our scholarship more public, decisions to produce and publish scholarship in ways that better reach the public should be evaluated across media. Contributors to *Profession*'s 2008 Presidential Forum, "The Humanities at Work in the World," trumpet the value of disseminating our ideas to disciplines outside English and to nonacademic audiences (e.g., Barsky 44–45; Brooks 39). Other scholars argue that extending scholarship beyond university walls is a necessary component of academic work (e.g., Cintron; Cushman). The affordances of digital technologies make it easier to export our work more widely. With the right software, readers can access many digital scholarly texts from any networked computer. They do not need to travel to a specific location, show particular credentials, or pay to subscribe to a specific journal to view these texts.

In digital environments, scholarly work can be not only brought to but also shaped by the larger public. For example, the HyperCities Project, the Clergy of the Church of England Database, and the Digital Archive of Literacy Narratives (DALN) all depend on public volunteers to contribute content and labor. The HyperCities Web site calls for people to contribute photos, maps, oral histories, and other texts that document the history of participating cities (*Getting Involved*). The Clergy database relies on volunteers from across Great Britain to compile records of clerical ordinations, appointments, and resignations between 1540 and 1835 from individual dioceses and submit them to a master database at King's College (*What Is*). The DALN asks people from varied social, cultural, and educational groups to submit print, image, video, and audio files that document their literacy development ("DALN Home"). Without public

participation, these scholarly projects would not exist—or at least not be as successful. Having such an important role in these projects can make the public more connected to and invested in scholarly research endeavors, which can allow digital scholarship to have a broader influence and make the public more conscious of our work and its benefits.

The stakes of expanding the reach of our scholarship may be greater than the respect afforded English studies, however. If we believe Grabill's claim that "the work of citizenship is knowledge work" and that the skills, habits of mind, and theoretical perspectives we teach and disseminate in our scholarship are crucial to this work (2), then getting our scholarship to larger public audiences enhances and ensures the health of the citizenry of our nation. The writing and information technologies with which citizens engage are sometimes complex and always rhetorical. What scholars in English studies have to share with the public about negotiating and understanding these texts and technologies can improve the public's participation in civic activity.

Accessibility for Research

Digital scholarship is also accessible to other scholars for research purposes. Researchers increasingly use citation managers, such as *Endnote* and *Zotero*, and social bookmarking sites, such as *del.icio.us* and *Digg*, to store and organize scholarship. With these programs, scholars can tag, annotate, and classify digital scholarship in ways that allow for easy retrieval and later use, creating a personalized record of resources and connecting to other researchers who have consulted them (Purdy). Print scholarship, unless it is digitized, cannot be stored in citation managers or social bookmarking sites. But in digital form, scholarship can be searched for key words, authors, and so on and be linked directly with other texts. Thus it can be readily found and used by others—including our students, who often turn first to online sources, which they find quickly through key word searches in *Google*. Digital work is more likely to be read and cited by younger generations conducting research.

Professional scholars also often consult digital texts for research-based writing, though they may use more sophisticated practices (e.g., employing advanced Boolean searches, searching in vetted archives). In surveying scientists about their article seeking and reading behaviors, Carol Tenopir and Donald W. King found that the "advent of digital technologies on searching and publishing . . . has had a dramatic impact on information seeking and reading patterns in science." Their study reveals that in 2005 over half the texts scientists read and over ninety percent of searches they did were from electronic sources. The digital realm serves as the primary

locus of research for researchers at every level. If academics are more likely to turn to digital sources for their research, academic work published in digital spaces should be recognized for tenure and promotion.

The ability to follow hyperlinked citations in a digital article can shape future citation behavior. Not only do the science scholars whom Tenopir and King surveyed increasingly search and read digital scholarship, they increasingly cite it. Tenopir and King contend, "Following citation links in electronic journal articles may have proportionately more influence on citation behavior than reading behavior." That is, linking can increase the likelihood that a text is cited. This finding is key for scholars who want their work to be read and cited—especially given how tenure-and-promotion committees often look at citation frequency in assessing a text's success.

The affordances of digital scholarship merit attention as shaping scholarly activity. Some search engines operate on the basis of frequency of key words in a text, and page rank on search results can depend on this frequency. If scholars write with such retrieval in mind, what constitutes good academic writing changes. Writers are advised to compose titles and abstracts that contain and repeat key words. Because digital publications are often more likely than print to be read and used, academic publishing changes too. Digital availability is akin to circulation for a print journal, so scholars are well advised to publish in digital venues to maximize exposure to their work.

Further potentials for searching and data mining exist once digital scholarship is retrieved. Scholars can search in digital documents easily—for instance, to find in which section a particular quotation appears or to determine the number of times a specific word or phrase is used. Gathering this data can take considerably more time in print texts. Thus, these affordances make more feasible closer attention to both a single scholarly text and a larger corpus of scholarly texts.

Digital scholarship furthers productive research because knowledge development can be traced and reshaped more easily in digital venues. Scholars can provide a record of how they created a text, as in Robert E. Cummings and Matt Barton's *Wiki Writing*, an edited collection that was composed in a wiki. This record provides invaluable access to the development of knowledge and a site for future research. Scholars benefit from having multiple versions of their text saved for easy comparison; other researchers benefit by having a built-in repository of work to study.

The processes of knowledge making we discuss above are not unknown to the academy. They are simply less visible than the embedded values that

have come to be associated with the scholarly print text. This decreased visibility is partly because a notion of single, print authorship is perhaps easier and less complicated to assess, and the more collaborative and open practices associated with digital work have, in the past, been part of face-to-face interactions and personal communications not easily archivable or sharable with others. Tenure-and-promotion guidelines are often not explicit about how this rich range of activities might be documented or assessed, and efforts to categorize activities into discrete sections for service, teaching, administration, and research often exacerbate the problem because a faculty member's scholarly activities can reach across these boundaries.

Because the category of research is often limited to narrowly defined "scholarly publications" (Boyer 16), other activities, such as those associated with digital work, which may represent significant production and dissemination of new knowledge, are considered secondary to those embodied in single-authored, print-based, textual production. Perhaps it is time we ask ourselves why. Do we wish to continue to privilege only one of the myriad opportunities now routinely available to us for creating, sharing, and contributing to the knowledge-making practices of our respective scholarly communities? Since we have long claimed to value the kinds of speculative thinking and association making that lead to new conversations and innovations, it seems limiting to place primary value on the linear, argumentative coherence that has become the province of the scholarly print essay in the American academy. As more scholars produce and value digital texts, we need ways to assess them.

The process of rethinking these values will require us to create new frameworks, like the one we begin to advance in this article, in which the nature of scholarly work is broadly defined and where the materiality of a text becomes less important than a consideration of the complex rhetorical situation in which it makes meaning for the members of a discipline. As the likelihood that more and more scholarly publication will move online combines with the knowledge that digital forums allow for and often encourage different kinds of scholarly activities, we are all faced with the challenge of evaluating texts that do not look familiar, do not do the same kind of work we are used to seeing, and do not produce the kind of information or ideas we think of as scholarly. A better, more comprehensive understanding of alternative scholarship may require us to rethink how we read a text.

One way to evaluate scholarly production that avoids a simple print-digital binary opposition is to think less about whether a text is digital or print and more about what it produces, participates in, or does. To develop a more robust, complex evaluation framework, we might ask these questions:

What kinds of knowledge or ideas does the text produce or challenge?

Who uses it? Who interacts with and changes it?

With which recognizable genre (e.g., blog, scholarly Web site, wiki) might it correspond?

What skills or expertise did the scholar use to produce it?

How are the media used to produce and disseminate it appropriate to the topic and audience?

Who has shared in this production? Can the author(s) or the community responsible for production claim expertise in the subject matter? Do those who shared in the production continue to use and reuse the text to produce knowledge?

Who has evaluated and assessed the ideas this production contains, and can those who have vetted the production claim scholarly expertise that we respect and value?

Such an approach to assessment would not look very much like the tenure-and-promotion activities now in place at most institutions. Our current means of evaluating scholarly activity have not caught up with our burgeoning desire to account for nontraditional activities. These means rarely allow us access beyond the textual artifact, whether digital or print-based, to an exploration of the activity systems in which people interact (with various tools, institutions, and individuals) to create texts that disseminate information, make arguments, explore ideas, and even contribute to the ways the discipline sees itself. Investing in such activities will likely entail difficulties, but it will also enhance and expand our ability to engage in stimulating, innovative, and valuable kinds of knowledge production—and to reward faculty members for a more comprehensive range of scholarly contributions to our institutions and discipline.

WORKS CITED

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