

## Where Is Methodology in Digital Humanities?

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*For the very idea of “practices” has a satisfyingly concrete ring to it, if no longer through that classical (and singular) opposition to “theory,” as something that (in the plural) installs us immediately in the interstices of effective social power, in its minutest details.*

—Evan Watkins, *Work Time: English Departments and the Circulation of Cultural Value*

In a 2009 *Digital Humanities Quarterly* piece, Christine Borgman asks, “Where are the social studies of digital humanities?” Suggesting that ethnographic and other social studies of scientific information work have significantly shaped how scholars have come to understand scholarly cyberinfrastructure in the sciences, she argues that the practices of digital humanists should be similarly studied. And while most digital humanists do not employ the qualitative methods of data gathering to which Borgman refers, such as survey research, observations, and interviews, perhaps the absence of these methods indicates that DH it is still not clear where such methods might fit within the epistemological landscape of the humanities. After all, social scientists have long studied—and often directly impacted—scholarly information system development in the sciences using these familiar methods. By contrast, digital humanists are using methods that are largely new to the humanities, and perhaps for this reason, we are less adept at expressing how these forms of study map to our theoretical concerns.

How we validate and share knowledge within and between epistemological frameworks, whether it is the humanities or the social sciences, has much to do with how we articulate the link between our methods and our theories. Situating seemingly positivist social science methods within a humanist framework is about more than the interpretive methods we might employ. Likewise, collaborating with social scientists or impacting social science studies, which are also often shaped by cultural studies, critical race theory, feminist inquiry, or postcolonialism, requires

more than staking a claim to constructivist theories. In ethnographic studies such as those Borgman cites, an articulation of methodology helps the researcher describe a systematic approach to fieldwork and data analysis methods, one that ultimately facilitates a deeper engagement with theory. This chapter therefore aims to distill a range of methodological perspectives employed in the study of information systems in the social sciences and digital humanities, with the goal of suggesting bridges not only between the social sciences and digital humanities but between digital and traditional humanities.

I begin with a brief review of studies on information work in the social sciences and the digital humanities in order to situate these at once disparate and interconnected discourse communities. Then, by focusing on the methodological perspectives that underpin crucial projects in each field, I show how each understands the links between their methods and their theories. This attention allows us to understand the theoretical implications of adopting methods that are more familiar to the social sciences in DH as well as to identify the theoretical implications of digital humanities methods for the humanities writ large.

### *Establishing Social Science Methodology in Information Work*

Information systems and the people who work with them have long been studied by social scientists. Michael Buckland, among the most well-known theorists of information, identifies three meanings of the term: information as knowledge, information as thing, and information as process. For Buckland, information-as-knowledge is intangible since it is based on personal, subjective, and conceptual understandings. Information-as-thing has materiality, however, since to communicate these understandings they have “to be expressed, described, or represented in some physical way, as a signal, text, or communication” within a system (2). The systems that these information workers typically work with include computers and networking technologies, whether they are stand-alone or embedded in a larger system,<sup>1</sup> but information-as-thing allows the social scientist to isolate information objects associated with specific forms of information work from the systems that engage those objects (whether that object is digital or not) as culturally informed processes—for example, the sculptures and exhibits of a museum or gallery; the books, documents, and taxonomies of a library; the DNA or microscope of a scientific lab; the code, bits, and bytes of computer programmers; the numbers and graphs of data analysts, and so on. An investigation of how workers interact with and through these information objects and systems through social-scientific means often yields insights about how information is understood in those fields.

At the same time, much social science information work scholarship is undergirded by a desire for a better understanding of information-as-process—what Foucault would call “an archaeology of knowledge”—or the systems of power and influence that shape information systems and therefore knowledge production,

identity construction, and intersubjectivity. Social science researchers work with disempowered communities to better understand systems of power and resistance in the modern metropolis (Burawoy); study the relations of employment and the role of the worker in the constitution of a worker's identity (Orr); and study interpretive flexibility and human agency in information technology development and use in large, multinational software consulting firms (Orlikowski). Embedding themselves, sometimes as workers in these communities, these researchers attempt to foreground their own research practices in their studies of others.<sup>2</sup> Of particular interest to digital humanists, Christopher Kelty's *Two Bits: The Cultural Significance of Free Software* and Matthew Hull's *Government of Paper: The Materiality of Bureaucracy in Urban Pakistan* are ethnographic studies in information work of which the objects of study are text and technology; their subjects concern the creation, dissemination, and authorization of knowledge; their goals are to explore "recursive publics" and the political economies of paper, respectively. Other social scientists, such as those to whom Borgman refers, also consider how the universal claims of science are localized as a result of unspoken, ontological, epistemological, and practical diversities in the day-to-day worlds of scientific labs (Knorr-Cetina; Sommerlund; Voskuhl).<sup>3</sup> These studies share a theoretical kinship with humanistic studies concerning information and knowledge production, even as they employ divergent methods.

Qualitative social scientific methods in information and knowledge work typically focus on the direct observation of practices rather than on reviews of theories or findings (Geertz "Thick Description"). Social scientists employ such methods through standardized procedures, which are considered essential for conducting a qualitative study that yields valid and rigorous scholarship. Howard Becker's seminal 1996 essay, "The Epistemology of Qualitative Research," maintains that scholars who employ quantitative methods justify their results by proving that their data is reliable (i.e., repeatable), but those who rely on qualitative methods are more concerned with showing that their data is accurate and precise (or based on close observation) and broad (based on a wide range of variables). In other words, researchers who engage in qualitative methods are especially conscientious about their methods producing accurate data—as close to objective as one can get—so that their results can be considered valid by their peers, who typically find quantitative methods more exact (Becker).

In such studies, an articulation of methodology helps researchers reinforce the systematic nature of their chosen approach. As I will argue, this is an act that ultimately facilitates a deeper engagement with theory. Consider that social scientists view *technique* as a particular and situated way of applying a *method* or systematic approach, and *methodology* as the reciprocal relationship between *method* and *theory* (Katz; Burawoy, 271). Data produced outside of a theoretical framework is considered merely "sociological aestheticism" (Geertz, "Thick Description"), simply description (Katz), or at worst, "haphazard" and "fortuitous" (Snow, Morill, and

Anderson, 184). In the dominant model of social science scholarship, therefore, the researcher includes an explicit statement about which theories he or she is engaging within any initial account of his or her methodological conditions (Snow, Morill, and Anderson, 194). This theory is described in the context of the study, including how the theory was formed and how the particular setting of the study compares to that formation, as well as any co-related historical factors such as how the theory has been used in the past or how it is discussed in current scholarship (195). This form of explicit engagement with theory is crucial in social science epistemologies that warrant a degree of scientific objectivity.

### *Establishing Digital Humanities Methodology in Information Work*

Digital humanists also operate on information-as-thing (the word, the line of poetry, the page, the piece of code) as well as understand information as information-as-process—the continual state of becoming informed through understandings that are constantly shifting. The study of information work in digital humanities and of digital humanists as information workers has been primarily concerned with the cultural contexts that influence these shifting understandings—what we might also describe as knowledge production—especially as these contexts relate to the academy. Johanna Drucker, Kathleen Fitzpatrick, Julia Flanders, John Unsworth, and many others have written about the processes of scholarly knowledge production in changing publication and employment practices, for example. Anne Balsamo, N. Katherine Hayles, Alan Liu, and Patrik Svensson have each published extended studies on the future of researchers and educators in the humanities and arts—a future in which, as a result of a postindustrial value system, literature and the arts are increasingly undervalued.<sup>4</sup> These examples demonstrate the overarching concern of digital humanists with the cultural contexts of academe and how the changing nature of information work will alter the future of the humanities.

What is needed to connect this body of work to the discourse of information work in the social sciences is a more precise articulation of how digital humanists themselves function as information workers. In fact, Liu provides a taxonomy of the knowledge worker that is particularly helpful in understanding digital humanists as information workers:

Knowledge workers =  
 Academic intellectuals +  
 (technical + professional + managerial) intelligentsia +  
 trailing edge clerical workers (Liu, *Laws of Cool*, 392)

Broadly speaking, digital humanists are typically academic intellectuals and “intelligentsia,” and their information work might include research, writing, and publication, project conceptualization, teaching, and service to the institution and the

field at large. Doing this work within the context of information technologies can include (among a variety of activities), algorithm development and implementation; coding and encoding; e-mailing; data curation, management, and analysis; generating and analyzing statistics; social networking; meeting virtually; note-taking and publication; user experience and user testing; as well as database, software, web, and visualization development and interpretation. Noting that his definition of the knowledge worker is a class-based concept, Liu reminds us that information work is a process of knowledge production that is embedded in culture. As such, this list is not exhaustive; it does not include the social infrastructure development work that supports these activities with technology such as curriculum development, fund-raising, networking, staffing, and general project management, but it makes the point well: the digital humanist can be defined as a knowledge worker *and* an information worker.

And yet there is a prevailing notion in the social sciences that humanists are not trained to study themselves as information workers. For instance, the Information Work Research Group in the School of Information at the University of Texas at Austin, of which I am a part, trains graduate students in social scientific methods—that is, direct, in situ observations and semistructured interviews—out of the sense that such methods provide an “essential means for understanding what information professionals actually do at work, why they do, and how they do it,” digital humanists included.<sup>5</sup> Borgman attributes the differences between humanists’ “fluid” methods and more exacting social scientific methods to the fact that humanities scholars tend to learn methods that are specific to content areas and through independent research rather than as a “common substrate of research methods courses and practices that span the social sciences” (Borgman, *Big Data, Little Data, No Data*, 164). The implication is that a level of scientific objectivity is lacking in the humanist’s more subjective approach to studying knowledge production and information work.

Indeed, some digital humanists openly discount the need for the objective stance that is central to social science research. For example, Liu calls his study a “census, a propaedeutic, an introduction” in lieu of “a more scientific study,” and likens his reading of “cool” websites to the act of “thrusting one’s hand into the water to see if it is cold, hot, or lukewarm” (*Laws of Cool*, 183; 233). Similarly, in her survey of social science studies on issues of attention in the digital age, Hayles notes that “few scholars in the humanities have the time—or the expertise—to backtrack through cited studies and evaluate them for correctness and replicability” (*How We Think*, 68). Arguing that “perhaps our most valuable yardstick for evaluating these results . . . is our own experience,” Hayles simultaneously promotes a de-siloing of knowledge work, maintaining that “the scientific research is valuable and should not be ignored” (68). To be sure, these examples leverage experiential knowledge with other interpretive data-gathering methods, such as archival work and close reading. But in their nods to the value of social science research, Liu, Hayles, and other

digital humanists implicitly deny their own need for a systematic repeatable method and at times openly disavow a desire to be “scientific” at all.<sup>6</sup>

Certainly, digital humanists are deeply concerned with employing accurate and variable as well as systematic methods in their studies. John Unsworth, for instance, calls methods “primitives” and lists activities such as discovering, annotating, comparing, illustrating, referring, representing, and sampling as among the methods employed in humanities knowledge work. The European Union’s Digital Research Infrastructure for the Arts and Humanities initiative has gone so far as to create a Taxonomy of Digital Research Activities in the Humanities (TaDiRAH), which includes three broad categories: *research activities*, *research objects*, and *research techniques*. *Research techniques* include a long list of topic areas about which we are used to seeing debates in DH, including concordance-building, crowdsourcing, encoding, gamification, topic modeling, and versioning. In this case, *research activities*, which includes capture, creation, enrichment, analysis, interpretation, storage, dissemination, and meta-activities (such as assessing, community building, project management, and teaching and learning), in effect extend Unsworth’s list of primitives to add methods typically employed in a digital context.<sup>7</sup> There is indeed a broad range of topics and methods in which digital humanists engage as we pursue our inquiries into information-as-process.

It is telling, then, that most critiques of DH—both from the social sciences and the humanities—do not point to a lack of accuracy, variability, or other limitation of method. Rather, most critiques of DH point to a decoupling of method from the theoretical perspectives that would ordinarily help situate the kind of intellectual effort being engaged (Drucker; Hall; Liu, “Where Is Cultural Criticism in the Digital Humanities”; McPherson, “Why Are the Digital Humanities So White?”). To frame the issue another way, consider how reductive it would seem to describe the mere presence of the techniques and methods as *doing digital humanities*. It would be like saying that *doing ethnography* simply entails establishing relationships, watching people, transcribing interviews, and keeping a diary (Geertz, “Thick Description”). Digital humanities research must include enough detail or “evidence” to form accurate and convincing accounts, and accounts are much more accurate when they reflect as broad a spectrum of perspectives as possible. These imperatives can be achieved—to a varying degree—through many types of methods, but situating digital humanities within a humanist epistemological framework must also entail an explicit articulation of our methodological perspectives, or how our techniques are tied to theory. Digital humanities scholarship that does not engage with theory risks being perceived as unconcerned with interpretive, situated, and subjective knowledge production, and therefore displaced from the epistemic culture of the humanities. Articulating our methodology, moreover, gives us an opportunity to explain *why* we do what we do, which in turn allows us to argue for the specific contributions of our findings to ourselves, to other humanists, to those possible collaborators in other disciplines who rely on methodology as a signpost, and to the world.

### *Methodological Perspectives in DH Information Work*

In contrast to social science scholarship on information work, digital humanities studies of information work often lack methodological discussions—even while *methodological perspectives*, as I term them, are always at play. *Methodological perspectives* are akin to what Sandra Harding has called “methodological features” in feminist social science inquiry—the empirical and theoretical resources, intellectual rationales, and relations between subject and object of study—that, once identified, help a researcher to pinpoint how they are applying “the general structure of scientific theory to research on women and gender” (Harding, *Feminism and Methodology*, 9). In the context of DH, using the term *methodological perspectives* rather than *methodological features* underscores the fact that even so-called features are subjective and influenced by one’s situated epistemic culture.<sup>8</sup>

In digital humanities, we reflect our methodological perspectives when we choose to study certain texts (or certain things *as* texts) or when we discuss why methods are best employed through certain techniques—why deformation in Adobe Photoshop can advance our thinking about the hermeneutics of visual art (Samuels and McGann), for example; or how algorithmic thinking with word frequencies might advance our thinking about how gender roles play out in *King Lear* (Ramsay, “Reconceiving Text Analysis”); or how surface reading with social network analysis allows us to articulate the archival silences in Thomas Jefferson’s archive (Klein). These and other examples show us methodological perspectives (a “thinking through” of the link between techniques, methods, and theories) already present in literary scholarship in digital humanities. More often than not, however, these ties are implicit—the means to the end is either foregrounded in exclusion of a productive critique, or the research strategy is subsumed by a finding that the researcher argues has been “discovered” rather than constructed.

But methodological perspectives in the humanities and social sciences can overlap, which means that digital humanists must be even more diligent about articulating how our perspectives are situated within a humanist epistemological framework. That is, new methods in digital humanities such as statistical analysis, visualization, or ethnography do not exist in a vacuum. If digital humanists choose to employ methods that are more common to the social sciences, we must understand the relevant articulation work that surrounds similar kinds of methods in the social sciences. Or consider the reverse: theories in feminist inquiry, postcolonial studies, and activism have never been solely humanistic research perspectives; scholars from outside the humanities also school themselves in those histories before applying their methods. In other words, theories that engage self-reflexivity as a methodological perspective are essential to scholarship in the humanities.<sup>9</sup> But reflexive awareness is also at the foundation of methodological perspectives in qualitative social science research—research that has been deeply influenced by constructivist paradigms.<sup>10</sup> There is a general understanding in the social sciences—the same that



should be reflected in digital humanities work—that methodological perspectives, as driven by the historical, present, and perceived future context of a project, shape and are shaped by practical and theoretical concerns.

A reflexive understanding of knowledge production and information-as-process is a significant research perspective that translates across information studies in the social sciences and digital humanities. Examining similar methodological perspectives in information work research in the social sciences—namely, authority creation, hermeneutics, and becoming answerable—informs how we might apply humanist theories to research on information-as-process in the digital humanities. Comparing these perspectives from the viewpoint of social science and digital humanities studies not only allows us to develop a better understanding of methodological perspectives in general, but also offers specific examples of how these similar perspectives play out in different epistemic cultures. Though shared across disciplines, these perspectives ultimately reflect unique epistemes through their employment of technique and method in individual studies. Learning to express these differences is vital not only for digital humanists who seek to situate their work in conversation with social science research, but also for those who seek to situate themselves in common as humanists.

#### **AUTHORITY CREATION**

Concerns about the validity and relevance of research are prevalent in the social sciences and digital humanities alike, especially as research paradigms evolve in accordance with rapidly changing information and knowledge economies (Becker, Harpham).<sup>11</sup> Concurrent with these concerns are additional anxieties about how to establish authority and validate scholarly work in such evolving topologies. Considered together, humanistic and social scientific studies of information work demonstrate how authority creation constitutes a methodological perspective, one that can help us understand the value of the new forms of inquiry that arise within the context of evolving technologies and techniques. Such a perspective is epistemologically performative, shaping expectations about what practices comprise good scholarship even as those practices evolve.

In ethnographic studies of information work, for example, an ethnographer's presence at a field site (or multiple sites) for extended periods of time has long been essential for establishing the authority and validity of her ethnographic study. At present, however, ethnographers have new opportunities for observing and participating in communities through online forums, networks, and virtual worlds, and as a result, the means by which authority is established through field "presence" has shifted (Horst and Miller; Collins and Durington; and Boellstorff et.al). These shifts have facilitated new opportunities for rendering information work outside of scientific labs "observable" for social science research.<sup>12</sup> They have also opened up new data "traces"—conversation transcripts, institutional records, source code,



transaction logs, or version histories—for scholarly analysis. These traces of data, in turn, have placed renewed focus on authority creation, as ethnographers have focused on new forms of inscription such as elaborate experimentations in self-ethnographies and data visualizations in order to establish authority in this context (Beaulieu, “From Co-Location to Co-Presence,” 459). Mindful that scholarship cannot be constructed through quantitative trace data analysis alone, other scholars such as Geiger and Ribes (2011) argue that observing such traces must be achieved alongside more traditional interviews and observations, which allow for a qualitative understanding of the cultures—the activities, people, systems, and technologies—that contribute to their production. Their methodological perspective therefore includes adapting new to old epistemic traditions.

In digital humanities, studies in new kinds of information work have also exposed new ways to create authority while simultaneously unearthing deep-rooted assumptions tied to publishing and promotion traditions. Online peer-reviewed publications, scholarly electronic editions, specifications, research tools, research blogs, and hypermedia and new media works each provide an opportunity to consider how authority in the humanities has traditionally been established. Susan Schreibman, Laura Mandell, and Stephen Olsen identify two essential aspects of digital scholarship that break with epistemic tradition, thereby making such scholarship difficult to assess in terms of its intellectual contributions: first, humanities scholars are, for the most part, “ill equipped” to evaluate the nature of intellectual work in digital humanities scholarship; second, much digital humanities scholarship is about digitization and increased access to or the development of digital infrastructure. This scholarship draws on the methods and practices associated with scholarly editing, bibliography, and philology, activities that have been long regarded as less scholarly or rigorous (124–25). As a response, Geoffrey Rockwell has developed a taxonomy for new types of digital publications, demonstrating how a consideration of authority creation as a methodological perspective can engage theoretical issues related to historical context, community impact, and the projected sustainability of research (Rockwell, 160).

In any study in which one employs techniques or methods that are well documented and theorized in another epistemic culture, or in which one hopes to impact how knowledge is produced across epistemic borders, the scholar’s own authority is brought into question. A single example from digital humanities literature shows the potential risks for digital humanists who seek to establish their authority in DH information work studies *without* an understanding of social science methodological concerns. In Julia Flanders’s essay “Time, Labor, and ‘Alternate Careers’ in Digital Humanities Knowledge Work,” she tells her personal origin story as an “alternative academic” (alt-ac) or nontenure-track academic in a research university. In the essay, Flanders focuses on the work practices and roles of digital humanists, but her method is personal reflection—an approach that she at once likens to and distances from social scientific work by denying its objectivity; she calls it

“quasi-anthropological” and “self-study.” On the one hand, Flanders rightly distances her essay from a more traditional social scientific study since “self-study” has not been a traditional method in that field. On the other hand, social science researchers have done much work articulating self-reflective ethnographic approaches to studying information work. Working as an apprentice in a bookmaking workshop, for example, Daniela Rosner uses an autobiographical account (“The Material Practices of Collaboration”) to position herself as her own research subject. From this position, Rosner argues, she can better focus on the social and functional role of book artifacts. By denying self-study as a valid approach to information work in digital humanities, we potentially raise concerns about the methods of authority creation in DH that are implicitly tied to theories of power, influence, and privilege—questions of *whose* information work may be discoverable—especially when the authority to speak is in large part based on experience.

DH scholars such as those involved in #transformDH<sup>13</sup> and postcolonial digital humanities have indeed engaged in important work that attempts to broaden and dismantle systems of authority, power, and influence.<sup>14</sup> But overt discussions about the ties between authority creation in digital humanities methods and the methods, such as ethnography as well as visualization or data analysis, that are also employed in sister fields are still lacking.<sup>15</sup> New methods of research, such as those employed in DH work, can and should be viewed as opportunities for interrogating traditional assumptions. But without sufficient reflection, such methods can establish limited forms of skill or experience as authority—a turn that would limit the reach and impact of DH in the humanities.

## HERMENEUTICS

Authority creation is at the foreground of recent conversations in large part because our hermeneutical methods, and therefore our principles of interpretation, have begun to shift within the context of information technologies. For example, digital humanists have become quite proficient at arguing for new objects of study in these contexts including code (Chun), databases (Presner), hard drives (Kirschenbaum, *Mechanisms*), lab spaces (Svensson, “From Optical Fiber to Conceptual Cyberinfrastructure”), magnetic tape (Sayers), the MP3 (Sterne), and platforms (Manovich). Even in light of these and other studies, however, the epistemic culture of digital humanities, which scholars such as Svensson argue have evolved expressly from humanities computing, still treats the text as the primary object of study, with linguistic analysis remaining as a central, unexamined method in the field (Svensson, “Humanities Computing as Digital Humanities”).

Indeed, while the studies mentioned demonstrate the expanding scope of objects to read, the hermeneutical methods associated with reading remain largely unarticulated. As Hayles describes close reading (“that sacred icon of literary study”), for example, it is “the one thing virtually all literary scholars know how to do well

and agree is important” (58). There is also common agreement that close reading a text can help to uncover (in the context of New Critical theories) affective fallacy, allusions, ambiguity, irony, intentional fallacy paradox, patterns, tension, and unity (Parker); likewise, a researcher can conduct *surface* (Klein), *suspicious* (Felski), and *symptomatic* readings that interpret words as evidence of a text’s ideology. That reading is universally understood as a reliable hermeneutical method in the humanities means that humanists are not typically required to argue for it as a method.

To be sure, new hermeneutical methods in digital humanities represent unique opportunities for researchers to articulate methodological perspectives—that is, ties between theory and technique—that concern the very nature of interpretation. Hayles, for example, uses her study of reading methods to compare existing techniques and to explore new ones, such as *hyperreading* through associative links or *distant reading*—using computational methods to reveal patterns (61, 73). These methods of reading in digital humanities have been provocative in meta-conversations about what interpreting through such methods means, as well as how such methods shape the production of meaning (Drucker; Liu, “The Meaning of the Digital Humanities”), but more often than not, studies in the digital humanities do not discuss alternative methods as they relate to theories concerning the different modes of making meaning.<sup>16</sup>

Ethnographic studies that situate the hermeneutics of reading as an alternative practice can therefore provide useful examples of methodological perspectives that acknowledge the theories they engage. In his study “Deep Play: Notes on the Balinese Cockfights,” for instance, Clifford Geertz explains that ethnographic methods require “examining culture as an assemblage of texts,” since cultural forms are akin to “imaginative works built out of social materials” (27). For Geertz, what makes the cockfight “readable” is his rendering of the cockfight as a text through “thick description.” Through his analysis, description is simultaneously revealed as a method through which the ethnographer arrives at conclusions about how a culture produces, perceives, and interprets meaning, and as a method that is nevertheless heavily shaped by the ethnographer (Geertz, “Thick Description”). Treating cultures as an assemblage of texts emphasizes how the interpretive act of reading is only one among many hermeneutical methods for thinking through the formation of culture.

Geertz’s methodological inquiry into his “search of meaning” illuminates the central issue at stake in the call for increased attention to alternative hermeneutical practices in digital humanities as well. For instance, digital humanists have focused on data visualization, new forms of publication, and critical making as interpretive modes of knowledge representation, but often without explicit statements about how the use of these technologies might impact larger theoretical concerns. Scalar, for example, was designed as a publishing platform for making multimedia scholarship more accessible, allowing for textual and audiovisual materials to be read in nonlinear sequence (McPherson, “Designing for Difference”). The necessity of having to treat the audiovisual materials as static objects in a database, however,

precludes an understanding of these materials as emergent events for which meaning changes and evolves, as well as any means for computational engagement with the media objects themselves—such as audio or video analysis. Similarly, critical making projects that seek to interrogate the “resistance” of materiality through technology (Nowviskie, chapter 15 in this volume) or the “disobedience” of technology itself (Oroza, interviewed by Alex Gil in chapter 16 in this volume) are required to do so within the established pathways of proprietary technological formats such as those needed by a 3D printer or, in Oroza’s case, a communist dictatorship—both of which are regimes of influence that must be theorized. In such cases, digital humanists must be able to articulate the hermeneutical methodologies that might help foreground the multiplicity of cultural influences at play in the socio-technical systems we use in our interpretive work.<sup>17</sup> Foregrounding methodological perspectives that show a concern for hermeneutics—especially the hermeneutics of reading—can serve as a primary means by which we might better situate our new methods in the context of humanistic interpretive work.

#### BECOMING ANSWERABLE

The idea in the social sciences and the popular press that in this, the age of big data, the humanities might be simply “blurring with the sciences” (Borgman, “The Digital Future Is Now”; Leroi), is compounded by the fear in the humanities—not altogether unrelated—that digital humanities is blurring with the corporate culture of the information work space (Kirschenbaum, “What Is ‘Digital Humanities’”). Consequently, we have seen a renewed call to activism in digital humanities information work—what Donna Haraway might call “becoming answerable” to the fact that the humanities are diametrically opposed in object, subject, and purpose from both the sciences (social and otherwise) and corporate cultures.<sup>18</sup>

Some digital humanists have taken up this call through social actions that are both policy-based<sup>19</sup> as well as project-based. By and large, however, these actions have reflected traditional humanist methodologies. The projects featured through the #transformDH hashtag and Tumblr, for example, apply traditions of radical inquiry to digital and new media work in the humanities. Lothian and Phillips identify these projects as agents of social and cultural transformation, ones that can help to diversify DH scholarship and break down institutional silos, but the methods they employ fall squarely within a familiar range—increasing access to alternative perspectives by making previously unacknowledged documents discoverable (exemplified by Adeline Koh’s “Chinese Englishmen” project); creating provocative art pieces (Zach Blas’s Queer Technologies project); giving voice to underrepresented communities (Women Who Rock project); and collaborating in community-based, politically engaged knowledge production (From the Center project). Though important and indeed potentially radical, the methods of these projects typify common humanistic tactics for dismantling information regimes

by “transforming digital technologies so that they become more socially responsive to social and cultural inequities” and “more resistant to predatory capitalistic practices,” as Hayles describes (18). These projects present necessary critiques of social systems through acts of inclusion, provocation, and disruption. In terms of information work, however, many of the techniques they employ are methodologically problematic since they rely on unexamined information technologies.

A complementary trend has emerged in the social sciences in which studies seek to become answerable on behalf of their findings about the social and cultural biases of information infrastructures by actively dismantling those same problematic systems. When applied to studies of information work, such a methodology is often characterized by using redesigns—or modifications on the level of coding and encoding—to expose and then examine the invisible social orders that influence and are influenced by information technologies.<sup>20</sup> These radical digital projects, such as those that seek to interrogate spatial and temporal mappings (Drucker and Nowvskie; Meeks and Gossner) or taxonomic systems (Kim; Feinberg, Carter, and Bullard) do so by dis- and reorienting the traditional logics behind databases and interfaces. In each of these cases, the authors—some of whom have published as digital humanities scholars and all of whom are influenced by both information studies and the humanities<sup>21</sup>—reorient seemingly objective representations of life and culture—space, time, and image—through changes in encodings, both computational and taxonomic, in order to show how these “invisible infrastructures” (Star) are instantiating situated, interpretive, and subjective perspectives in digital cultural heritage resources.

In digital humanities, such techniques must be employed with explicit ties to humanistic goals, but any additional links to theory that we can make when we describe how we achieve these goals will deepen and broaden their impact. For example, Evans Watkins and Janice Radway, literary theorists who have employed interviews and observations in their studies of, respectively, the daily practices of the English professoriate and the situated practices of women reading novels, have done so in the context of Marxist and reader response theories deeply familiar to literary study. While their methods are not traditional for the humanities, the subject matter and the theories they engage—in other words, their methodological approach to becoming answerable—situates this work squarely in the humanities.<sup>22</sup> Significantly, these theorists have also been heavily cited by social science researchers who value similar methods and seek to learn from the observed activities of readers and scholars in the humanities. It follows, then, that when digital humanists employ methods from outside of the humanities, they must explicate the links between their methods and their theories so that their work can be situated in the field, and in relation to other disciplines, as a contribution to humanist knowledge production.

Methodological perspectives in the social sciences and the humanities might jointly engage reflexive processes and constructivist paradigms, issues of authority creation

and power relations, questions of hermeneutics and interpretive stances, and the desire to become answerable to the publics with whom we do our most important knowledge work, but the goals and values of these two epistemic cultures are still diverse. Typically, humanists have been interested in methods that employ idiographic investigations, while social scientists have engaged in nomothetic explanations. In other words, humanists have generally analyzed individual texts, objects, communities, and cultures in order to understand situated, subjective phenomena, while social scientists—even those who apply ethnographic methods—“try to see how society works, to describe social reality, to answer specific questions about specific instances of social reality” (Becker). In contrast, humanists produce “uncertain knowledge,” or “knowledge that solicits its own revision in an endless process of refutation, contestation, and modification” (Harpham, 30). Perhaps it is our penchant for uncertain knowledge that elicits the view that digital humanities is uniquely poised, among all humanistic fields, to produce scholarship that will impact how we think about and develop new scholarly information infrastructures (Borgman, “The Digital Future is Now”).

As Borgman suggests, we can learn from the social scientists who have impacted and continue to impact how information-as-process is conducted. But if we learn to describe what has thus far remained implicit in our own ways and modes of research, we must also begin to teach. Digital humanists must articulate these methods to ourselves and to others, because to do so is to understand where we can build bridges across diverse discourse communities, where we can learn from each other. In the humanities, for example, the connections between methods of close reading and the politics of reading suspiciously or symptomatically are easily intuited, but the connections between the objectivist methods that are regularly employed in other epistemic cultures and the theories that encourage uncertain knowledge production are not easily ascertained. As humanists, we must be explicit about our desire to distinguish ourselves from the objective stances that are still praised in social science epistemologies when what we do is deliberately open-ended, circular, situated, subjective, or personal; but we must also know when theories about situated knowledge production have deeply impacted scholarship in sister fields. Indeed, such theories should also impact ours. To articulate methodology—that crucial link between method and theory—is to explain our work to potential collaborators, in both the humanities and social sciences, and to those to whom we are accountable, as activists and as educators: our administrators, our students, and the world.

#### NOTES

1. Scholars in science and technology studies (STS) also rely on organization and management scholarship in workplace studies in which researchers study workers including consultants, doctors, or engineers in the context of particular organizations (Garcia



et al.) as well as the information work practices of traditional information institutions including libraries, archives, and museums that collect, preserve, interpret, and disseminate various kinds of information (Marty; LeMaistre et al.).

2. This kind of fieldwork is exemplified in the work of scholars such as Daniela Rosner, who considers “object bias” in Computer-Supported Cooperative Work (CSCW) studies. From a reflexive position, Rosner focuses on the social and functional role of artifacts as objects that are spatial and temporal flows with emergent compositional elements and constituent surfaces.

3. Other examples might include Latour and Woolgar’s ethnography of the scientific laboratory life (1986); Bowker and Star’s ethnography of infrastructure and metadata (2000); Suchman’s ethnography of technology design and production and consumption and use (2006); and Geiger and Ribes’s trace ethnography of log data (2011).

4. These studies include Liu’s *The Laws of Cool* (2004), Balsamo’s *Designing Culture* (2011), Svensson’s four-part series on the emergence of Digital Humanities in the *Digital Humanities Quarterly* (2009, 2010, 2011, 2012), and Hayles’s *How We Think* (2012).

5. This definition is from a grant proposal narrative that is not publicly available.

6. This stance is unlike social scientists such as Donna Haraway and Sandra Harding, who use a feminist epistemology to critique objectivist stances and to claim that valid scientific methods require that we claim our situatedness on what we are able to see (Harding, *Whose Science? Whose Knowledge?*, 106; Haraway, 583).

7. Other good examples include Hayles’s coverage of different modes of reading (57–68) and her work close reading telegraph manuals alongside electronic and paper-based postmodern literature, Liu’s survey across business and management literature (*Laws of Cool*, 76–175) and his close reading of “cool” websites from the 1990s (*Laws of Cool*, 176–285), and the Stanford Literary Lab Pamphlets, which focus on texts that range hundreds of years and techniques that include topic modeling, sentiment analysis, and visualization techniques.

8. That epistemology has bearing on the methodological discussion is not lost on Harding. In *Feminism and Methodology*, she notes that her recommendation for employing these three methodological features is meant to counteract “traditional” theories of knowledge. “Traditional” methodological features in her treatment of the topic, however, are those that are common to social science investigations. I am consciously situating this conversation squarely in the humanities episteme by choosing the alternative term “methodological perspective.”

9. Harpham defines the objective of humanities scholarship as “self-understanding” (23) and Gilman calls this reflexivity “the self-conscious awareness of the methodological approaches that one uses” (384). Menand also identifies reflexive processes as the defining feature of humanistic knowledge by arguing that in “developing tools for understanding ourselves” and “everything in the world of values”—what Latour calls “states of affairs” (232)—humanists are instantiating “the fact of situatedness” that ultimately leads to a necessary skepticism to objectivity and positivism (Menand, 15). For Stanley Fish likewise, this skepticism means that humanists understand the constructed nature of “the cultural



systems within which we live and move and have our beings” as “the given” or “normative” (377). This investment in the constructed nature of knowledge production in all fields means methodological perspectives in the humanities must reflect an understanding that knowledge is “knowing, observer dependent, emergent, and process-driven rather than entity-defined” (Drucker, 87).

10. In “the Chicago School,” originating at the University of Chicago in the 1940s and 1950s, ethnography was considered an empirical, scientific study and ethnographic writings typically began to include methodology sections (and books on methodology and epistemology) that shied away from more subjective (historical research) or objective (statistical techniques) methods. Valid data was achieved through in situ observation that provided insight into the participant’s interpretations of events. Such insights were often the result of gaining the confidence of and having and showing empathy for subjects. As in literary study, ethnographers made a postmodern, postcolonialist turn in the 1980s and 1990s that is reflected in books that challenged the efficacy (and ethics) of ethnography as an objective or impartial look at the world and insisted, instead, on the potential of field-work that produced subjective, contingent, and situated knowledges (Adler).

11. Becker’s response is to assure his audience that qualitative methods, while not objective in the same way as quantitative methods, are still valid in the context of older and new methodological traditions. Harpham’s remarks in “Beneath and beyond the ‘Crisis in the Humanities’” are a response to what McGann calls a general “malaise” that has had humanities scholarship and education in a “holy mess for some time” (McGann, 72) and are also meant to assure his audience that humanist inquiries are still valid—in that they are still relevant—within the context of global economies and advanced information technologies.

12. For a social science researcher like Anne Beaulieu, that has meant new means for studying the information work of women’s studies scholars through online forums and listservs (“Mediating Ethnography”). Through a methodological perspective concerned with authority creation and gendered information work, Beaulieu engages feminist theories that are concerned with making previously unseen work observable and therefore discoverable as new subjects for study.

13. #transformDH, <http://transformdh.org/>.

14. Postcolonial Digital Humanities, <http://dhpoco.org/>.

15. One concern, as Drucker points out, is that the “cultural authority” of visualization, publishing, and design technologies are still claimed by fields in the sciences and technology (85).

16. In direct response to topic modeling and visualization techniques, Liu has called this “the meaning problem in the Digital Humanities” based on projects that perform “tabula rasa interpretation” or “the initiation of interpretation through the hypothesis-free discovery of phenomena” (“The Meaning of the Digital Humanities,” 414).

17. Chun and Balsamo are excellent examples of this kind of methodological perspective at work in digital humanities. Blanchette gives an excellent overview of critical making in particular from the social science perspective.

18. Posner has made this call in her keynote at the Keystone Digital Humanities Conference, which she has published on her blog. In *The Laws of Cool*, Liu warns that in the age of “millennial knowledge” or “knowledge that is antihistorical (anti-obsolescent). . . . The centrality of the challenge to academic knowledge thus stands starkly revealed: [corporate] knowledge work is not just indifferent to humanistic knowledge, it opposes it on principle” (6), while in her book, Hayles writes, “If the Traditional Humanities are at risk of becoming marginal to the main business of the contemporary academy and society, the Digital Humanities are at risk of becoming a trade practice held captive by the interest of corporate capitalism” (53–54). Finally, Drucker is concerned with the ramifications of DH’s wholesale adoption of visualization techniques that “come entirely from realms outside the humanities—management, social sciences, natural sciences, business, economics, military surveillance, entertainment, gaming, and other fields,” arguing that humanistic principles are at best peripheral to the methodological premises of these other disciplines, but more often than not that these other methodologies are “at odds with—even hostile to—humanistic values and thought” (86). In the context of these concerns, Liu situates the work of literature and art as committing necessary “disruptions” in the flow of informationalism (*Laws of Cool*, 427). “The creative arts,” Liu writes, “as cultural criticism must be the history not of things created . . . but of things destroyed in the name of creation” (8).

19. The ACH (Association for Computers and the Humanities) has gone to great lengths to help support open access and fair use in DH by joining the DH community in filing two amicus briefs in lawsuits related to digitization of in-copyright and orphaned works in the Google Books and HathiTrust corpora. Spearheaded by Matthew Jockers, Matthew Sag, and Jason Schultz on behalf of the DH community, the briefs describe “how DH scholars employ innovative data-mining techniques in ways consistent with fair use, and how scholarship could be held back if this kind of research is not well supported by the courts.” As of October 11, 2012, based in part on the evidence from these briefs, the United States district court ruled favorably for continued fair use in digital research (“Brief of Digital Humanities and Law Scholars”).

20. Haraway has warned that the science community considers a history of knowledge production as “histories of the technologies” (587) rather than a history of the communities that use these technologies. As a reflection of Haraway’s work as well as the work of others such as Harding and Suchman, ethnographic studies have considered technologies, instead, as ways of life and ways of social orders.

21. While some of these examples come from DH scholarship, these authors, as professors and graduate students in iSchools or professionals in libraries are scholars whose work has been heavily influenced by both the humanities and information studies. The work done by Feinberg, Carter, and Bullard describes a process in which they purposefully use selection, description, organization, and arrangement to explicate resource collections as forms of rhetorical expression.

22. Guided by feminist inquiry, Radway seeks to understand how romance novels impact gender relations. Accordingly, Radway’s methods include using in situ observations

and interviews to study these dynamics since these methods allow her to shift her focus away from the reified literary text and the implied reader and toward actual, situated women reading the text. Watkins identifies the practices that must (and do) promote disruptions in the formation of human capital in which graduates from English departments inevitably engage.

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