

Rhetoric and the Digital Humanities

Edited by

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Tackling a Fundamental Problem: Using Digital Labs to Build Smarter Computing Cultures

KEVIN BROOKS
CHRIS LINDGREN
MATTHEW WARNER

In 2010, two of us (Kevin and Chris) began exploring what it would take to offer an after-school computer enrichment program for students from refugee families in Fargo. We were interested in the One Laptop per Child initiative and the ideas of Alan Kay (Kay and Goldberg 1977; Kay 1984), Seymour Papert (1993), and Marshall McLuhan (1964), among others. All had expressed the idea that few educators (K–16) really understood the medium of the computer: its programmability, its computational ability, and its networking capabilities. We deployed “Sugar on a Stick”—the operating system of the XO computer loaded on a USB drive—instead of the XOs themselves, and we asked, What can kids do with this operating system and minimum guidance? We did not conceive of our work as overtly rhetorical or digital humanities (DH) in nature. We were looking to create a small but powerful educational intervention in which we, as much as the students, were the learners.

In 2011, we wrote and received funding for a proposal to “build a smarter computer” in Fargo. We presented our

work as a form of *civic engagement*, a term John Ackerman says “accurately name[s] the rhetorical investments of citizen-scholars in the public life of their cities” (Ackerman 2010, 76). We sought the assistance of the Computer Science Department and received help in the form of a talented undergraduate who functioned as technical support. We knew that collaborating with computer science would be essential to meeting our goals, and we understood that these sorts of collaboration were common, often essential, in large-scale DH projects.

In 2012, we found ourselves and our project immersed in the rhetoric of “Code Year” (<http://www.codeyear.com>). Like many digital humanists, we were trying to develop our own understanding of what it means to learn how to write code and how one might go about educating the current generation—not to be coders, necessarily, but to be what Ian Bogost would call “procedurally literate” (2005, 35). We were influenced by Bogost, Annette Vee (2010), and medium theorists from both the humanities and the sciences, as noted above. But we also found our work resonating with scholarship in DH. Matthew Kirschenbaum’s conclusion to his influential definition essay “What Is Digital Humanities and What’s It Doing in English Departments?” describes our project perfectly: scholarship and pedagogy that are publicly visible (we received local newspaper and television coverage), bound up in infrastructure (higher ed and K–5), collaborative (English, computer science), and online 24/7 (through our Web site and social media channels) (2012, 9).

Exploring the interplay of rhetoric and DH gives us a chance to step back from our project and consider some of the ways in which the scholarship and practice of both fields are unconsciously influencing our project. But, in stepping back, we will also generalize from our experience, offering a white paper grounded in both a broader history and tradition of rhetoric and a wider range of DH scholarship. We do believe that there is an important, even fundamental role for rhetoricians and digital humanists to play in building smarter computer cultures in their local communities. If we are not active in fostering a rich and diverse culture of procedural rhetoricians or introducing students to the expansive possibilities and unexpected practicality of DH, we see these two specializations within each field remaining specializations, rather than the fundamental way in which the next generation does its work. Community literacy programs and after-school computer clubs abound, but we think that it will take what Richard McKeon (1971, 45) calls an “architectonic productive art”—rhetoric as social architecture—to bring together multiple efforts in a single location, in turn

“contribut[ing] to the formation of the culture of the modern world” at least one locale at a time.

Modules for Building Smarter Computing Cultures

A smarter computing culture is one that understands the medium of the computer, a culture that understands computers can be programmed and not simply run programs, a culture that understands computers are about networking and building communities, not just online but offline. A smarter computing culture risks further embedding our kids and our communities in a technological environment rather than encouraging unplugged activities, but the goal is to displace some repetitive game playing and passive consumption of media with production, creativity, computational thinking, procedural literacy, and collaboration.

This chapter offers strategies for embedding rhetoricians and digital humanists in local structures to build smarter local computing cultures that empower students and widen their future possibilities through humanists’ critical lenses *and* computational thinking.

Engage with K–12 students, teachers, and administrators; students are immersed in the materials and media ecologies of DH (video games, Internet culture, mass culture), but we have not engaged them in our practices and ways of thinking.

Building a smarter computing culture must engage the young people of a community, and engaging them through a local K–12 system will likely lead to the highest level of institutional, social, and educational support. The National Science Foundation (NSF) offers considerable grant incentives to its higher education constituents for bringing scientific thinking and methods into the K–12 system. In 2006, the computer scientist Jeanette Wing outlined her vision for “computational thinking,” which included K–12 students and teachers, inciting her discipline to “reach the pre-college audience, including teachers, parents, and students” (2006, 35). Rhetoricians and humanists reach out to the K–12 system and public through community literacy centers, citywide book reads, writers-in-residence programs, and other methods, but we also have a role to play in building a smarter computing culture.

Christine L. Borgman, a professor and Presidential Chair of Information Studies at UCLA, imagines a DH project that develops relevant

skills and practices for young students: “If students can explore cultural records from the early grades and learn to construct their own narratives, they may find the study of humanities more lively. By the time they are college students, they will have learned methods of collaborative work and the use of distributed tools, sources, and services.” She also asks, “What is the humanities laboratory of the 21st century?” (2009, 63), and, while she provides a number of answers, these labs are neither in the K–12 schools nor in the community, but we have found that those are rich places for experimentation and scholarship and necessary places for changing a local culture.

Identify and lessen digital divides within the K–12 system and community, a subproblem that must be tackled in order to assure more equitable development of a smarter computing culture.

NSF funding and Google Rise grant opportunities encourage innovative educational programs that will encourage girls and underrepresented minorities to consider computer science and other science fields as a career. These individual programs work toward improving individuals’ skills and credentials, but, to build a smarter computing culture, it will require sustained attention to local digital divides, including a critical reexamination of the concept of digital divide. The historian of technology Rayvon Fouché explains that the continuing drop of computing costs in the early years of the twenty-first century diffused the public and academic consciousness of the digital divide (2012, 63). Fouché argues that the digital divide is not fully understood and that current economic circumstances, coupled with increased access to technology, put the responsibility back onto the individual, overlooking larger systemic issues that reinforce racial stereotypes of haves and have-nots.

The digital divide in a community might not be about technology. One of our participating schools is close to a one-to-one computer-to-student ratio and uses iPods for language learning. In our experience, the divide manifests in ways beyond access. Transportation would have become a barrier if our program was located on the university’s campus instead of directly in the students’ school, after school. Many participating children (and their parents/guardians) desired to boot their Sugar sticks at home, but most failed owing to a lack of knowledge about BIOS and basic troubleshooting strategies. The divide also arose when parents or siblings of our tech team would not grant access to the computers for their own children. Building a smarter computing culture is not about adding more technology to a community; it is about

understanding the technosocial and political dimensions of the digital divide and addressing social barriers, not just technological barriers.

Collaborate across campus lines to bring the resources and talent of higher education to K–12 systems and communities.

The challenge of building a smarter computing culture is too large for any individual or discipline to tackle alone. David Depew's reexamination of McKeon's architectonic productive art led him to propose that "a rhetorical art with cognitive ambitions in a changing world whose cultural core is technologically permeated knowledge production will replace Cicero's and Hume's personal skepticism with a communal, constructivist, relativist, pluralist, pragmatic, transdisciplinary conception of knowledge" (Depew 2010, 47). Single disciplines may be able to offer a robotics competition or an app development class, but collaborative efforts can imagine and strengthen K–12 or community projects that involve planning, testing, and disseminating "technologically permeated knowledge."

Digital humanists need to begin to conceive of and initiate collaborations that might deliver more of these extracurricular programs, or the computer scientists will run the game-development camps, the engineers will run the robotics, and our smarter computing culture will not include the sensitivity to language, storytelling, and creative expression that will effectively balance technical camps. Such a broadening of the types of content and practices in such camps will attract, develop, and sustain new cultures and communities.

Connect existing local initiatives because you will not be the only ones working to build a smarter local computing culture.

As we developed our Sugar Labs program, we discovered a number of other related initiatives in our area, from Lego and robotics clubs, to a 4-H Tech Wizard program that is used nationally, a local "DigiGirlz" camp hosted by Microsoft, and a summer STEM camp held on our own campus. One of the architectonic roles of rhetoric, McKeon would argue, is to connect these efforts, to play the role of social architect. And, as simple as that might seem, reaching out and building community among different projects requires a deft rhetorical hand as one project might be seen as competing for the same resources or students as another or one group might be perceived as trying to control others. Patrick Svensson suggests that digital humanists replace the big tent

metaphor with "meeting place" or "trading zone" imagery, concepts that fit building a smarter computing culture as well. Centralized organization will be a nightmare for the organizer and antithetical to a networked, rhizomatic culture. "By seeing the field as a trading zone and meeting place," Svensson writes, "we can acknowledge disciplinary and methodological expertise, while approaching grand challenges, relating key disciplinary discourses, supporting multiple modes of engagement with the digital, and distinctly engaging with the future of the humanities" (2012, 47). A local culture that trades ideas, points participants to related programs, and supports multiple engagements with the digital will be essential to developing a smarter computing culture. We encourage our fifth-grade students to attend the STEM camp during sixth grade and DigiGirlz during seventh grade, and by doing that we start to build an informal curriculum and sustained engagement in related topics and projects beyond the scope of our own digital lab.

Fill the gaps.

After connecting existing initiatives, the local gaps will be apparent. We encourage our students to follow up their Sugar Labs experience with STEM and DigiGirlz camps, but at this point our community has no digital arts program to support arts or humanities computing. If rhetoricians and digital humanists are collaborating with K–12 systems, they might also be able to help bridge gaps in the curriculum. Our local public school system seems to have a gap between fourth-grade keyboarding and a seventh-grade "Exploring Technology" class and another gap between the seventh-grade class and the introduction to computer science course offered senior year. The NSF is trying to fill these gaps with its Twenty-first Century Computing grants, the bulk of which are for training teachers to develop high school computer science classes. While rhetoricians and digital humanists might need to wait for the National Endowment for the Humanities and the National Council of Teachers of English to offer similar incentives or lobby successfully to push national organizations to support this kind of work, THAT Camps for K–16 teachers, professional development courses as continuing education, and other partnerships that grow out of a good working relation with K–12 can contribute to a smarter computing culture. THAT camps that focus on the needs and interests of postsecondary education will have a smaller impact on building a local computing culture and not increase K–16 collaboration. To fill the cultural, educational, and technological gaps in our communities, rhetoricians

can fill the ad hoc roles, building smarter computing cultures through discursive and material means.

Sustain your own and others' practices; the local initiatives and newly generated gap fillers will need to be sustained in order to successfully build a smarter computing culture.

The public discourse of “code year” needs to be reframed as “code decade”; cultural shifts will not happen in a single year. Sustainable projects need the people power that comes with collaboration, the documentation that comes from technical writing, and the sustained vision that comes from engaged, publicly oriented scholars. The rhetorician Richard J. Selfe (2005, 2) led the field of rhetoric and composition in thinking about “sustainable computer environments,” and he offered a simple formula that is entirely relevant to building a smarter computing culture: people first, pedagogies second, technology third. His work has been extended in a collection (DeVoss, McKee, and Selfe 2009) that covers the sustainability of research centers, writing centers, and writing programs but not community DH labs. Innovative possibilities now exist, like online fund-raising through CrowdRise or Kickstarter or drawing community volunteers from local Unix clubs, OLPC clubs, or Mac User Groups.

Dan Anderson (2008), among others, has advocated for a “low bridge to high benefits” that, like Selfe’s position, puts people first, emphasizes agency, and aims for social change as an outcome. Our own project, Sugar on a Stick, has a human and financial cost that is not going to be sustainable and scalable without project funding (another name for cyberinfrastructure), so we, too, will need to consider some lower-cost alternatives to reach the same goals.

Conclusion

Rhetoric brings the civic engagement that has been missing in DH, and DH brings important critical perspectives and practices about the digital divide. Accordingly, a fusion of the two has much to contribute to efforts that blur disciplinary boundaries. Such actions to blur and cross lines are manifest throughout rhetoric’s history as a discipline and origins as *the* humanities. McKeon talks of “continuities and revolutions” (1971, 45), and William Keith discusses the foolish expectation that rhetoric will “hold still as a stable object of theorizing,” which gives

contemporary justification for Aristotle’s “thick manuals” of production over his “thin theoretical tomes” (Keith 1997, 231, 235). More importantly, however, it justifies the call to see the shared values and deep skill set that both parties bring to such ambitious projects to start digital labs that immerse themselves in the public sphere.

Our goals may be too ambitious. We doubted the viability of our project from the beginning, yet we had a vision and persistence, as well as some necessary funding, that have sustained us for three years. We were buoyed early on by the conclusion of Walter Bender’s (2011) TedxKids talk in Brussels: a “Fail better!” chant. And we know, and find support in, the realization that what we are doing is good and meaningful even if we do not achieve our ultimate goal. David Coogan and John Ackerman conclude the introduction to *The Public Work of Rhetoric* by citing John Lucaites and Celeste Conduit’s account of rhetoric’s “strategic liberation”: ‘the possibility of improving life within one’s community in temporary and incomplete, but nonetheless meaningful ways.’ This is the true grit and tumble of public life. This is where we find the space to work” (2010, 12). How we measure the success and failure of such civic engagement for social change is another matter that will develop as these projects emerge and grow. For now, we (and, we suspect, many other rhetoricians and digital humanists) want to live in smarter computing cultures, but, to make that happen, we will have to play a more significant role in building its many manifestations.

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