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Building a Toolkit for Digital Pedagogy

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Abstract

Despite the perceived newness of electronic methods in physical classrooms, electricity–and the distributed labor on which it runs–has long powered the spaces of pedagogy. Routing electronic practices in undergraduate teaching through the digital infrastructures with which they operate, this writing tests circuits of power that migrate between disciplinary and physical learning systems. It does so through a discussion of Pedagogy Toolkit, an open source and community-authored teaching repository built with Jekyll and deployed via GitHub Pages. Contributing to an increase of energy for project-based interventions in digital humanities teaching, Pedagogy Toolkit circulates digitized teaching materials, guides to teaching with digital humanities tools, a curated sample of online syllabuses accompanied by a syllabus templating tool, and an accessible website templating framework. An overview of new methods for digital teaching in the undergraduate classroom leads in turn to a reflexive discussion of the design of digital platforms as pedagogical objects, activating issues of labor, diversity, and knowledge transmission along the way. Ultimately, building a toolkit for digital pedagogy constructs infrastructure as a mode of intellectual inquiry, exposing classroom power as a conduit for ethical connections between students, teachers, and digital development teams. Rerouting logics that partition teaching practice and tool development, this article situates building communities at the heart of humanities learning.

Building a Toolkit for Digital Pedagogy (pedagogy-toolkit.org)

Attending to the communities imbricated in digital pedagogy requires accounting for power. There is a panel at the front of my classroom with two switches for the lights and two buttons to activate the projector. I engage these mechanisms and electricity flows into the classroom. My students walk into a room of desks, chairs, notebooks, chalkboards, and markers. Such tools are always waiting, ready for us to learn with, and we may additionally learn from these tools by asking who assembled them or where they came from. The classroom brings us into contact with material traces of human labor: wood, plastic, metal, halogen bulbs and the circuits of power that light them. Such power circulates through the intellectual cultures of our classrooms, as we organize chairs in a semicircle, write with students on the whiteboard, or display a PowerPoint on the projector screen. The contemporary classroom exists as an infrastructure, a blend of physical materials with values and practices through which students and teachers alike bring those materials to life. 1

Just as a classroom infrastructure is shaped and guided by the pedagogical philosophy of the teacher, so too are digital pedagogical spaces structured and designed to foster specific forms of user engagement. Taking a pedagogical approach to tool development, digital humanities developers build intellectual and cultural values into the digital infrastructures that constitute their tools [Brown 2015] [Svensson 2011] [Galey and Ruecker 2008]. Such digital continuations and reimaginings of existing humanities infrastructures are grouped under the term cyberinfrastructure, as defined in the ACLS report on “Our cultural commonwealth”[1] Far from being a radical break from existing forms of knowledge sharing in the humanities, cyberinfrastructure exists as digital continuations of physical infrastructures, including conferences, departments, scholarly organizations, and classrooms. These and other environments blend physical support for intellectual discovery with cultural, institutional, and interpersonal dynamics through which such inquiry can flourish and be shared. In all environments, theories are deployed as design principles meant to impact the 2

real world use of material, thinking through how, why, and under what circumstances people engage with the tools at hand. Users and students alike work and think through these environments to create knowledge, meaning the theories and values built into their design also function as pedagogies. Digital pedagogy requires accounting for the epistemological limits of tools both digital and analog and coming to grips not only with how to make knowledge with tools, but also how tools make knowledge. By taking stock of principles and practices for tool design as critical pedagogies, digital humanities can account for their epistemologies at the technical and applied level, as they affect users and students.

3 Digital pedagogy operates through an emerging nexus where the practices and protocols of multiple infrastructures permeate and interpenetrate each other. Routing and navigating the switches and junctures between such systems always requires handling power. This writing treats electric power as a metaphor for disciplinary and institutional forms of power. Specifically, I argue that such forms of cultural power enter our classrooms when one community of practice wields the product of another while overlooking that resource's status as community-generated. Electricity, and the technological objects it powers, may be the most ubiquitous of these resources. Instrumentalizing our relationship to them risks separating our classroom communities from the working communities with which they are deeply intertwined, including facilities services, support staff, distribution networks, and development teams, among many others. Doing so narrows the contexts within which student learning takes place and the communities our teaching may benefit. In what follows, I consider how these concerns structure relationships between communities of students, teachers, and digital humanities tool developers. The interfaces of plastic, metal, and screen often suggest we are safely separated from such power, even as we control and direct its flow.

4 The above claims are far from new, but instead contribute to a cultural critique of teaching technologies pioneered through scholars such as Cynthia Selfe and Cathy Camper [Selfe 1999] [Camper 1995]. As Selfe warned in her 1999 "Technology and Literacy: A Story about the Perils of Not Paying Attention,"

> We manage to have the best of both worlds–we have computers available to use for our own studies, in support of our classes and our profession–but we have also relegated these technologies into the background of our professional lives. As a result, computers are rapidly becoming invisible, which is how we like our technology to be. When we don't have to pay attention to machines, we remain free to focus on the theory and practice of language, the stuff of real intellectual and social concern. [Selfe 1999, 413]

5 Arguments such as Selfe's are of renewed relevance in a moment where humanists themselves have turned to the work of building technologies.[2] For teachers and students alike, bringing the digital into the classroom often means figuring out how to access and navigate the platforms digital humanists build, as well as understanding the values and assumptions that shape the way they work. This makes meaningful pedagogical deployments of technology an elusive puzzle, a nebulous tangle of technological and disciplinary power that is always hidden just out of reach. Digital pedagogy is therefore always at the same time a question of digital humanities pedagogy, about an open reformulation of disciplinary relations that often appear as either invisible or opaque when viewed from the comfortable perspective of one field alone. It therefore embodies Alan Liu's characterization of the symbolic "meaning of the digital humanities."[3] As he writes: "In both their promise and their threat, the digital humanities serve as a shadow play for a future form of the humanities that wishes to include what contemporary society values about the digital without losing its soul to other domains of knowledge work that have gone digital to stake their claim to that society." [Liu 2013, 410]. This "shadow play" unfolds equally in the disciplinary configurations of digital humanities research as it plays out in the values and experiences of undergraduate students, as they encounter digital humanities tools and, through them, shape and share their views of the world. Digital pedagogy is not solely a venture invested in bringing tools into humanities classrooms, but also a series of intellectual engagements that bring humanist critique to bear on the tool's role in knowledge construction, particularly as such critiques are engaged and lived out by students constructing knowledge with and through electronic environments. Opening such a pedagogy to non digital humanists involves laying the groundwork for that critical digital inquiry. In other words, digital humanities, as a set of disciplinary, institutional, and technological protocols, are developing a pedagogical theory. Such theories are being designed by a range of projects, including

Hybrid Pedagogy and the Digital Pedagogy Lab; the MLA Commons *Digital Pedagogy in the Humanities: Concepts, Models, and Experiments*; the Digital Pedagogy Institute; HASTAC's Pedagogy Project; the Journal of Interactive Technology and Pedagogy; the DiRT Directory; teaching Modernist Women's Writing in English; Outcome-Centered Electronic Library of Teaching Resources (O.C.E.L.O.T.); the Digital Repository of Academic Writing (DRAW); the Digital Writing and Research Lab (DWRL); Katherine D. Harris's PBworks "Technology and the Classroom;" and Alan Liu's DH Toychest. Engaged in such work, scholars including Jesse Stommel, Sean Michael Morris, Katherine Harris, Catherine McLoughlin, Rebecca Frost Davis, Jentery Sayers, and Matt Gold are building pedagogies into points of contact between digital humanities communities and the diverse academic communities with which they do now and might still engage.

6 Contributing to what might be called the "infrastructural turn" in the digital humanities, or a growing research interest in the cultural values built into humanities platforms, this article works through a pedagogy of infrastructure that crosses the circuits of classroom and server alike.[4] Navigating such crossings requires engagements with power: learning how it is directed, distributed, and might ultimately be rerouted. The Pedagogy Toolkit project undertakes these engagements by working directly with and through teaching infrastructures as its primary mode of inquiry. At the front–end, Pedagogy Toolkit is a teaching website that offers open access materials for use in composition, rhetoric, literature, and digital humanities classrooms. This includes downloadable resources for classroom use, as well as community–generated guides for deploying digital humanities tools in the classroom. In short, the Toolkit website is designed as an accessible starting point for a range of teachers to share and integrate digital components into their classrooms, particularly first–year composition and literature classrooms. On the back–end, these resources are built on top of a public GitHub repository of teaching documents that is free and open to all contributors. The repository is coded with Jekyll, a static site generator that makes additions to the open source repository automatically update the project website (where all content is shared under a Creative Commons-ShareAlike license). Pedagogy Toolkit is designed not as a neutral tool or object for hosting and finding resources–it is not an instrument, a factory, or a bank; instead, it is an evolving mesh of community–driven interests and advancements that, in its design, thinks through digital models for interdisciplinary knowledge exchange.

7 Like a course syllabus, the Toolkit project is designed for scaffolded engagement. First, users will encounter resources for deploying digital humanities tools in their physical classrooms. As they dig deeper into the project's documentation and website templating frameworks, users are introduced to the code and infrastructure through which those materials are shaped and are invited to reuse the open source code to author their own digital teaching platforms using the Pedagogy Toolkit framework. The project includes a "Getting Started with Pedagogy Toolkit Templates" guide that leads users through the creation of their own teaching website, generated and hosted at no cost using the project source code with Jekyll and GitHub Pages. The guide takes roughly an hour to complete and assumes no previous coding knowledge, introducing users to the codes, frameworks, and servers that subtend the static content viewed on the Toolkit website. Pedagogy Toolkit is designed as a teaching platform that teaches scholars how to build their own teaching platforms in turn. Doing so invites teachers to directly engage with the assumptions and motivations that shape digital tools, offering transparent protocols that teachers can reuse and reshape to their own pedagogical ends. While the immediate utility of the project lies in making digital pedagogy accessible to interested teachers, its ultimate goal is to render transparent its own modes of constructing digital knowledge for users to reshape and reconfigure. As a digital humanities project, Pedagogy Toolkit uses a pedagogical framework to build reflexive awareness of its epistemological limits and values into the project itself. In so doing, the project shares accessible protocols for querying the assumptions and limits of digital knowledge platforms, thereby facilitating self-directed lessons in infrastructural literacy. The interface of the website frontend pays skeuomorphic homage to an analog box of tools: resources are listed under color-coded headers and organized into neatly-arranged rows and columns of sorted categories. The documentation and templating frameworks of the project make such design decisions legible at the level of code: showing users how the drawers and dividers that frame teaching tools are built, as well as how they can be broken down, rearranged, and refashioned. Pedagogy Toolkit is built to be dismantled.

Open Pedagogies

As an open source repository, Pedagogy Toolkit's engagement with the preservation and dissemination of humanities documents is also an engagement with the complex work of an archive. The role of digital archives in reconstructing past histories, as well as in illuminating the ethics of contemporary attempts to recover such histories, is deeply complex. As Lauren F. Klein writes: "among the greatest contributions of the digital humanities is its ability to illuminate the position of the critic with respect to his or her archive of study, and to call attention to the ethical and affective as well as epistemological implications of his or her methodological choices." [Klein 2013, 672]. While Klein's claim carries significant implications for the work of historical archives, it also helps illuminate a cultural vision of the archive of teaching. By circulating material documents that trace pedagogical approaches and values, teaching archives carry the promise of surfacing (or suppressing) diverse pedagogical practices, theories, and methods. Archives are sites of power. This is particularly true of the informal archive of humanities labor, which often elides or overlooks lesson plans, activities, and syllabuses as documents through which scholars disclose, shape, and share evolving methodologies and approaches in their fields of study (as discussed in detail below, a number of projects are redesigning these archives in electronic environments). Furthermore, the development of such methodologies is often inscribed in systems of contingent labor, relegating the intellectual advances contributed by part-time faculty and graduate instructors to classroom documents traditionally divorced from the record of scholarly production in journals, monographs, and born-digital projects. Surfacing and circulating the theories, values, and intellectual advancements of contingent faculty therefore takes part in an act to restore a diverse record of humanist thought. Doing so exposes valuable and overlooked perspectives on the project of tool building in the humanities, teaching humanists how their theories and values shape and frame the creation of new knowledge in the classroom (at times charting new routes for students to grasp concepts through visual and project-based learning and, at others, prompting students to follow the prescribed pathways of a given tool, dataset, or workflow). While systems of contingent labor frame such classroom experiences as attempts to reach up towards the research of established faculty, established research may simultaneously reach out to student experience to better understands its lived uses, limits, and influences. Open pedagogies stage flexible circuits of knowledge as a counter to top-down transmissions of influence; in such an open source ethos, research learns from student experience, teaching documents scholarly production, and humanities better understand and represent themselves by illuminating their contingent contributions. These open circuits are energized by feedback loops between people in various positions, roles, and stages.

Pedagogy Toolkit's teaching resources demonstrate the importance of intellectual exploration in a student-directed space. Teachers construct their documents as actionable objects that invite a variety of student problem-solving strategies, rather than lists of information or steps to repeat. Documents are referenced as "strategies," "recipes," "workshops," and "exercises;" writing prompts are paired with open-ended videos; and guides blend video and text with analog and anecdote. Rather than requiring students to keep to the intellectual pathways prescribed by a given method or workflow, such action-oriented worksheets encourage students to find their own answers and share them with the learning community of the class. This is an approach to critical digital pedagogy that permeates the documents shared by the Pedagogy Toolkit contributors. The emergence of digital teaching archives thus also signals the emergence of teaching documents as an important record of the ongoing nature of humanities inquiry, as it unfolds through the ongoing creation of knowledge in undergraduate classrooms. Such documents reveal digital pedagogy as an exploratory endeavor, in which knowledge is created by reworking and retooling existing schemas and strategies rather than reinscribing legacy frameworks by rote; this open source model lies at the heart of the documents shared through Pedagogy Toolkit, as well as the Toolkit platform itself.

Pedagogy Toolkit is not alone in extending pedagogies of collaborative knowledge production and disciplinary border-crossing to digital platform development and dissemination. This interdisciplinary field of work was pioneered by *Kairos*, the long-standing online journal that first shared project-based and multimodal arguments that take up rhetoric, technology, and pedagogy. Disseminating complex arguments about teaching and technology that work with and through technological interfaces online, *Kairos* joins arguments by Cheryl Ball, Alan Galey and Stan Ruecker, and Susan Brown, Patricia Clements and Isobel Grundy in demonstrating that digital scholarship makes arguments by performing and enacting cultural and critical theories [Ball 2004] [Galey and Ruecker 2008] [Brown et. al. 2006]. *Kairos* has paved the way for related projects that embed theories and values of knowledge exchange into their design and use. *Digital Pedagogy in the Humanities: Concepts, Models, and Experiments* reshapes the form of the book to explore

collaborative models for teaching development. Organized around fifty keywords and nearly 550 pedagogical artifacts, the project invites teachers to replicate and remix each other's projects, activities, and assignments, all shared under a Creative-Commons license. This remixing mechanism allows teaching practitioners to shape and grow each keyword by updating it with their own adaptations of existing teaching materials. In so doing, it embeds the values of pedagogical collaboration into the book's digital design: "[taking] advantage of the affordance of the digital form to allow readers to respond to, rearrange, regroup, and remix sample projects along a range of axes" [Ball et. al. 2015].

11 Similarly, HASTAC's Pedagogy Project shares an open repository of teaching assignments and experiments, which is openly accessible for community comments, updates, and additions. The scope of the Pedagogy Project is vast, including creative and multimedia projects, collaborative digital projects, and examples of social media and public scholarship. Crucially, the project encourages teachers to comment on its resources, offering feedback on how the exercise went in their classroom as well as suggestions for future improvement. Through the open access and commenting features of the HASTAC platform, this project invites teaching communities to collectively share and reflect upon their teaching practices online. Echoing Lisa Spiro's reminder that "sharing energizes and shapes a community," [Spiro 2013] Pedagogy Toolkit joins the efforts and energies of these projects. The community building mission of Pedagogy Toolkit forms but one node in an emerging constellation of work that builds pedagogy into the disciplinary and digital frameworks of the humanities.

12 The aims and aspirations of this project emerge from a specific institutional context. It began under a Learning and Teaching Development Grant from the University of Victoria Learning and Teaching Centre, headed by Misao Dean and Lisa Chalykoff.[5] This grant facilitated a pilot program that added a lab component to the University of Victoria's first-year writing curriculum. Throughout the year-long project, participating teachers used Moodle to share materials and resources developed as part of this curriculum, forming a local community of networked teaching practitioners. These materials populate the resources section of the Toolkit, which includes excellent classroom materials from instructors at the University of Victoria. Samantha Macfarlane contributes a comprehensive grammar-revision worksheet that invites students to identify six common writing errors; Gerald Baillargeon shares handouts on paragraph unity and the analysis of poetry; still others share their writing prompts, sample texts, and presentations on close reading. Working with these documents served not primarily as an exercise in archiving the content my colleagues produced, but in crafting a digital continuation of the informal teaching community the project's initial LTC grant made possible. Beyond collaborating with tool developers and teachers to author the tool guides, the project has engaged digital teaching communities primarily through outreach events and digital demonstrations, including a workshop at the Digital Humanities Summer Institute. Since the project's launch in January 2015, the site has seen over 2,000 interactive sessions (defined as a user actively engaging with and navigating the website).[6]

13 As I developed the project, the work of curating pedagogical content became the work of curating community, access, and exchange. Such an approach echoes Bethany Nowviskie's call for "supporting practice in community," which argues that

> We should put as much energy into connecting and building up people–into developing supporting, motivated, skilled, diverse, and intersecting communities of expert practitioners–as we do into connecting the services, systems, and corpora that are the other pillars of a national digital platform. [Nowviskie 2015]

14 With funding from the Association for Computers and the Humanities (ACH), I worked to build pedagogy into the project materials so the local forms of knowledge exchange taking place at my home institution could be re-situated as distributed, global, and asynchronous. The project thus transitioned from a local institutional memory base to a global and open repository designed to share the work of many diverse digital practitioners. Scaling up the toolkit project was not primarily concerned with bandwidth, server space, or computing power. Instead, scale became about people and communities of practice, a function of building diverse sets of perspectives and benefits into tools, expanding them as a function of community need and uptake.[7]

Teaching Tools

The Toolkit project is powered by code and GitHub servers as it is equally powered by the intellectual contributions of a diverse online community. Rather than channeling resources from one community to another, such power is reflective of the vitality of interrelated sets of practitioners. All content on the site is authored through collaborative input from teachers of composition, rhetoric, literature, and digital humanities, as well as developers and expert users of digital humanities tools. From this perspective, “the Toolkit project not only seeks to build communities in and around digital pedagogy, but also demonstrate[s] how and where those communities contribute raw material for building the project out in new directions” [Christie 2015]. In building community-authored materials online, the Toolkit therefore works to build intellectual crosswalks that digital pedagogues can traverse through their teaching. Authored through the contributions of digital tool development teams as well as teachers who implement those tools in their classrooms, Pedagogy Toolkit includes guides to teaching with Juxta Commons, NewRadial, Neatline, Zotero, Voyant Tools, For Better For Verse, Scholarslab Prism, He Do the Police in Different Voices, and Serendip-o-matic. A warm thanks goes to all those who shared their work and thoughts to develop these guides. By making the work of both digital pedagogues and digital tool developers visible, the guides are written with both classroom and developer contexts in mind. Classroom deployments of digital humanities tools can serve as feedback for development teams, demonstrating specific applications of the tool and its features. From this perspective, the guides show tool developers specific ways in which students are engaging with their project, including which features are accessible and which might prove difficult to grasp. At the same time, features released by developers can inspire applications of a tool in the classroom. Student experience is communicated through the teaching materials that populate the guides, often authored by instructors; the guides also include student projects developed using a given tool, allowing developers to see directly how students deploy given platform features. Ultimately, by sharing the online presence, digital products, and intellectual labor of students, teachers, and tool developers in the same space, the Toolkit is meant to facilitate further communication and mutual feedback across classroom and development labs via social media, opening channels for teachers to situate their work in relation to digital humanities research and development. As developers learn from student experience, teachers benefit from development teams, and students see their knowledge operating in contexts beyond the physical classroom, the work of one community is meant to energize and empower others. 15

With this intellectual cross-pollination and cross-fertilization in mind, the Toolkit guides offer an introduction to the tool, followed by teaching applications shared by contributors. In many instances, the introduction includes an interactive tutorial authored within the tool environment itself (produced by a developer or expert user). While the guides offer a space for experienced users to share their digital activities, they also offer an accessible venue for those new to digital pedagogy to access those activities and include them in their own classes. Designed to share and unite the interests of multiple communities of practice in and around digital pedagogy, the guides reflect the input, interest, and meaningful contributions of a range of diverse digital practitioners. Beyond offering exercises in souping up a classroom with tech, the tools section is developed as a collaborative zone where users can reframe their digital work in the contexts of various other communities engaging in tangential and continuous lines of inquiry. Doing so, in turn, reframes contingent classroom labor as an essential node in digital humanities networks, growing such networks by empowering students to build knowledge of and on digital platforms. In this way, established hierarchies and dynamics within the field are contingent upon the teaching work of adjuncts, sessionals, and teaching assistants, who actively conduct knowledge of such disciplinary formations to students. 16

The teaching shared by the project comprises nearly one hundred hosted documents and over forty contributors. Many offer strategies for teaching and authoring digital project-based scholarship. Alicia Peaker shares strategies for creating non-linear arguments using Neatline and Omeka. Peaker’s work invites students to conduct research from a shared repository of sources, which they then curate and visualize on a map using Neatline. Arguing from these shared materials, each student generates his own means of synthesizing and displaying the sources to build a web-based geospatial argument. Also working with Neatline, Areti Sakellaris shares her project that maps correspondence from the Library of Congress’s Woody Guthrie Manuscript Collection. Sakelarris’s project is designed to be reproduced in the classroom, offering materials for student curatorial work and web-based arguments. Others invite students to reflect upon their composition and revision practices using online tools. For instance, Jeffery Boruszak asks students to generate text analysis visualizations of their primary and secondary research sources in Voyant Tools. This enables students to visually explore trends in their research as they work to shape a research topic and thesis. Students may 17

then use the trends they identify as new search terms to expand their collection of research sources.

18 Elsewhere, Brandon Walsh and Amy Robison share digital activities that use digital environments to teach literary and theoretical concepts. In “Prism in the Classroom: Questions to Frame Discussion,” Walsh asks students: “How do the tool and our framing of it affect how we read the text?” [Walsh 2014]. Through a collaborative reading of James Joyce’s *A Portrait of the Artist as a Young Man* using the Prism tool, Walsh teaches the differences between realism and modernism as well as the concept of the binary. Demonstrating similar theoretical flair, Amy Robinson uses the New Radial interface to invite students to map the structure of Charlotte Perkins Gilman’s *The Yellow Wallpaper* (moving beyond thematic or trope-based readings of the text). As Robinson writes: “I started by asking them to show using the nodes…not what the story ‘means’ but what it does.” [Robinson 2015]. Both Walsh and Robinson frame their tools as environments that mediate students’ engagement with text, as well as venues in which students can grapple with theoretical approaches through deliberate engagements with the tool and its interface.

19 Other contributors teach close reading skills. Julia Bninski’s assignment collates the 1818 and 1831 editions of *Frankenstein* to view shifts in diction, punctuation, and characterization. Bniksi also includes a reflective statement on the assignment, offering suggestions for improvement and thoughts on deploying the assignment with other texts. Chuck Rybak asks students to identify poetic devices and difficult passages by reading the poetry of Rimbaud in Prism. Rybak also uses Prism to ascertain a detailed account of student engagement with course reading, identifying locations in the text that prove difficult for the majority of the class. Echoing Rybak’s use of digital tools to reveal trends in student engagement, Norah Andrews uses Prism to mark up historical text. Her exercise focuses on legal culture, gender roles, and progress in Maria Eugenia Echenique’s “The Emancipation of Women.” As Andrews argues, this exercise reveals as much about the points of confluence and division in the class as it reveals about the text in question. While digital tools may reveal cultural and theoretical structures present in a course reading, contributors equally demonstrate how tools can also expose intellectual and cultural currents in their own classrooms.

20 Overall, teachers share experiences using digital humanities tools and methods to teach abstract thinking through practical electronic applications. The above and related exercises let students approach multimodal collaboration, literary theory, and close reading through the systematic and step-by-step procedures of a given digital tool. Doing so lets students craft concrete and systematic strategies for critical thinking with a given tool and environment. Furthermore, teaching critical thinking skills through digital tools often carries the added benefit of revealing and reworking classroom cultures. As many contributors confirm, exposure to digital tools lets students better grasp the class’s collective relationship to course material, as they note shared sources of confusion with certain aspects of a tool, a text, or both. Chuck Rybak’s students share relief upon realizing that they all become stuck at similar places in the course material, allowing them to move forward with a newfound sense of confidence and team-based learning (a dynamic I have also observed in my own classrooms). While such approaches prove largely effective, they further expose a key zone of intellectual concern where teaching and the digital humanities meet at the experience of student learning. Developing abstract thought in programmed environments risks reproducing the ideological architecture of digital humanities interfaces in students’ own learning strategies. As Amy Robinson explains: “Students without a critical education in digital technology risk being programmed by their programs, trained like computers to follow the same intellectual pathways over and over again” [Robinson 2015]. By teaching students to build a given skill set within a digital environment, teachers risk making knowledge proprietary, tied to the technical infrastructure and design logic of a tool or suite. As such, a key component of digital pedagogy entails transmedia literacy, or teaching students how to translate skills from one environment to another. From this perspective, Robinson’s warning revives the urgency of pedagogy within the digital humanities, since understanding the role of digital humanities development in building knowledge requires navigating the boundaries between learning experience and interface design.

Learning Interfaces

21 In addition to sharing classroom activities for teaching with digital tools, the project also includes a syllabus templating tool that allows instructors to remix and repurpose elements of digital syllabuses to create a downloadable template course syllabus. The tool is automatically populated with CC BY-SA content from syllabus information in the Pedagogy Toolkit repository. Syllabus components are stored in the project repository in JSON format, which enables new

syllabuses to be added to the templating tool by sharing syllabus information as a JSON file. The templating tool currently includes syllabus contributions from Constance Crompton, Lisa Gitelman, Steve Jones, Amanda Licastro, Eric Rettberg, Janine Utell, and Jacqueline Wernimont. Energized by contributors from a range of academic positions and levels, the tool empowers teachers to rapidly prototype digital pedagogical materials from a breadth of colleague contributions. In so doing, it strives to avoid drawing power from consolidations of disciplinary and canonical influence (and thereby conducting such establishments of power, in turn, to the teacher engaged with the tool). The templating process is divided into three stages: prepare, remix, and revise. In the preparation stage, users enter basic information for their course. The remix stage allows users to weave elements of existing syllabus data into their working syllabus.[8] The information included is far from exhaustive, and serves as an initial starting point for syllabus construction, rather than an end-to-end environment for syllabus replication. The final revision stage invites instructors creating their syllabus to reflect upon the cultural choices, values, and philosophies of learning that figure into syllabus revision. It includes readings that frame syllabus writing as cultural work from Jacqueline Wernimont, Roopika Risam, and Trent Kays, along with an interface for editing the draft syllabus taking shape onscreen [Wernimont 2015] [Risam 2014] [Kays 2014]. Instructors are invited to read these materials as they edit the syllabus in the online interface. Once the instructor has completed her editing process, she may download the template syllabus as a .txt file. In addition to the templating tool, Pedagogy Toolkit also includes a selection of open access syllabuses that cross digital humanities, digital literary studies, and digital rhetoric and composition. In consultation with this curated selection of syllabuses that explicitly cross digital humanities and composition, users are encouraged to continue work on draft syllabuses produced using the tool. They are also encouraged to visit CUNY Academic Commons and the Open Syllabus Project for an expansive selection of online syllabuses that surpasses the project's curated sampling.

22 The production and design of the templating tool works through the constraints of both code and culture. Rather than being purely an exercise in building a tool under the constraints of Jekyll and Javascript, the development process of the templating tool was also an exercise in working to understand and reshape the cultural constraints of digital humanities syllabuses. This approach is deeply inspired by a conversation I had on Twitter with Jacqueline Wernimont, Daniel Powell, and Whitney Trettien. We discussed Wernimont's "Build a Better DH Syllabus," which responds to, as she writes, "the inexcusable absence of women's work from DH syllabi." Inspired by this conversation, as well those that stemmed from it at the 2015 Digital Diversity conference, the templating tool interface plays out tensions between instrumental and diverse visions of syllabus composition.[9]

23 Like the switchboard at the front of my physical classroom, the switches and boxes that populate the digital interface restrict the flow of information through the binary logic of the toggle button. Interfaces equally shape the user's experience of the tool, from text boxes to the disclaimer "all fields optional" that accompanies them. While the tool interface encourages users to remix and interweave elements of other syllabuses, such weaving is ultimately reduced to acts of activating, deactivating, deleting, and rewriting. The tool therefore presents engagements with online syllabuses as simultaneously an intellectual venture in incorporating diverse pedagogical choices and values into one's teaching and also a bureaucratic venture in toggling flows of text to produce syllabuses on the fly. Rather than eliding or resolving such tensions, the templating tool inhabits and dwells in them. Combined with the critical readings highlighted at the end of the templating process, the tool's design and user experience prompts teachers drafting a syllabus to wrestle and tangle with the mechanisms of digital teaching in their full messiness, failing to neatly resolve disjunctures between structures of knowledge and interface. This failure lays bare the everyday tensions between the challenge of course content and the immediate access to that content afforded by teaching tools including textbooks, worksheets, and screens, not to mention structures of contingent labor in the academy.

24 The syllabus templating tool responds, in part, to a twofold technical and cultural pressure exerted upon contingent faculty. While part-time instructors are often required to rapidly produce and vet teaching materials, the availability of canonical sources used to inspire and produce those materials (as Wernimont and others note) often corresponds to entrenched hierarchies of gender, class, and sexuality. The templating tool responds to these pressures as an initial resource to facilitate productive action within a stratified labor system that does not succeed by reproducing corollary cultural stratifications. Such complex tensions between diversity and instrumentalism play out through the powered interfaces of classroom and computer alike, with the templating tool (whose switches and boxes downsample diverse

content through the binary logic of selection) as no exception. The templating tool embodies the messy and uneasy tensions between efficiency and accountability that shape tool-based learning in digital environments. In this way, it embraces John Unsworth's claim that failure is an act of discovery, revealing limits to current theories and methods that a field may yet expand upon and explore.[10] While the tool's main aim is to invite digital teachers to circulate and account for diverse pedagogical choices and philosophies when planning their course, it also works to prompt reflexive awareness of the role digital tools play in shaping and framing teacher awareness of and engagements with such pedagogies in the first place. This, in turn, cultivates a more diverse learning ecosystem where students gain exposure to pedagogical experiences designed across a range of positions and identities, rather than anthologized by a select few. As concerns of contingency and diversity meet at the interfaces of student learning, they indicate syllabus production as a zone of action for diverse digital humanities.

Building Communities

25 Structural interventions in technology and teaching are not problems with easy solutions because teaching is always an unfinished act, an ongoing negotiation of self and other. Cross-pollinating the values, choices, and assumptions that figure into the structures of classroom and technology requires a constant re-evaluation and how, where, and why they intersect. Just as electric power circulates through teaching environments, so too may forms of cultural and disciplinary power propagate through the digital tools and platforms such electricity drives. Through deliberate, pedagogical entanglements of circuits of communication, community, and cultural critique, students may come to better understand how such power shapes their learning, finding themselves empowered to re-situate coursework in relation to the various communities of practice it relies on and supports. This tangle of symbolic, disciplinary, and literal, electric power expresses what Elizabeth Ellsworth calls the wicked problem of pedagogy: "Wicked problems are problems that can't or haven't been fully defined. Questions about them can always be asked and reformulated. There is no explicit end to a wicked problem because solutions can always be developed further" [Ellsworth 2011]. When applied to the epistemological limits and possibilities of digital humanities development, the problem of digital pedagogy emerges as an ongoing, unfinished mode of critical self-evaluation through which digital humanities invite reflection upon their own practices, protocols, and power structures, equally considering how these elements impact lived human experience in the classroom. Identifying digital pedagogy (inclusive of digital humanities pedagogy) as a wicked problem illuminates the importance of a variety of projects and voices in this area; among their four criteria for wicked problems, E. Jeffrey Conklin and William Weil include the following two:

- The problem is an evolving set of interlocking issues and constraints. Indeed, there is no definitive statement of the problem. You don't understand the problem until you have developed a solution.
- Since there is no definitive Problem, there is no definitive Solution. The problem-solving process ends when you run out of time, money, energy, or some other resource, not when some perfect solution emerges. [Conklin and Weil 1997]

26 Rather than a singular or universal solution to the wicked problem of pedagogy then, Pedagogy Toolkit serves to energize the complex terrain on which every teacher, developer, and digital project freshly faces such problems through their practice. This terrain is shaped by the interlocking practices of communities both inside and beyond the classroom.

27 The community of the physical classroom always stands connected to the building communities that shape and design its teaching infrastructures. Digital pedagogy carries the promise of rendering visible and legible the often silenced, labor, assumptions, and values of such communities. This work not only reveals future engagements between the cultures and classroom and coder, but also existing entanglements of physical and digital infrastructure that often go unaddressed. As Valerie Robins explains:

> The technologies we work with every day–even programs we take for granted like MSWord–take the intellectual capital of an entire community of people in order to build and maintain: inventory, designers, builders, mangers, and even testers working together in a variety of ways. Like a telephone wire up the side of a mountain, programs like Word must be assembled and maintained by a team of workers who we don't see, and almost never think about, until there's an issue.

[Robins 2014]

28 Rendering transparent the black-boxed technology that informs classroom practice is a mission directed towards the future equally as it invites us to reconsider the past. Even traditional, analog classrooms exist enmeshed with technologies such as Microsoft office, Moodle, Outlook and Mail.app, and so on. Such technologies, built as bureaucratic and information management tools, inform the assignments, lectures, and other documentary expressions of student-teacher communication most teachers author on a regular basis. While the pedagogical applications of corporate technologies do not necessarily signal the bureaucratic subversion of learning management, the role these tools play in shaping learning remains overlooked and under-theorized. Locating pedagogy as a zone that reconfigures the classroom's connection to the diverse communities it impacts and relies upon thus invites student and teacher awareness of the corporate production teams to which their learning is silently linked. Attending to the histories of the classroom as it has been impacted by the widespread adoption of information management tools is a task that digital pedagogy might still undertake.

29 Pedagogy Toolkit invites teachers to supplement existing classroom technologies with tools whose development teams and values resonate in humanist terms. The tool guides strive to render clear the values and assumptions of a given tool and its development team, reconfiguring the relationship between teacher and tool developer as a two-way process marked by mutual visibility. They empower teachers and students alike to situate their coursework within ongoing communities and their built products outside the classroom, thereby building community across student experience and developer environments. Designed by digital humanities development teams, many tools included in the Toolkit offer expanded contexts for student research, particularly as they translate learning objectives into design goals. Consider Serendip-O-Matic, which is designed explicitly to help scholars discover diverse research sources from unexpected sources drawn from the Digital Public Library of America (DPLA), Europeana, and Flickr Commons. Designed in one week from the Roy Rosenzweig Center for History and New Media, this tool conceives research not as a process of information retrieval, but rather one of serendipitous discovery. Similarly, the interface for New Radial facilitates the visual annotation and organization of related resources. It allows students to import and collaboratively annotate primary and secondary sources, using annotation as a means of constructing complex connections that transform a collection of related sources into a connected network of ideas. Elsewhere, Scholarslab Prism constructs online reading as an environment for crowdsourced interpretation, allowing teachers and students to explore shared reactions to a text through the online interface. As the project website explains, the 2011-2012 and 2012-2013 Praxis fellows designed the tool, first, "to translate the physical exercise of marking a text into a digital one," and, second, "to expand Prism to a format that would promote classroom use and scholarly conversation." [About Prism]. Incorporating such tools into the humanities classroom offers an opportunity for students and teachers to consider how classroom learning might align with the cultural sections with which these tools operate, including museums, libraries, archives, and humanities labs. Doing so frames humanities skills as ones which extend beyond the classroom, exposing students to teams and organizations that methodologically engage with approaches and materials considered in the class. Accounting for the mechanisms of technological development through our teaching renews a Freireian critique of the banking model of education.[11] The opaque mechanisms of black-boxed technology risk turning teaching technology into teaching skills for information recording and broadcasting, framing students and teachers as data processors who record, deposit, and exchange documents (in addition to framing critical thinking as the development of tool literacy). Accessing tools that invite users to live out and work through knowledge creation, in addition to recording its products, promises to complicate this dynamic. A humanist approach to learning tools charts a path through which students extend critical and cultural work to information technologies, as well as the productions teams and environments amongst which they might continue such work after the course concludes.

Conclusion

30 Far from exercises in deploying digital tools in physical classrooms, digital pedagogy signals the analog classroom as a community that reflexively evaluates its own means and modes of learning in relation to the unseen communities that shape it. Among such communities are digital humanists at a range of positions (from research faculty and project leads to tool developers and designers). Digital pedagogy engages the products of digital humanities communities as those

communities design technical frameworks within which digital pedagogy may operate, forming loops and recursions between the two zones of practice. Such loops operate through the electric interfaces of tools analog and digital alike, as well as the disciplinary power they conduct into the hands of users. At the same time as teachers and students channel and direct such power through the tools they use, the design and interfaces of the environments at hand may empower or disempower critical awareness of the tool's role in knowledge construction. This awareness challenges the traditional concept of "teaching with technology" in its suggestion that both concepts can be neatly compartmentalized and contained from each other's influence. Such a challenge restores the intellectual mission of pedagogy as an ongoing interpersonal dynamic that invites participants to learn about the world around them, while simultaneously coming to grips with what and how they know, as well as strategies for exploring the limits of such metacognitive awareness. Teaching both offers a critical evaluation of technologies of learning as well as a reflexive awareness of how such technologies permeate and inform that very teaching. Rather than framing digital pedagogy as "teaching with technology," it might instead be conceived to be "teaching as technology." This formulation echoes calls by Jesse Stommel and Paul Fyfe that digital learning need not always be electronic [Stommel 2015] [Fyfe 2011]. As Stommel writes: "My call is to stop attempting to distinguish so incessantly between online and on-ground learning, between the virtual and the face-to-face, between digital pedagogy and chalkboard pedagogy. Good pedagogy is just good pedagogy" [Stommel 2015]. Indeed, facile separations between analog and digital pedagogy risk devaluing the full complexity of epistemological engagements with learning tools. Digital pedagogy does not operate in or through a learning interface, but rather at its surface, where it comingles with the thinking, talking, feeling, histories, and embodied experience of physical individuals collaborating in a shared knowledge space. These dynamics play out through physical classroom objects, including textbooks, hands, whiteboards, eyes, keyboards, pens, desks, paper, and ears. They also enable a pedagogy of awareness and inclusivity, one that reveals self and other as already interlinked through the powered apparatuses of classroom, screen, discipline, sector, and institution.

Digital pedagogy promises connection and collaboration across contiguous communities equally as it risks entrenching the separations and partitions that divide them, segregating teaching from research, emerging from established, and faculty from information technologist. Such divisions often constitute frozen hierarchies of power and labor. They frame communities of practice in competition with each other, manufacturing discrete knowledge commodities instead of building interconnected structures for intellectual sharing and advancement. The emergence of social infrastructure in the humanities conceives pedagogy as an intersubjective act through which communities reach, share, and grow together to challenge and overturn such divisive logics and frameworks. More than a register of electrified currents in humanities teaching, digital pedagogy teaches dynamics through which humanities continue to grow.

Notes

[1] . The American Council of Learned Societies defines cyberinfrastructure with the following: "[C]yberinfrastructure is more than a tangible network and means of storage in digitized form, and it is not only discipline-specific software applications and project-specific data collections. It is also the more intangible layer of expertise and the best practices, standards, tools, collections and collaborative environments that can be broadly *shared* across communities of inquiry" [Unsworth et. al. 2006].

[2] Selfe unpacks deeply nuanced connections between learning and technology instrumentalization. See Selfe's complex argument at work in her original article.

[3] Liu writes: "For the humanities, the digital humanities exceed (though they include) the functional role of instrument or service, the pioneer role of innovator, the ensemble role of an "additional field," and even such faux-political roles assigned to new fields as challenger, reformer, and (less positively) fifth column. This is because the digital humanities also have a symbolic role. In both their promise and their threat, the digital humanities serve as a shadow play for a future form of the humanities that wishes to include what contemporary society values about the digital without losing its soul to other domains of knowledge work that have gone digital to stake their claim to that society. Or, precisely because the digital humanities are both functional and symbolic, a better metaphor would be something like the register in a computer's central processor unit, where values stored in memory are loaded for rapid shuffling, manipulation, and testing-in this case, to try out new humanistic disciplinary identities evolved for today's broader contention of knowledges and knowledge workers." [Liu 2013, 410]

[4] An articulation of this turn can be found in Alan Liu's "Drafts for *Against the Cultural Singularity* (book in progress)," which calls for "digital humanities research and development informed by, and able to influence, the way scholarship, teaching, administration, support services, labor

practices, and even development and investment strategies in higher education intersect with society, where a significant channel of the intersection between the academy and other social sectors, at once symbolic and instrumental, consists in shared but contested information–technology infrastructures." [Liu 2016].

[5] My work on this project first began as a research assistant hired by Misao Dean and Lisa Chalykoff to create a stable electronic archive to preserve the results of their project in an online archive. Throughout this work, Dean and Chalykoff encouraged experimentation with the project and were highly supportive of my goal to create a repository whose scope might extend beyond our local institution. Following my work as a research assistant, I secured a microgrant from the Association for Computers and the Humanities (ACH) to continue work on the Toolkit project. It is thanks to the encouragement of Dean and Chalykoff that the project exists in its current form.

[6] Analytics are gathered using Google Analytics. All data is current as of February 20, 2017.

[7] Actionable models for deploying scale as a function of community care can be found in the FemTechNet collective and THATcamp, among other initiatives.

[8] As of this writing, the templating tool includes a selection of learning outcome statements, attendance statements, and course readings for New Media and Writing, Digital Games, Digital Mapping, and Composition Technologies.

[9] Particular thanks goes to Julia Flanders, Roopika Risam, and Alex Gil for their thoughts and engagement during the Digital Diversity conference.

[10] Unsworth frames this argument through the concept of problem-based modeling, arguing that "if we really want to get our money's worth, we should make sure that we don't fund 'research' that investigates problems the solutions to which are already known, nor should we fund research that selects problems likely to be solved successfully in one funding cycle...we should favor those projects that stake out difficult territory, have a well-thought out approach to that territory, and can at least define what failure, or in a narrower compass, falsification, would be." Unsworth continues: "I think, a very compact, elegant, and persuasive criterion for deciding whether a real problem has been addressed, and solved — namely, the test of whether the solution of that problem has raised new problems" [Unsworth et. al. 2006].

[11] Paulo Frerie's *Pedagogy of the Oppressed* needs no introduction. See this work for further information on Freire's banking model of education.

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