THE PROCEEDINGS OF THE ANNUAL COMPUTERS AND WRITING CONFERENCE 2018

Edited by Chen Chen,
Kristopher Purzycki,
and Lydia Wilkes

THE PROCEEDINGS OF THE ANNUAL COMPUTERS AND WRITING CONFERENCE, 2018

Proceedings of the Computers and Writing Conference

Series Editors: Cheryl E. Ball, Chen Chen, Kristopher Purzycki, and Lydia Wilkes

The *Proceedings* publish peer-reviewed articles based on presentations from the annual Computers and Writing Conference. The WAC Clearinghouse, and the Colorado State University Open Press make the *Proceedings* widely available through free digital distribution. The publishers and the series editors are committed to the principle that knowledge should freely circulate. We see the opportunities that new technologies have for further democratizing knowledge. And we see that to share the power of writing is to share the means for all to articulate their needs, interest, and learning into the great experiment of literacy.

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Cheryl E. Ball, Chen Chen, Kristopher Purzycki, and Lydia Wilkes.
The Proceedings of the Annual Computers and Writing Conference, 2016-2017.

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THE PROCEEDINGS OF THE ANNUAL COMPUTERS AND WRITING CONFERENCE, 2018

The Impetus for Making Digital Writing a University Wide GE Requirement: The Process and Outcome

Santosh Khadka, California State University Northridge

This paper gives an account of how I designed a digital writing course for California State University Northridge's English Department, and then proposed it as a General Education (GE) course for the university. More importantly, this paper describes what it took me to push the course through multiple stages of curriculum review before its final approval by the university's Educational Policies Committee (EPC), a faculty senate standing committee, as a GE course. I am sharing this experience to make a case that it's possible to convince the whole university community on the importance of digital composing, and that is the direction we as a field should be taking moving forward. Digital writing benefits students in writing and rhetoric programs, but it has the potential to benefit the entire student body of any institution of higher education.

Justification for a Digital Writing Course in a GE Category

In the official proposal, I justified the need for a digital writing course as a GE on three major grounds: Firstly, as a response to the gap in the English Department and the University's current course offerings; secondly, as an opportunity to join the momentum i.e. "digital turn" in the discipline of Writing Studies; and thirdly, as an approach to address the composition and communication needs of our students in the 21st century digital world.

Gap in the English Department and the University's Course Offerings

As soon as I joined California State University Northridge in 2014, I noticed that the school's course offerings did not include any courses related to digital composing, such as writing in the electronic environments, new media composition, multimodal composition, web writing, and composing across media. The existing writing courses included a first-year-writing sequence; business communication; intermediate expository writing; report writing;

composition and the professions; literacy, rhetoric and culture; writing about literature; and advanced expository writing for teachers. So, there clearly existed a gap that I could fill by introducing a course on digital media and composition.

The focus of my course, ENGL 315: Digital Writing, was on production of multiple digital texts—podcasts, documentaries, websites, digital portfolios, and collaborative online articles, among others. In that sense, the course primarily engaged video, audio, and web production processes both theoretically and pragmatically, aiming to give students insights and hands-on practice on how these different media and genres work in and respond to different rhetorical situations.

The following was/is the exact catalog description for the course:

> This course focuses on production of an array of digital texts, such as podcast, website, documentary, e-portfolio, blog, and collaborative online article. Other topics include social media, digital identity, and ethical questions surrounding the production and distribution of texts in digital environments. The course underscores the expanded notion of writing—the idea that writing includes print, but also multimodal compositions done by using mediums, such as sound, video, images, web, graphics, and animation (Available for General Education, Information Competence, Lifelong Learning).

In my proposal, I argued that while Department of Communication Studies on campus offered an excellent course on digital rhetoric (COMS 464), there was fundamental difference in focus between that course and my proposed course. While the primary focus of COMS 464 was on critical/rhetorical analysis of digitally produced texts, my course focused on actual production of multiple digital texts, which made my course more generic with broader appeal. This orientation towards production also distinguished my course from some very specialized courses around a particular mode of communication being offered in CSUN's Department of Cinema and Television Arts (CTVA), such as CTVA 230: Fundamentals of Audio Production; 240: Fundamentals of Video Production; 330: Advanced Audio Production; and CTVA 340: Advanced Video Production and Editing. These CTVA courses were highly specialized in that they dedicated a full year (two semesters) in exploring the communication possibilities with a single audio or video medium, as opposed to my proposed course which covered more grounds, more broadly, in a short time span (a semester). I particularly highlighted in the proposal the fact that this course was unique to the GE curriculum as well. Clarifying this distinction was important to establish the point that my course

had different goals, and was targeted to slightly different student populations on campus.

Joining the Momentum in Writing Studies

Next, I framed introducing digital writing course in the GE curriculum as an opportunity to join the momentum ("digital turn") in the discipline of writing studies. Our field took a "digital turn" around the millennium, and courses in digital writing started to become an integral part of the undergraduate major/minor in writing and rhetoric. There were similar moves in graduate programs too. The courses in digital writing across institutions, for instance, are variously named as: "Becoming Digital: Writing about Media Change" (MIT), "Digital Writing" (Duke and Syracuse), "Writing Across Media" (U of Illinois at Urbana-Champaign), "Writing in and for Digital Environments" (Dickinson College), and "Multimedia Writing", and "Digital Composing" (U of Kentucky). Invoking this precedence and national trend proved to be a single most effective rhetorical move for me as it happened to have a powerful impact on different committees weighing on in this course's potential as a GE course. Other than our department's composition committee, the first one to review the proposal, all other committees—from curriculum committee, a separate committee in our home department to review a new course syllabus, to academic council in the College of Humanities, and educational polices committee (EPC), a faculty standing committee at the university level, through which my proposal had to make its headway—had questions about whether such a course existed elsewhere in the country. Even though content for those courses across different institutions slightly differed from one another for all kinds of contextual reasons, this reference helped me establish the point that we were lagging behind and needed to catch up with offerings in other peer institutions.

There certainly were theoretical conversations about the need for multimodal composition and digital writing to draw on, which preceded the curricular responses, as discussed above. I briefly noted in the justification section of the proposal that New London Group's much celebrated theory of multiliteracies in 1996, for example, explicitly engaged the idea of multimodal writing. Many rhetoric and composition scholars have theorized similar approaches to engage the notion of literacy, specifically writing, in the composition classroom. The list includes, among others, scholars like Cynthia Selfe, Kathleen Blake Yancey, Stuart Selber, Anne Wysocki, Geoffrey Sirc, and Jody Shipka, who contend that since writing includes signifying practices in multiple mediums—print, visual, aural, graphics, animation and such—writing instruction should consider this plurality of composing mediums and at-

tempt to scaffold students' composing abilities in all possible modalities of expression. Multiple studies into students' literacy practices have also shown that our students are writing more than ever with a great variety of composing technologies and forums that are widely available to them (Yancey, 2009; Lenhart, 2012; Lenhart et al., 2008; Madden et al., 2013; Purcell, Buchanan, and Friedrich, 2013), but our instruction is lagging behind in engaging those practices in our classrooms.

I further added that given this discrepancy between students' regular literacy practices and composition instruction, Jessie Moore et al. (2016) express the fear that our "students are moving beyond the scope of many writing pedagogies" (p. 9). Similar questions and concerns are also raised by other scholars in the field. For instance, Geoffrey Sirc (2012) notes that rhetoric and composition has yet to fully embrace the composing technologies other than the traditional print. If this continues, he notes, it's very likely that our writing instruction becomes increasingly irrelevant to the literate lives of our students.

A few other theoretical and pedagogical insights I drew on included more sophisticated discussion of digital writing and pedagogies in the field. Randall McClure (2011), for instance, speaks of web 3.0, and discusses "how the Semantic Web might alter the research process and, more importantly, the research-writing relationship" (p. 316). William I. Wolff (2013) claims that web 2.0 spaces "have their own grammars, styles, and linguistics" and that the "effective and successful compositional engagement with Web 2.0 applications…requires an evolving interactive set of practices" (p. 212). He further argues our literacy learning of these practices can transform how we understand writing and how we teach this art within and outside of a Web 2.0 ecosystem. Wolff calls for productively engaging these various writing spaces and modes in our writing classrooms.

Similarly, Rebecca Tarsa (2015) calls new forums of writing available to students "digital participation sites" which "offer a wide range of opportunities for deploying both digital and alphabetic literacy skills, and have proven incredibly successful in creating the literacy engagement that frequently proves elusive in composition instruction" (p. 12). She maintains that most of our students "are active in digital participation spaces at some point in their lives (Jenkins et al.), [which] makes them a rich site of inquiry for theorizing literacy engagement, especially in relation to students' existing everyday literacy activity and practices" (p. 12). All of these scholars are pointing to an exigence that calls for a more robust engagement with digital mediums and spaces in writing classrooms.

The notion of digitality itself is deeply explored and fleshed out in the published scholarship. Yancey (2004a) writes that "[P]rint and digital overlap, intersect, become intertextual" (p. 89), implying that print is closely connect-

ed with digitality. In fact, the field of digital rhetorics in general has framed multimodal writing as composing with digital technologies and has explored the ways to develop assignments that support students' work with a great variety of semiotic resources. For instance, J. Elizabeth Clark (2010) adopted e-portfolio, blogging and digital storytelling in order to prepare students for the future of writing which, in her view, is "based on a global, collaborative text, where all writing has the potential to become public" (p. 28). She called it "an intentional pedagogy of digital rhetoric" (p. 28) aimed to foster interactivity, collaboration, and sense of ownership and authority among students. Rebecca Wilson Lundin experimented with what she calls a "networked" pedagogy, and used Wikis as the productive site for practicing networked pedagogy as students interacted with each other in the network in "a completely user-editable environment" (p. 433) blurring the roles of author and reader, thus calling into question the traditional authority of writers and readers.

I wrapped up this point in the proposal with the observation that even though some scholars in the field have persuasively argued for the value of multimodal and digital composing practices and the learning that occurs in the process, the implementation of digital writing instruction has remained nominal in many writing programs. The attempts at implementing multimodal approaches are sporadic at best. Multimodality and digitality—so highly hailed in scholarship as the means of preparing the writers and communicators of the future—is largely ignored in most writing classrooms. Frankly speaking, digital writing is still far from being a norm in the majority of writing classes. While many writing instructors have incorporated multimodal or digital writing assignments in their lower division required writing classes within a mix of other traditional print-based assignments, an upper division full-fledged digital writing course in GE category is something rarely seen and heard of.

Responding to the Current Communication and Composing Needs of our Students

The final justification I had for the need to introduce this course was to respond to the need for students to develop an ability to compose across media in this age of information and communication technologies. Given the rapidity with which the writing and publishing technologies evolve and change, our students need to develop that core competency and learn to keep up with the new literacy practices that emerge with advancements in technologies throughout their lives. Only then will they be able to navigate the communication and composition challenges of a highly mediated world. Engaging the new and emerging modes of composing in this class is one way to expose

students to multifarious ways writing can be done. Such an engagement allows students to explore all available modes of composing (including print) fully before making a final choice of medium for communication. Overall, this course made an important case that exploring and appropriating emerging media technologies to our composing and communication needs is and should be a lifelong learning for all our students. Only that learning habit can save them from trailing behind and becoming irrelevant in the future world of even more complex composition and communication needs. Even though I did not highlight how multimodal composing happens in different disciplinary contexts, which I could have to make the case even stronger, the course definitely encouraged students to draw connections with their own home disciplines when they conceived of and completed the projects. For instance, some student documentary projects in Fall 2017 consisted of topics like DACA (Deferred Action for Childhood Arrivals), gentrification, voter turnout in American, gun violence, net neutrality, anger management, CSU's EO 1100, and housing bubble, which represent a diverse set of themes drawn from different academic disciplines. The topic choices for Wikipedia featured-length article projects were even more diverse in terms of their traditional disciplinary location. Students' choices were directly influenced by what their majors are and what they want to see covered or extensively discussed in Wikipedia.

Course Outline

The course had four primary goals: Students would

- gain experience with a variety of digital writing tools and platforms;
- explore the rhetorical effects of different media;
- build upon their current levels of experience and expertise with digital writing; and
- read a series of texts that explore practical and philosophical issues related to digital writing.

Similarly, the course had 5 major assignments: Digital Literacy Narrative (10%), Audio Movie Review (20%), Collaborative Documentary Production (20%), Collaborative Wikipedia Article (20%), and Digital Portfolio (20%). In addition to these major assignments, students also regularly responded to course readings (10%) in the form of blog posts in their own digital portfolios. As far as the thematic structure of the course, my course had four different units focused on different modalities of composing: Unit I: Digital Narratives and Composing with Sound; Unit II: Composing with Video; Unit III: Collaborative Authorship; and Unit IV: Composing with Web and Portfolio

Exhibit. And, the major texts for the course included Barry Hempe's *Making Documentary Films and Videos: A Practical Guide to Planning, Filming, and Editing Documentaries;* Richard Beach, Chris M. Anson, et al.'s *Understanding and Creating Digital Texts: An Activity-Based Approach;* Anthony Williams' *Wikinomics: How Mass Collaboration Changes Everything* ; Cynthia L. Selfe's article: "The Movement of Air, the Breath of Meaning: Aurality and Multimodal Composing;" and National Writing Project, Danielle Devoss et al.'s *Because Digital Writing Matters: Improving Student Writing in Online and Multimedia Environment.* The course also had multiple print and online articles, and other texts (videos, documentaries, websites, audios, images etc.) in digital forms posted on the course site.

Student Response to the Implementation of the Course

This is my fifth semester teaching this course. This course attracts students from across campus with differing levels of digital composition proficiency. In this section, I examine a case study of one student from Spring of 2017: Edward Ruano, a Cinema and Television Arts major, tracing his journey and learning experience through this course. In his final reflection for the course, he writes:

> Over the last few months, I've learned a tremendous amount of practical and usable knowledge in the realm of digital technology, specifically in respect to digital writing, narrative, literacy and the production of digital texts (though the course curriculum is not limited to merely textual information). I've had the opportunity to delve in and fully immerse myself in these mediums not only by reading and attending lectures, but by actually doing and creating video, audio, written and other forms of creative digital media. Beginning with a self-reflective digital literacy narrative, I've successfully completed an audio movie review, a documentary film, a Wikipedia article, a Wordpress blog containing a digital portfolio and a short animated film throughout the semester. These are skills that I know will be valuable to me here at CSUN and in my future as a public relations professional.

For the first assignment, students were asked to compose their own digital literacy narrative, focusing on the process of acquiring their present level of digital literacy, the challenges and successes they have encountered with technology, and the individuals, institutions, organizations, or communities (both real and virtual) that helped and hindered them along their journey. They

were asked to produce a 5-7 minutes long audio/video beginning with scripting their narratives first and then video or audio recording those narratives.

Edward decided to discuss his upbringing and how computers and the internet affected his life in his literacy narrative. About this experience, Edward says this in his final course reflection: "Not only was this my first introduction to SoundCloud, but the project introduced me to audio production in general. It was fun experimenting with different software like GarageBand and Audacity. I learned how to properly write for broadcast, record myself speaking clearly and adjust the different sound levels and audio tracks to produce something that was easy on the ears."

Following the literacy narrative, first major project for the course was to compose a short (5 minutes) audio review of a contemporary movie of student's choosing using GarageBand in the style of radio programs in *NPR.* In the review, they were asked to make creative use of sound effects, music, silence, and any other audio tools at their disposal to communicate their ideas. They had to target their review to an educated audience beyond campus and the review needed to be written in a style that could translate well into speech, a written piece adjusted into something more "talky"—a vocal performance. It should also have to display originality and technical execution, and mix together at least three audio tracks (background music, their voice over/narrative, clips of dialogues from the movie, or director/producer or cast member's interviews/commentary on the movie, etc.). They were asked to export their reviews in mp3 format, upload them in SoundCloud, and then embed them in their own digital portfolios.

Edward had this to say about his learning experience through audio movie review project he did for the course:

> For my audio movie review, I chose to critique *La La Land*. After gathering a variety of library and internet research including interviews with the cast and crew, notetaking during multiple viewings of the film, song interpretation and lyrical analysis, I utilized various transitions and music from *La La Land* throughout to enhance my narrative, as well effective sources and audio interview clips. By learning how to properly adjust sound between different audio tracks to compose a coherent audio review, I feel confident that I can finally create a podcast—something that I've always wanted to do but never felt I had the adequate experience. Thankfully, I do now. (Edward Ruano's final course reflection).

Moving forward, the next major project for the course was producing a ten-minute-long mini documentary collaboratively in a small group of 3

students. Students could choose any contemporary or historical topics for this project. The documentary, however, should have to incorporate a good amount and variety of sources—alphabetic texts (books, articles, newspaper editorials etc.), audios, videos, still images, interviews, animations and visual resources, among others— and be organically composed. It should also demonstrate their knowledge or learning of a number of techniques such as handling video camera, still camera, interviewing people, conducting field research, incorporating voice over into the film and/or editing skills. The juxtaposition of different texts and narrative voice and their organic unity would be the key evaluation criteria for their video project. The project should also reflect their understanding of audience, textual cohesion, and ethical treatment of sources, etc.

As part of the process, students needed to write a proposal, then script for the documentary before putting everything together in iMovie or other movie making programs. They also needed to secure permissions and give credit for all the materials used in their projects. Below, Edward describes his experience working on the documentary project:

> Next, with some help from others in the class, I constructed a documentary film about anime—a subject I had no prior knowledge of. This was perhaps the most difficult, yet most rewarding, project for me. My portion dealt with a brief introduction of the genre to establish a clear tone, purpose and pacing of the film before delving into the history of anime, including its early beginnings in the early 20th century through to its contemporary usage. I learned a lot about film production, including audio and video editing using multiple tracks, transitions, backgrounds music, titles, digital effects, pacing, slideshows, cropping, etc. using various mediums like QuickTime, iMovie and Lightworks. (Edward Ruano's final course reflection)

In fact, their documentary film was excellently composed. They had collected and used a rich set of primary and secondary sources, including firsthand interviews and available stock videos from the web. Editing was meticulously done and the voice-over sustained narrative, informed by credible data from varied sources.

The third major project for the course was collaboratively composing a featured length Wikipedia article. Students were advised to choose an underdeveloped or completely non-existent article to work with for this assignment. "Stub" articles were highlighted as the ideal candidates for development. The final product had to be a Wikipedia article of ~3000 new words. The use of

at least two images as well as other relevant media was required. This paper or revision must adhere to Wikipedia's position on neutral point of view and should contain references/citations whenever relevant.

As such, Edward completed his own Wikipedia page on 6th episode of the 4th season of his favorite television show, *Parks and Recreation*. He says that "the formatting and guidelines were a big learning curve for me, but I feel accomplished knowing that I contributed to something significant and larger than myself. Though my article is still in review, I believe I should have no problem getting it published since I was careful in citing my sources as well as using other episode articles for reference" (Edward Ruano's final course reflection).

Apart from these major projects, students were required to respond to the course readings through blog posts throughout the semester. They wrote a short response to the shared reading(s) and post the responses to their portfolios. Student responses showed their familiarity with the assigned readings and demonstrated their engagement with them either by drawing connections between the readings (and course themes), and/or by thoughtfully reflecting on the implications of the readings and discussions. Each post had to be between 400 and 600 words and would be due before class each week. Their blog post examined one or more of these issues:

- Main issues, themes, or questions/claims in the reading
- Language use in the select texts
- Key texts cited (and intertextual relationships)
- Major questions/challenges the text posed for them
- Issues/questions from seminar discussions and texts under consideration

The class ended with a digital portfolio exhibition. The final portfolios would showcase student works across the course. In addition to all the projects they had produced earlier in the semester, I also asked them to add something new. They could choose to revise and improve two earlier pieces or compose a new piece. For the new piece, they could choose from 1) a set of 5 new blog posts with a critical introduction on digital writing topics; or 2) a new 60 second video on a topic of their choice that is relevant to a wider audience.

As Edward's portfolio demonstrates, he produced a new 60 second video as a new addition to his final portfolio. He describes his final 60 second video production experience this way:

> The short animation sequence was my last project. I was happy that this project was open-ended, since I've been meaning to create a video for an up-and-coming guided med-

> itation app I'm creating with my friends. This was a lot of fun to make, and I feel that my previous experience gained throughout the course served as a launch pad to make this and other digital media well into the future. (Edward Ruano's final course reflection)

Edward's finished projects, including his final portfolio, and his course reflection demonstrate that he had a positive learning experience on this course. As was the objective of the course, he was able to use a variety of digital tools and programs to produce an array of digital texts. In other words, he could practice writing in an expanded sense—the idea that writing includes print, but also multimodal compositions done by using mediums, such as sound, video, images, web, graphics, and animation. Even though some students had to navigate a steep learning curve initially, similar to how Edward encountered, their finished products exhibited their learning of many theoretical and pragmatic insights about digital composing, including rhetoricity of different media, ethical treatment of sources, and productive team works.

Conclusion

To conclude, this whole process of curriculum design and seeking approvals through multiple curriculum review committees on campus—beginning with Composition Committee and Curriculum Committee in the English Department; Academic Council in the College of Humanities; and Educational Policies Committee in the university—revealed how tenuous the disciplinary borders are and how challenging the task of drawing territorial boundaries is in the academic world. While it was no doubt an arduous task, I argue that our disciplinary identity and prestige in the academic world rest in our ability to successfully articulate what's special about what we do and how what we do benefits a larger academic community, including students like Edward. So, one effective step towards consolidating our disciplinary prestige would be to propose our minor and major courses as GE courses like any other science, maths or economics courses, and teach them to a larger student population beyond our immediate and cognate academic units. My digital writing course as GE is already being used by English major, writing and rhetoric minor, popular culture minor, and the minor in digital humanities.

References

Clark, J. Elizabeth. (2010). The digital imperative: Making the case for a 21st-century pedagogy. *Computers and Composition, 27*, 27–35.

Lenhart, Amanda. (2012). *Teens, smartphones, and texting*. Retrieved from http://www.pewinternet.org/2012/03/19/teens-smartphones-texting/

Lenhart, Amanda, Arafeh, Sousan, Smith, Aaron, & Macgill, Alexandra. (2008). *Writing, technology and teens*. Pew Research Center. Retrieved from http://www.pewinternet.org/2008/04/24/writing-technology-and-teens/

Lundin, Rebecca Wilson. (2008). Teaching with wikis: Toward a networked pedagogy. *Computers and Composition, 25*, 432–448.

Madden, Mary, Lenhart, Amanda, Duggan, Maeve, Cortesi, Sandra, & Gasser, Urs. (2013). *Teens and technology 2013*. Pew Research Center. Retrieved from http://www.pewinternet.org/2013/03/13/teens-and-technology-2013/.

McClure, Randall. (2011). Writing research writing: The semantic web and the future of the research project. *Computers and Composition, 28*, 315–326.

Moore, Jessie L., Rosinski, Paula, Peeples, Tim, Pigg, Stacey, Rife, Martine Courant, Brunk-Chavez, Beth, . . . Grabill, Jeffrey T. (2016). Revisualizing composition: How first-year writers use composing technologies. *Computer and Composition*, *39*, 1–13.

New London Group, The. (1996). A pedagogy of multiliteracies: Designing social futures. *Harvard Educational Review, 66*(1), 60–93.

Purcell, Kristen, Buchanan, Judy, & Friedrich, Linda. (2013). *The impact of digital tools on student writing and how writing is taught in schools.* Pew Research Center. Retrieved from http://www.pewinternet.org/2013/07/16/the-impact

Sirc, Geoffrey. (2012). Resisting entropy. *College Composition and Communication*, *63*(3), 507–519.

Shipka, Jody. (2009). Negotiating rhetorical, material, methodological, and technological difference: Evaluating multimodal designs. *College Composition and Communication*, *61*(1), 343–366.

Tarsa, Rebecca. (2015). Upvoting the exordium: Literacy practices of the digital interface. *College English*, *78*(1), 12–33.

Wolff, William I. (2013). Interactivity and the invisible: What counts as writing in the age of web 2.0. *Computers and Composition*, *30*, 211–225.

Yancey, Kathleen Blake. (2004a). Looking for sources of coherence in a fragmented world: Notes toward a new assessment design. *Computers and Composition, 21*(1), 89–102.

Yancey, Kathleen Blake. (2004b). Made not only in words: Composition in a new key. *College Composition and Communication, 56*(2), 297–328.

Yancey, Kathleen Blake. (2009). *A call to support 21st century writing*. Urbana, IL: National Council of Teachers of English.

Simulating Facebook's Newsfeed for Writing Pedagogy

Daniel Libertz, University of Pittsburgh

In this paper, I describe a social media newsfeed simulation I made to get students thinking and talking about algorithms from three rhetorical perspectives: as persuasive (Beck, 2016), as enacting constitutive rhetoric that construct subjectivities (Charland, 1987), and as audience (Gallagher, 2017). These distinct but related rhetorical characteristics of algorithms are complex and can be difficult to think about in isolation and in relation to one another through traditional rhetorical and English pedagogies (e.g., reading and discussion, writing in response to a prompt), but I argue here that the simplicity and dynamism of a simulation can more effectively help students see themselves as rhetoricians that work with, against, and as composers of algorithms.

As an introduction to rhetorical and procedural characteristics of algorithms and social media newsfeeds specifically, I developed a simulation that helped students see themselves in several roles: as a subject constituted (Charland, 1987) by the algorithm, as a writer *to* an algorithm in terms of algorithmic audience (Gallagher, 2017), and as producer of an algorithm and thus how they might persuade algorithmically (Beck, 2016). In the following section, I explain the pedagogical benefits of simulations that model a procedural rhetoric. I then go into more detail on the three rhetorical characteristics that the simulation attempts to enact. Finally, I walk through how the simulation was designed and how I taught with it.

Procedural Rhetoric: Game and Simulation Pedagogies

Ian Bogost (2007) explained that procedural rhetoric is an argument or expression made by processes. In other words, the way in which a process takes an entity through a series of operations or actions governed by rules set up to ensure what is and is not possible creates affordances and constraints that are persuasive insofar as they facilitate what a user experiences, and, thus, can influence what a user thinks or believes. Games, as reliant on processes, are useful pedagogical tools grounded in procedural rhetoric that can help learners to understand processes in the real world. Games have also long figured as useful frameworks for teaching rhetoric and composition. Rebekah

Shultz Colby (2017) referred to games as useful pedagogical moves because of their multimodal affordances and constraints, their rule-based systems that can promote exploration of modelling capabilities, and the genre ecologies they participate in (e.g., design texts, paratexts). Shultz Colby also notes that games help teach systemic thinking, often in an enjoyable fashion. Simulations, too, can achieve the same goal, albeit in slightly different ways. To understand how, it is important to think about the differences between games and simulations.

Louise Sauvé et al. (2007), based on a literature review of nearly 2,000 articles about games and simulations, concluded that the main differences between games and simulations are that games are nearly always fictitious, rule-based environments that center around a conflict and/or goal to achieve whereas simulations attempt to represent reality in a simplified and dynamic fashion, modeling reality without a goal or conflict driving the action. Simulations are often used in educational settings emphasizing technical expertise in professions like nursing, piloting, the military, etc. Other instances might be a case study approach to highlight ethical complications—in writing pedagogy, one example of this is Christy Friend and Mark Minkster's (2002) simulation assignment on ethical argument that focused on admissions decisions in the context of affirmative action. For the most part, though, game approaches appear more prevalent in writing pedagogy than simulations.

While I'm not completely convinced by the usefulness of the distinctions between games and simulations as hard and set (for instance: does an airplane simulator count as a game since it has a "goal" of reaching its destination safely?), I do appreciate the description of the simulation in how it underscores how lived experience is attempted to be modeled but simplified in service of dynamic experimentation by users. The experiential nature of a simulation can aid in bringing energy and accessibility to conceiving digital spaces driven by algorithmic processes, like that of the newsfeed, as a rhetorical environment. Previously, I had struggled to teach newsfeed algorithms as rhetorical with conventional means—namely, having students write blog posts in response to a reading on algorithms (i.e., Zeynep Tufkeci's wonderful 2015 piece on "algorithmic gatekeeping") —and I believe that is because it is difficult to rely solely on traditional literate practices when engaging rhetorics reliant on procedure.

While algorithms are processes in the real world worth exploring, I wanted to have students explore these processes *as rhetoric*. Algorithms are persuasive procedurally (Brown, 2015; Holmes, 2014)— the processes they set in motion help to facilitate what a user experiences, and this facilitation can impact what a user thinks or believes. I wanted students to study this type of persuasion by critically and realistically experiencing it. Instead of using a

game as a procedural rhetoric to explore something about a concept or idea (e.g., see Bogost's explication of *The McDonald's Videogame* as an argument about capitalism), I made a procedural rhetoric (a simulation) to learn about a procedural rhetoric (newsfeeds). Rather than abstract away by creating a world via a game, I wanted to concretize toward a more accessible version of a realistic newsfeed environment via a simulation. The simulation's advantage is that it can utilize the rhetorical nature of processes pedagogically by creating a transparent, simplified, and dynamic experience for students while also providing a common experiential object that could anchor an exploration of algorithmic rhetoric for the class.

In the next section, I outline in more detail the three rhetorical characteristics of social media newsfeed algorithms considered through the simulation: their nature as "quasi-agents" that persuade, their execution of constitutive rhetoric, and their role as an audience.

Three Rhetorical Characteristics Explored by Simulation

Estee Beck (2016) argued that algorithms are quasi-agents that "carr[y] forward the agency of human symbolic action" through how they organize the world for human and computer interaction, how they systematically include and exclude information, and how they are ideological insofar as they are inscribed with knowledges and biases of their creators. Most obviously, a social media algorithm includes and excludes certain information to drive human decision-making along a certain path (i.e., staying on the website to be fed more ads). Since algorithms, from this standpoint, are persuasive in themselves, a simulation can help model how social media newsfeeds *might* work since most are blackboxed, proprietary entities. A simulation helps model the dynamism of an aspect of reality while simplifying it enough for students to walk through and experience to assist learning. As opposed to an activity like having students track patterns in their own social media accounts, a simulation can become a shared text that a classroom can try to figure out together, while *also* finding the answer to help validate their suspicions about how newsfeed algorithms are rhetorical.

Another rhetorical characteristic of newsfeed algorithms that I wanted to have students think about was constitutive rhetoric. Maurice Charland claimed that constitutive rhetoric works by interpellating subjects that have always already been constituted as subjects through a "series of narrative *ideological effects*" (p. 134). Three important elements are at play here: establishing a collective identification, the "positing of a transhistorical subject" (i.e., beyond the living to include the dead; timeless subject), and the illusion of freedom (i.e., since the ideological narrative is written, once one takes part as a

constituted subject, the outcome can only be what the narrative has set forth).

Constitutive rhetoric in a digital context looks different than the public address context that Charland was working from. Shira Chess (2018) argued that the construction of "casual" gamers and "hardcore" gamers were evidence of constitutive rhetoric in digital contexts. Design and marketing choices helped to constitute the "idealized woman gamer" for "casual" games like *Kim Kardashian: Hollywood* and *Restaurant Story*. These games used narrative and subtext to hail a subject that is white, heterosexual, cis-gendered, middle-class, able-bodied, slender, and typically a mother. Chess maintained that her own history as a gamer has been conditioned by the material conditions from which casual games are made and have helped constitute her as the idealized market for casual games. The technologies and the market conditions surrounding them interact with human actors to produce these sorts of rhetorics. In the context of social media newsfeeds, this happens even more implicitly than in Chess's case.

The technological complications of algorithms as "quasi-agents" instills a constitutive rhetoric by procedure rather than (only) linguistically. A subject is hailed by the posts and ads generated as users scroll through their feeds, and their interactions with these objects (among other things, like the tracking data that social media platforms purchase from web browsers) creates a subject. The rhetorical act of including and excluding certain posts forms an online subject that would fit a bucket for advertisers. For Facebook, we can see this quite clearly in "Your Categories" under "Your Information" on the "Your ad preferences" page, where such categories like "liberal" or "multicultural affinity" are populated in the service of ad targeting. As users see and interact with more posts and ads, users fulfill the "illusion of freedom" ideological step in constitutive rhetoric by continuing to engage in predictable ways, or, as Kevin Brock and Dawn Shepherd (2016) might put it, they complete the enthymeme. There are nefarious ends to this, of course: fulfilling and re-affirming identity markers in this way helps set up possibilities of exclusion and inclusion that are discriminatory. The National Fair Housing Alliance (2018) offered evidence of just this in their findings about the possibilities for excluding certain groups of people seeing ads for housing. Additionally, the realities of the "filter bubble" (Pariser, 2011) can be exacerbated when identities are constituted and re-constituted in these ways.

Finally, in addition to algorithmic persuasion and the constitutive rhetoric enabled by advertising realities of social media, a final important rhetorical characteristic of social media algorithms I wanted to focus on with students is conceiving algorithms as an audience. John R. Gallagher (2017) made a compelling case that students need to be aware of how to write to an "algorithmic audience"—that is, writers should be aware of how to write to a set

of procedures that prioritize some content over other content. For instance, Google's *Search Engine Optimization (SEO) Starter Guide* informs writers that anything from an appropriate length for a page's description meta tag to tips on how to write hyperlink text impacts possibilities for search hits. For a social media algorithm, how often something is liked or favorited or the utility of commenting on an older post with many likes has direct consequences for a post's circulation.

According to Gallagher, "[t]eaching this type of awareness and habit means that in addition to teaching students to write for a particular set of readers, we are also teaching for a set of procedures that highlight content for readers" (pp. 26-27). This is an important distinction for digital writing: it is not only important to attend to how students write with digital vs. print media (e.g., attending to a comment function for a blog post, using hyperlinks, ability to incorporate multiple modes more seamlessly), but we must also prioritize teaching circulation in digital contexts through the notion that algorithms are an important audience in need of suasion to ensure that a rhetor's content is circulated in ways beneficial to their rhetorical goals.

By working through the simulation, students can see algorithms as rhetorical from multiple perspectives and, in the best case, become more critical readers of algorithmic rhetoric, thoughtful writers composing *with* algorithms, and also begin to see the possibilities afforded in *being* algorithmic rhetors. In this way, students can accomplish something akin to James J. Brown, Jr.'s (2015) notions of arguing *with* software and arguing *in* software; software is a tool we necessarily must use rhetorically (with social media as no exception here), an interlocutor that we must contend with to reach our rhetorical goals, and it provides an environment of multiple audiences we cannot escape (our data are always welcomed, tracked, and engaged with in ways that shape what a newsfeed can be and how we interact with it). As an "ethical program," a newsfeed algorithm governs what is and is not possible in the networked infrastructure of the internet, structuring user relations by responding over time to interactions between users, software, and other users.

Designing and Teaching the Newsfeed Simulation

By providing a learning environment where students could systematically test hypotheses by responding to posts in different ways (e.g., liking a post, ignoring it, commenting, sharing) for a simplified system interpreting those interactions, my students and I were able to leverage the procedural rhetoric of the simulation to explore all three rhetorical characteristics of algorithms described above. In the simulation, I wanted students to view posts, interact with those posts, and have the simulation use those inputs to produce diverse

outputs. I also wanted students to actually see the code to help display a more transparent experience than blackboxed experiences typical of most interfaces. I could have used, say, Google Forms or SurveyMonkey to simulate a newsfeed by using question logic, but I thought allowing students to see code helped to demystify the notion that algorithmic rhetoric is inaccessible—I certainly can't replicate anything very sophisticated as a (very green) novice, but the essential idea of this practice as rhetorical is interdependent with how code works. This way, the material reality of code is front and center to keep in mind how interfaces hide their underlying procedural rhetoric that influences reading and writing in social media contexts.

I wrote the simulation with Python, using Jupyter Notebook. Jupyter Notebook allows users to edit and run documents from a web browser, which can be useful for student interaction. To ensure that students could easily access and run the program, I also used Binder, an application that allows any user to open a Jupyter notebook in an executable environment. If you want to try for yourself, go to my GitHub repository and click the "launch binder" button toward the bottom of the screen— this will link you to your own version of a Jupyter notebook of the program. I'll explain how the program works below, but I encourage you also to run it for yourself to supplement the following explanation.

I decided to use Facebook as the social media platform model for the simulation because of familiarity and the timeliness considering recent news about Cambridge Analytica. I then decided to focus on clicks, likes, comments, and shares as the inputs. While the system I built is rather simple and is not at all how Facebook works—neither according to the old EdgeRank algorithm nor with Facebook's new system dependent on machine learning (which, of course, is blackboxed)—it does provide a simple way to introduce students to one possibility among several of how an algorithm could filter posts in a newsfeed—rhetoric, after all, is about choices and possibilities. I have taught this lesson using the simulation three times, making slight tweaks each time, which I will note in the below, when relevant, as I describe the stages of the lesson and account for some student reactions to it.

The first step in the simulation is to decide whether to click on an article in a post, click and like it, or take no action and keep scrolling; the user is then given an option to comment on the article or to provide no comment. A score is generated from the user's decisions and stored for this first post in the simulated newsfeed, and the output is displayed after the user engages. The user then has two more posts in their newsfeed and is prompted to make the same decisions.

Based on user engagement with three posts in their newsfeed, the user is given a cumulative score which then delivers a fourth post in the newsfeed

based on that score. One of three possibilities would occur: a post sharing an article about transgender people in the military, a post sharing millenials' negative impact on the economy, and a post sharing a clickbait article on how to get a job. The user is then prompted to engage with this new individually-tailored post in the same way as before, and this score is added to the cumulative score. Based on this score, the user is given a batch of four new posts in their newsfeed and they are prompted to choose one to share and add some of their own text to accompany the shared post.

Since all students are working from the same simulation while also engaging with it in different ways, they can now mine their experience with the simulation to discuss why their results were different. I ask students to pair up to compare their results and to theorize how the newsfeed functions, followed by a large group discussion about these theories. To avoid a "gotcha" situation (i.e., students feeling pressured to find the "right" answer for how the program works), I preface the discussion by stating that since an algorithm at its most basic level is a set of procedures reliant on inputs to create outputs in service of a task or solution to a problem, almost any theory about why you saw certain posts could have an algorithm built to support it.

Some answers I have received at this stage of the lesson in the past organically address two of the three rhetorical characteristics I outlined above: algorithms as persuasive and algorithms as producing constitutive rhetoric. For instance, one student pairing theorized that since they both had high engagement with a post that shared a video on how to make mac and cheese, that they then got posts with more progressive politics because "millennials don't cook much and would be receptive to easy recipes" and millennials have more progressive politics. Here, the reasoning was that the program was interpreting a certain culinary interest that correlates with political positions—something that very much could exist, especially in the context of machine learning. Through processes of receiving inputs and generating new outputs, there is a claim made about the world in such a way made by inclusionary and exclusionary moves made in this environment, thus depicting the newsfeed algorithm as persuasive. I also have tried to push students to think about this as a constitutive rhetoric. Going back to the mac and cheese example, we explored in class discussion how, over time, as the posts assemble together, the collection of these posts hail the account user to be a subject who enjoys trendy-but-simple recipes aligning with certain political positions to form something called "millennial." This transhistorical subject completes a narrative about seemingly mundane cultural tastes and liberal or leftist political views: of course you'd like this food, people who like this food hold these beliefs, as millennials. Thus, during discussion, students were able to contribute to an understanding of newsfeeds as rhetorical from both of these perspectives.

After some discussion aimed at linking the idea that algorithms persuade by inclusion and exclusion and how they play a role in asking users to fulfill a subject position by a cascading assemblage of generated posts, I walk through some background code that was imported into the simulation to show how it worked (see the folder "Gravy" in the Jupyter notebook). Essentially, all posts in the simulation were flagged as politically left, politically right, or "neutral," and the level of engagement would contribute to a score that would correlate with one of those three buckets. Students get to see how it works, but the point underscored is that this is one of an infinite number of ways we could have created procedures to filter posts—in other words, the choices in design are rhetorical choices as much as they are computational, mathematical, logical, etc.

The discussion about how I made this simulation also helps to display Beck's (2016) point about how a creator's ideology seeps into the algorithm. For instance, I ask students to do a think-pair-share on a few questions: what counts as a "neutral" post? And how does one fairly decide how to score those posts to best align with that classification (I decided to use a random number generator for neutral posts)? How can you decide what is counted as left or right? Did bias creep into this simulation (e.g., a post about millennials negatively affecting the economy was scored as a "politically right" post, but surely generational critiques are not limited to conservatives)? One of the goals here is to get them to think about how decisions to put what object in which bucket is a rhetorical problem. And further, that the step to even create these buckets implies that the world is accurately organized by such terms, which, of course, is problematic.

The next portion of the lesson asks students to run the simulation a second time to consider how to write *for* the algorithm. Using what we know about how the simulation works, students are asked to think strategically about the last step in the simulation of choosing an article to share and how to caption that share (and thus write for the newsfeed algorithm). What sort of language would be flagged for the right bucket that you want your post to circulate toward? How do you entice the click? At this stage, doing the writing in class helps us discuss important aspects of social media writing. Discussions have engaged topics of how to say just enough but not too much, avoiding a TL;DR situation, considerations of the ethics of overpromising (i.e., clickbait), and to avoid possible clichés or to embrace them depending on your audience (e.g., using all caps). In some senses, these are considerations of human audiences, but by placing this discussion within an activity about writing text within the environment of the simulation, students can more clearly see how this is also a matter of algorithmic audiences when considering the potential for filtering some posts over others based on likes, comments, and other metrics.

The very last step in this lesson is to have students think about revising the simulation. The third time I've taught this lesson, I asked students literally to do this by revising the Python code, but it is just too much for one lesson—both in terms of time but also considering complications of the restrictions set in for students who are both unfamiliar with programming or students that are advanced programmers (in many cases *very* advanced!). What works better is what I did the first two times teaching with the simulation: having students create a mock-up or use pseudocode to create a different system of how posts are divided up or how they are scored differently to open up more possibility for big picture thinking within the time limits of the lesson.

I start them with an example, to model one possibility: instead of trying to score by one of three political buckets, another way to organize what posts would be filtered is by dividing up the alphabet into thirds and aligning posts by their first letter with each bucket. I pass out a handout that lists the posts in the simulation by title, prompting students to become algorithmic rhetoricians. This stage asks students to consider how algorithms are systematic organizers of the world that work based on inclusion and exclusion with inevitable ideological infiltration by human agents into predictable yet at times surprising quasi-agents that replicate certain ideologies thus inscribed. For example, students in the class have divided the posts by length of post title to filter them based on engagement for three new buckets. Another group of students tried to score "hate-clicks" as a way to filter certain posts (e.g., if a certain user has thus far been politically left, their click of a politically right post would be given a score that further puts them to the left rather than to the right, and gives them a certain kind of inflammatory political right post in the future). By providing students space to think about other possibilities for the newsfeed's code, students get to think carefully about multiple means of persuasion for an algorithmic rhetorician, and therefore, think more critically about the space of the newsfeed as a multifaceted rhetorical space/rhetorical agent.

Simulations provide pedagogical benefits by using a simple model of a more complicated reality of procedural rhetoric—with dynamic possibilities in outcomes when playing through it—to introduce students to thinking about how algorithms are rhetorical objects worthy of our attention and respect. I hope that this sort of pedagogy represents a small contribution to a possibility of what Annette Vee (2017) called coding literacy, in that students see the code, try to understand it, see what it can do, and reflect on how things can be done differently—thus, through such material and social engagement, claiming some form of power back from the elite class that monetizes software like newsfeed algorithms. Simulations can be used as introductory materials to how programming impacts our literate practices in all sorts of ways, how we are all writing "with" and "in" software constantly.

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References

Beck, Estee. (2016). A theory of persuasive computer algorithms for rhetorical code studies. *Enculturation, 23*. Retrieved from http://enculturation.net/a-theory-of-persuasive-computer-algorithms

Bogost, Ian. (2007). *Persuasive games: The expressive power of video games*. Cambridge, MA: MIT Press.

Brock, Kevin & Shepherd, Dawn. (2016). Understanding how algorithms work persuasively through the procedural enthymeme. *Computers and Composition, 42*, 17–27.

Brown, James J., Jr. (2015). *Ethical programs: Hospitality and the rhetorics of software.* Ann Arbor: University of Michigan Press.

Charland, Maurice. (1987). Constitutive rhetoric: The case of the *Peuple Québécois*. *Quarterly Journal of Speech, 73*(2), 133–150.

Chess, Shira. (2018). I am what I play and I play what I am: Constitutive rhetoric and the casual games market. In Aaron Hess & Amber Davisson (Eds.), *Theorizing digital rhetoric* (pp. 224–233). New York, NY: Routledge.

Friend, Christy, & Minsker, Marc. (2002). Merit vs. diversity? A simulation exercise introducing students to ethical arguments. *Kairos: A Journal of Rhetoric, Technology, Pedagogy, 7*(2). Retrieved from http://kairos.technorhetoric.net/7.2/binder.html?sectiontwo/friend/Index.html

Gallagher, John R. (2017). Writing for algorithmic audiences. *Computers and Composition, 45*, 25–35.

Google. (n.d.). Search engine optimization (SEO) starter guide. Retrieved May 9, 2018 from https://support.google.com/webmasters/answer/7451184?hl=en

Holmes, Steve. (2014). Rhetorical allegorithms in bitcoin. *Enculturation, 18*, 1–16. Retrieved from http://www.enculturation.net/rhetoricalallegorithms

National Fair Housing Alliance. (2018, March 27). Facebook sued by civil rights groups for discrimination in online housing advertisements. Retrieved May 9, from http://nationalfairhousing.org/2018/03/27/facebook-sued-by-civil-rights-groups-for-discrimination-in-online-housing-advertisements/

Pariser, Eli. (2011). The filter bubble: What the internet is hiding from you. New York, NY: Penguin Press.

Sauvé, Louise, Renaud, Lise, Kaufman, David, & Marquis, Jean-Simon. (2007). Distinguishing between games and simulations: A systematic review. *Educational Technology and Society, 10*(3), 247–256.

Shultz Colby, Rebekah. (2017). Game-based pedagogy in the writing classroom. *Computers and Composition, 43*, 55–72.

Squire, Kurt. (2011). *Video games and learning: Teaching and participatory culture in the digital age*. New York, NY: Teachers College Press.

Tufekci, Zeynep. (2015). Algorithmic harms beyond Facebook and Google: Emergent challenges of computational agency. *Colorado Technology Law Journal*, *13*(2), 203–217.

Vee, Annette. (2017). *Coding literacy: How computer programming is changing writing*. Cambridge: MIT Press.

The Natural Accommodation of Interactive Fiction: How Text-Based Games Remove Barriers to Participation

Christopher Scott Wyatt, Slippery Rock University of Pennsylvania

Creating games in writing courses engages students in an interesting task and leads to meaningful writing and projects. This paper examines an unforeseen challenge in writing courses in which students propose, create, document, test, and then distribute educational games. Embracing game design within writing courses can lead to unintentional exclusion or marginalization of individuals with special needs. Within disability studies a "natural accommodation" is a design consideration that opens a space to people with physical, neurological, or mental health challenges in a way that benefits the entire community. The textual nature of interactive fiction and hypertexts accommodates game designers and players with special needs, naturally. Creative teams can add images, sounds, and other multimedia elements, yet the core philosophy of IF is to include all information necessary to game play as readable text. If we embrace game creation as a teaching strategy, adopting text-based interactive fiction offers an inclusive, engaging, and proven digital composition technology.

Games and Writing Pedagogy

Technical writing courses structured around meaningful community-based projects guide students through the creation of meaningful documents and important processes (Henson and Sutliff, 1998; Huckin, 1997; Sapp and Crabtree, 2002). At the University of Minnesota, our writing program's community partners suggested that students could create games to teach important life skills to the partners' clients. The creation of games within a writing course should not be confused with gamification, which uses game-like elements to deliver course content (deWinter and Vie, 2016; Veltsos, 2017). Although my students play and test their games, the writing courses themselves are not gamified. Instead, our goal in writing courses was to teach a variety of professional writing genres grounded with real deliverable products and authentic clients.

Starting in 2004, I began assigning a game project within my courses, particularly my technical communication courses and narrative writing courses. The assignment calls for an educational game appropriate to middle school students. Game projects in my courses require teams prepare business proposals, marketing materials, instructions, update memos, and a playable game. Other teams evaluate these materials during the four weeks. These various documents require different writing styles for different audiences, using a community-based project to create a cohesive writing experience. With local schools, teams have tested their games, revised the games as necessary, and then retested the games.

Teaching writing and rhetoric through game creation might result in board games, active games, interactive fiction, or video games, to suggest a few options. Scholars within game studies, or ludology, suggests that having students create games develops a range of skills we value in writing and rhetoric courses, varying by the type of game students create and for whom the game is designed (Alexander, 2009; Ritter et al., 2014). Testing the games and revising them demonstrates that what we intend as communicators might not be how an audience experiences our creations.

Games and Ableism

Inspired by the classic Jay David Bolter (1991) text *Writing Space: The Computer, Hypertext, and the History of Writing*, I brought hypertext tools into my classes for those wanting to create computer-based games, while other student teams choose to create board games or card games. I did not dictate that students adopt one form of game over another; about half the teams chose computer-based game projects, with other teams creating board games and card games.

For four years, my assumptions about including computer games as an optional assignment went unchallenged. I embraced the writings of scholars interested in technology, particularly Cynthia Selfe (1999, 2004) and Anne Frances Wysocki (2004). My master's thesis and doctoral dissertation research explored technology and writing within marginalized communities. Then, in 2008, two students with different disabilities mentioned the challenges of creating and playing computer games. As technology allowed for more elaborate creations, I had not paused to consider that the resulting compositions were inaccessible to many people.

Ironically, as a person with physical and neurological disabilities, I could not always test and play the games created by students. By once telling a class that I wasn't their target audience so my palsy, processing, and vision challenges should not be taken into account, I was engaged in ableism. As with

other forms of discrimination, those of us with disabilities often reflect the oppression we experience (Melonçon, 2013). In denying the importance of my own limitations, I was missing a learning opportunity.

At that time, student teams used tools similar to Apple's HyperCard, including HyperStudio, SuperCard and what was then Revolution (now LiveCode). Some teams also used Adobe Flash and one used Microsoft VisualBasic to create games. In-class demonstrations of the *Myst* series of games and *You Don't Know Jack*, both originally created in HyperCard ("Apple's Revolutionary HyperCard", 2014; Lasar, 2012), suggested approaches to game authoring.

The students with disabilities mentioned the emphasis on graphics, sound, and point-and-click play left them unable to fully engage with their teams. These students expected me to recognize the discriminatory nature of computer-based games and expressed, directly, their disappointment in my assignment guidelines. The teams involved rightly argued that games for middle school students should represent inclusivity.

One of the students mentioned being active in an online community dedicated to interactive fiction created using the Text Adventure Development System, TADS. That semester, I allowed the use of TADS by a team of collaborators. The success of that team led me to reflect on what the game project had become. I had embraced digital media without critically reflecting on how it might exclude individuals.

Accommodative and adaptive technologies often require significant investments. Interactive fiction, however, is an affordable technology that works with other adaptive tools. TADS and Inform, the two dominant IF authoring tools, are freely available. Inform is available for Microsoft, Apple, and Linux operating systems (Reed, 2011). After the first IF experience went well for the authoring team, I standardized on Inform for computer-based games. Inform generates IF playable on most computing devices.

Interactive Fiction

Graham Nelson unveiled Inform 7 in 2006 and I soon adopted this interactive fiction tool for computer-based games in my courses. I selected Inform because writing IF with this tool requires no programming skills and resembles writing in English. For example, consider this code snippet I use to introduce Inform to students:

> "The Library Dragon" by Christopher Scott Wyatt.
>
> The story headline is "A Tale for Readers".
>
> The story creation year is 2018.

> The story genre is "Fairy Tale".
>
> The story description is "A dragon longs to read".
>
> When play begins: say "You enter the Village Library and stand in awe.".
>
> The Village Library Entrance is a room. "The foyer opens to various rooms filled with rows and rows of books."

The Inform programming syntax is called natural-language programming, an extension of what Apple attempted to achieve with HyperCard's programming language. Unlike other IF tools, students with special needs were able to create games without any assistance, something no other tool had permitted. Using speech recognition software, students and I easily adapted to coding without typing. Inform 7's program editor is a text editor, accepting commands such as "period quote period new paragraph" to format the code.

Inform 7 allows students to compose IF without learning a complex programming syntax. For students using adaptive technologies, the natural-language programming requires no special adjustments to software or hardware. The punctuation and capitalization within Inform 7 story files resembles other forms of writing, not programming.

Playing IF games requires separate program from the authoring tool. To interact with an IF game, players read a text passage and enter directions at a command prompt. With testing, my students and I discovered that the freely available Frotz and Zoom story file players worked well with Microsoft and Apple operating systems. Text presented to the players is read aloud properly by text-to-speech utilities included with recent operating systems. Entering commands to play the games works well with Dragon Naturally Speaking and other voice recognition applications. Braille screens and keyboards also worked properly for both creating and playing IF works.

Other IF Options

I prefer the label "interactive narrative" or "interactive storytelling" to describe immersive, story-based computer games. However, online communities still use the "interactive fiction" label. Passionate debates about terms continue and are beyond the scope of this paper. Branching games that present choices resembling printed "Choose Your Own Adventure" (CYOA) texts are sometimes called "gamebooks" (Crawford, 2013; Ford, 2016; Miller, 2014; Montfort, 2003). Games that respond to natural language input are called "parser" or "interpreter" games, reflecting the need for the game engine to parse player sentences to determine meaning (Crawford, 2013; Ford, 2016; Montfort,

2003). More visual games, like *Myst*, are sometimes called "point-and-click" games because players navigate the game using a mouse or keyboard to manipulate a pointer (Crawford, 2013; Montfort, 2003). These distinctions matter within some IF authoring tools, such as Quest, which ask authors to select a game type during the writing process. The Interactive Fiction Technology Foundation suggests using "IF" for all narrative-based games, including those with multimedia content (IFTF, n.d.). The IFTF website explains, "Digital interactive fiction is a kind of video game. Video games can have many different focuses, but interactive fiction always focuses on telling a story, and it tells that story primarily with text rather than sound or graphics" (IFTF "Frequently Asked Questions," n.d.).

Hypertext tools made it feasible to create CYOA games with HyperText Markup Language or any number of flowchart-style authoring tools (Bolter, 1991; Crawford, 2013; Ford, 2016; Miller, 2014; Montfort, 2003). I did consider adopting Storyspace for student projects, because it is a non-linear authoring platform developed by writing theorists Bolter and Michael Joyce. Sadly, it was and remains cost prohibitive and less accessible for users with special needs than the free IF authoring and reading tools. As of 2018, Storyspace 3 is available only for the Apple macOS platform, another limitation for some student teams. The lead developer, Mark Bernstein, actively promotes hypertext authoring and blogs about these tools, co-editing with Diane Greco *Reading Hypertexts* (2009).

Natural Accommodation and Universal Design

As Jay Dolmage (2005) acknowledged, "Universal Design has become a way to talk about changing space to accommodate the broadest range of users, yet consistently overlooks the importance of continued feedback from these users" (para. 15) Space and spatial metaphors in disabilities studies fail to address the breadth of disabilities. For cognitive differences, educators must embrace deeper considerations of Universal Design and accommodation by listening to neurodiverse students, as Dolmage suggests.

Shannon Walters (2010) argued for universal design in technical writing courses, but much remains to be done. The September 2018 issue of *Computers and Composition* addresses the need to embrace current usability and design best practices. The issue, themed "User-Centered Design and Usability in the Composition Classroom," omits the word accommodation, in some ways a recognition that good design practices enable greater participation of historically marginalized groups. As I move forward with IF in my courses, the insights offered by Jessie Borgman and Jason Dockter in "Considerations of Access and Design in the Online Writing Classroom" (2018) will shape my approach.

Full participation in classroom activities demonstrates that all individuals are valued. Because programming Inform 7 was possible with tools the students already possessed and had mastered, the IF game creation can be described as a "natural" accommodation. Natural accommodation is a phrase borrowed from architectural design (Dunn and Dunn de Mers, 2002; Domlage, 2008). It describes such features as natural lighting, access ramps, and lever-style door handles that make life easier for all people in a space, regardless of physical abilities. The person using a wheelchair benefits from the ramps, and so do instructors with media carts and students with rolling cases. Natural accommodations are not afterthoughts, what Dolmage (2008) describes as "retrofitting." Unfortunately, physical accommodations don't address all disabilities, especially cognitive challenges or neurodiversity. As a neurodiverse person, my physical reactions to lights, colors, sounds, and other sensory stimuli cause me great pain in classrooms and online spaces. Physical accommodations intended for others unintentionally limited my ability to participate.

We must address how naturally accommodating our assignments can be, since many of our courses serve the complete student population of institutions. When our assignments unintentionally emphasize physical or neurological abilities, instead of outcomes focused on writing and rhetoric, we convey to students that their challenges require segregation. Too often we create "separate but equal" assignments when presented with a disabled or neurodiverse student (Pollack, 2009; Seale, 2006).

Natural accommodation differs from universal design, which is the process of considering special needs before and during design of a space, technology, or other accommodation (Burgstahler and Cory, 2010). Not every effort at universal design results in natural accommodation. Though interactive fiction predates most universal design research, yet the technologies work well without significant changes to the game creation tools or the story players. This distinction became obvious when I attempted to use game design tools in my classes that produced fast-paced, graphically-rich games that excluded many students, including some without disabilities.

IF and Inclusion

Accommodation ensures students with special needs have access to an activity, but it does not necessarily make the activity inclusive. A student who used a wheelchair crafted a creative IF work with a team exploring living with a physical challenge. The game was a parody of the 1967 television series *Ironside*. The player (or reader) of the game would have to help Detective Ironside navigate the streets of San Francisco realistically. Steep hills, public transportation, and other challenges were described in prose. The students

used humor to teach about disability, while demonstrating how inclusive the assignment could be.

That semester, most teams chose to create board games. The games designed by technical writing students taught about healthy diets, world geography, and making good choices. The teams consulted official curricula for middle school and explained in their proposals how the games aligned with specific objectives. The *Ironside* game included science, history, math, and reading unobtrusively.

As the semester concluded, a student observed that the board games required graphic design skills to impress potential players and hypothetical buyers. The IF required "only" compelling writing. Like many writing teachers, I had heard many complaints about the amount of writing in my courses, yet now students were suggesting writing a text was somehow easier than creating visual media.

Unlike the HyperCard or Flash games I had permitted in previous years, the IF project teams didn't feel compelled to recruit an artist to join their teams. I encouraged the IF teams to concentrate on their narratives, and they exceeded my expectations. The lack of images and sound only led them to write more compelling prose to engage players.

Those first IF experiences did result in self-segregation that I should have avoided. Yet, that segregation also allowed teams of individuals often relegated to minor roles on collaborative teams to lead and dominate game projects. An able-bodied student would not have dared to parody a detective who uses a wheelchair. Able-bodied students wouldn't have included prose about rolling backwards down the hills of San Francisco. The humor was both self-deprecating and deeply insightful.

The highest grade in that class section went to a team that created a board game. They crafted a solid business proposal and wrote excellent marketing materials. I mention this because the IF team never felt like outsiders or like they were receiving special treatment. In their reflections, they wrote that they had an equal opportunity to participate and were evaluated fairly, receiving no favoritism from a disabled instructor.

Vision- and hearing-impaired students were able to use IF authoring tools and players. Text-to-speech and Braille input devices worked well with IF, as did screen magnification tools. Any IF tool that works with operating system accessibility features or that includes its own accommodative and accessibility features would be appropriate for the objectives in my syllabi.

Examples of Inclusive IF Features

The students suggesting IF for game creation had presented me with an op-

portunity to make my courses more accessible and inclusive. Accommodations should address mobility, auditory, visual, and neurological differences. Though IF works are video games and literature, they offer greater accessibility than image-centric and motor reflex-dependent games.

Mobility and agility barriers presented by most video games exclude students with a range of disabilities. As someone with a palsy, I understand that any class activity that rewards quick reflexes or physical abilities creates an exclusionary, even alienating experience. It is not an accommodation to be score keeper during a mock game show, for example. However well-intentioned, it segregates students on traits, not their progress as writers and critical thinkers.

IF games work well with any input device capable of generating keyboard input, without the need for fast reflexes. Parser, choice, and point-and-click interfaces work with alternative keyboards, eye-tracking, voice commands, and other adaptive technologies. Amazon supports IF via their Alexa line of smartspeakers ("Alexa, Let's Play", n.d.) and on their Kindle devices (Inform, n.d.), demonstrating the interactive flexibility of IF input options. One of the most popular Alexa "skills" is *The Wayne Investigation*, a Batman IF work released to coincide with the film *Batman vs. Superman* (Roberts, 2016).

Auditory disabilities include hearing loss and a variety of processing challenges. Auditory processing and sensory processing disabilities make discerning sounds difficult. Most video games allow options to disable sounds, but game designers understand that effects and music enhance the immersive experience of gameplay for most players (Miller, 2014). Auditory cues help players time their reactions to game events. These same sounds can overwhelm individuals with auditory processing differences. Some neurodiverse individuals experience physical pain when experiencing too much auditory input or certain frequencies of input (Pollak, 2009). The text-based natures of IF seldom requires sound; any music, sound effects, or dialogue should appear as text. Some authoring tools, particularly those using web-based technologies, allow for the inclusion of audio files, while reminding authors to describe what the player hears (Ford, 2016).

Vision impairments, like auditory challenges, cover a spectrum of physical and neurological disabilities. There are also neurological conditions, such as migraines and seizure disorders, that make viewing some screens and some computer-generated content difficult. IF traditionally relies on text, though some authoring tools encourage "book covers" and limited, still-frame graphic images (Reed, 2011). Those IF works that feature animated segments rarely feature the fast-paced, immersive graphics of their video game counterparts (Crawford, 2013; Miller, 2014; Montfort, 2003). The authoring system Ren'Py, for example, encourages a graphic novel approach to design, with animation limited to visual transitions between scenes ("What is Ren'Py", n.d.).

Neurological differences include learning disabilities; sensory processing challenges; seizure disorders; mental health diagnoses; autism spectrum disorders; attention deficit and hyperactivity disorders; brain trauma; and many other challenges related to atypical neurological conditions (Pollack, 2009). The traits of neurodiverse students can present barriers to traditional computer game creation and game play. Also, many neurodiverse conditions coexist with physical challenges. As the preceding overview of IF illustrates, the composition tools accommodate authors and players with special needs.

People with disabilities face additional expenses to accommodate the challenges they encounter. Special computing hardware and software is yet one more form of exclusion experienced by disabled people. However, IF works can be played on older computers and basic computing devices, such as the Kindle tablets and most smartphones (Montfort, 2003; Reed, 2011).

Conclusions

The natural accommodation of IF surprised me, even though the reason I enjoyed these text-based games during my childhood was that I could play *Zork* or *The Hitchhiker's Guide to the Galaxy* despite my physical limitations. Unlike arcade games, which I struggled to master, I could excel at text-based puzzles. During high school, I had proposed a computer game for my Spanish III final. I developed a text-based maze game, programmed for the monochrome IBM PC computer. Eighteen years later, my university students create more elaborate games without having to master a complex programming language.

Navigating *Second Life* or any first-person shooter presents frustrating barriers to me, yet I ignored these challenges when I brought game design into my courses. I assumed students wanted and would be more motivated by the creation of complex video games resembling popular console titles. Instead, students found text-based IF to be liberating and inclusive.

As professional and technical writing instructors, teaching professional genres and rhetorical concepts remain our primary goals. Teaching programming, illustration, or other complex digital skills is beyond the scope of the courses we teach, generally. We can appreciate that designing IF develops the skills and processes that more complex game designs also require. Interactive fiction projects reveal to students that games are persuasive works, guiding audiences through narratives towards desired outcomes.

References

Alexander, Jonathan. (2009). Gaming, student literacies, and the composition classroom: Some possibilities for transformation. *College Composition and Communi-*

cation, *61*(1), 35–63. Retrieved from http://www.jstor.org/stable/40593514
Amazon. (n.d.). *Alexa, let's play: Create fun, immersive voice-first games*. Retrieved April 18, 2018, from https://developer.amazon.com/alexa-skills-kit/gaming
Bernstein, Mark. (n.d.). Mark Bernstein. Retrieved April 18, 2018, from http://www.markbernstein.org
Bolter, Jay David. (1991). *Writing space: the computer, hypertext, and the history of writing*. Hillsdale, N.J: L. Erlbaum Associates.
Borgman, Jessie, & Dockter, Jason. (2018). Considerations of access and design in the online writing Classroom. *Computers and Composition, 49*.
Burgstahler, Sheryl E., & Cory, Rebecca C. (Eds.). (2010). *Universal design in higher education: From principles to practice*. Cambridge, MA: Harvard Education Press.
Crawford, Chris. (2013). *Chris Crawford on interactive storytelling* (2nd ed.). Berkeley, CA: New Riders.
deWinter, Jennifer, & Vie, Stephanie. (2016). Guest editors' introduction: Games in technical communication. *Technical Communications Quarterly*, *25*(3), 151–154.
Dolmage, Jay. (2005). Disability studies pedagogy, usability and universal design. *Disability Studies Quarterly*, *25*(4). Retrieved from http://www.dsq-sds.org/article/view/627/804
Dolmage, Jay. (2008). Mapping composition: Inviting disability in the front door. In Cynthia Lewiecki-Wilson & Brenda Brueggeman (Eds.), *Disability and the teaching of writing: A critical sourcebook* (pp. 14–27). Boston, MA: Bedford/St. Martins.
Dunn, Patricia A., & Dunn de Mers, Kathleen. (2002). Reversing notions of disability and accommodation: Embracing Universal Design in writing pedagogy and web space. *Kairos: A Journal of Rhetoric, Technology, Pedagogy*, *7*(1). Retrieved from http://kairos.technorhetoric.net/7.1/binder2.html?coverweb/dunn_demers/index.html
Eastgate. (n.d.). Storyspace – the pioneering hypertext environment – enters a new era with Storyspace 3. Retrieved March 6, 2018, from http://eastgate.com/storyspace
Ford, Melissa. (2016). *Writing interactive fiction with Twine*. Indianapolis, IN: Que.
Henson, Leigh, & Sutliff, Kristene. (1998). A service learning approach to business and technical writing instruction. *Journal of Technical Writing and Communication*, *28*(2), 189–205.
Huckin, Thomas N. (1997). Technical writing and community service. *Journal of Business and Technical Communication*, *11*(1), 49–59.
Interactive Fiction Technology Foundation. (n.d.). *Frequently asked questions about interactive fiction*. Retrieved April 8, 2018, from http://iftechfoundation.org/frequently-asked-questions
Lasar, Matthew. (2012). *25 years of HyperCard—the missing link to the Web*. Retrieved from https://arstechnica.com/gadgets/2012/05/25-years-of-hypercard-the-missing-link-to-the-web
Low End Mac. (2014). *Apple's revolutionary HyperCard*. Retrieved April 8, 2018, from http://lowendmac.com/2014/apples-revolutionary-hypercard
Mackiev.com. (n.d.). *Welcome to Roger Wagner's HyperStudio 5*. Retrieved April 9, 2018, from http://www.mackiev.com/hyperstudio/index.html
Melonçon, Lisa (Ed.). (2013). *Rhetorical accessability: At the intersection of technical*

communication and disability studies. Amityville, NY: Baywood Publishing

Miller, Carolyn Handler. (2014). *Digital storytelling: A creator's guide to interactive entertainment* (3rd ed.). New York, NY: Focal Press, Taylor and Francis Group.

Montfort, Nick. (2003). *Twisty little passages: An approach to interactive fiction*. Cambridge, MA: MIT Press.

Pollak, David (Ed.). (2009). *Neurodiversity in higher education: Positive responses to specific learning differences*. Hoboken, NJ: Wiley.

Reed, Aaron. (2011). *Creating interactive fiction with Inform 7*. Boston, MA: Course Technology, Cengage Learning.

Ren'Py. (n.d.). *What is Ren'Py*. Retrieved March 14, 2018, from https://www.renpy.org

Ritter, Christopher, Ansari, Sameer, Daner, Scott, Murray, Sean, & Reeves, Ryan. (2014). From realism to reality: A postmortem of a game design project in a client-based technical communication course. *Computer Games and Technical Communication: Critical Methods and Applications at the Intersection*, 283-306.

Roberts, Emily. (2016). *Top-ranking Alexa skill: A collaboration between Warner Bros., DC Comics, and Amazon*. Retrieved from https://developer.amazon.com/blogs/post/Tx234I65DC2NZH5/Top-Ranking-Alexa-Skill-A-Collaboration-Between-Warner-Bros-DC-Comics-and-Amazon

Roberts, Michael J. (n.d.). *Information for vision-impaired users*. Retrieved April 9, 2018, from http://www.tads.org/vision.htm

Sapp, David. A., & Crabtree, Robbin D. (2002). A laboratory in citizenship: Service learning in the technical communication classroom. *Technical Communication Quarterly*, *11*(4), 411–432.

Seale, Jane. (2006). *E-learning and disability in higher education: Accessibility research and practice*. Abingdon, Oxon: Routledge.

Selfe, Cynthia L. (1999). *Technology and literacy in the twenty-first century: The importance of paying attention*. Carbondale, IL: Southern Illinois University Press.

Sidler, Michelle, Smith, Elizabeth O., & Morris, Richard. (2007). *Computers in the composition classroom: A critical sourcebook*. Boston: Bedford/St. Martins.

Veltsos, Jennifer R. (2017). Gamification in the business communication course. *Business and Professional Communication Quarterly*, *80*(2), 194–216.

Walters, Shannon. (2010). Toward an accessible pedagogy: Dis/ability, multimodality, and universal design in the technical communication classroom. *Technical Communication Quarterly*, *19*(4), 427–454.

Wysocki, Anne Frances, Johnson-Eilola, Johndan, Selfe, Cynthia L., & Sirc, Geoffrey. (2004). *Writing new media: Theory and applications for expanding the teaching of composition*. Logan, UT: Utah State University Press.

Social Annotation and Layered Readings in Composition

Michelle L. Sprouse, University of Michigan

Scholars have described numerous accumulated purposes for reading in composition courses, but students' reading practices remain largely invisible to instructors. Recent developments in social annotation tools allow readers to share the margins of digital texts, transforming reading from a private to a public activity. These tools make visible the reading of students, several or a whole -class at a time, and at multiple points in the term so that instructors can learn from and provide feedback on students' reading practices. Results of a study of social annotation in first-year composition indicate that students, rather than approaching texts with a single purpose, shift among and layer reading lenses to focus on reading for ideas, rhetorical reading, critical reading, and aesthetic reading. The purposes for and ways of reading made visible in this study inform the design of reading instruction in the composition course to develop students' reading strategies to improve their writing development.

Recently published special reading-focused issues of *Pedagogy* (Salvatori and Donahue, 2016) and *WLN: A Journal of Writing Center Scholarship* (Carillo, 2017), Horning and Kraemer's (2013) *Reconnecting Writing and Reading*, and Sullivan, Tinberg, and Blau's (2017) *Deep Reading* signal a resurgence of interest in reading in composition studies. Jolliffe (2017) recognizes this trend when he revisits his review of reading in composition though he notes that the field "need[s] to think more deeply about our definitions of readers and reading" (p. 19). Compositionists may be moving past the first problem of reading, in that instructors are acknowledging a connection between reading and writing instruction. Still even those instructors who do acknowledge a responsibility to teach reading may not understand how to teach it in ways that lead to improved writing. Carillo (2015), for example, finds that although 90% of instructors see reading as important in their writing classrooms, 51% "do not feel secure in their abilities to teach reading" (p. 32). Some of this insecurity may be the result of competing theories to describe what it means to read well in first-year composition.

This study aims to inform instructor understanding by naming the ways of reading reflected in composition scholarship and studying the extent to which students employ each lens through technology-mediated reading

in first-year composition (FYC). With the purposes for and stances with which composition students read made visible through social annotation technology, instructors can design more effective pedagogical interventions to ensure that students learn to read in ways that will help them to develop as writers.

Below I describe four broad reading purposes in composition drawn from our collective history which continue to be reflected in current scholarship: rhetorical reading, reading for ideas, critical reading, and aesthetic reading. Together these four broad reading purposes provide a heuristic for studying alignment between pedagogy and students' reading practices as mediated through social annotation.

Relationships Among Ways of Reading

Reviewing references to reading instruction in *College Composition and Communication (CCC)* reveals four broad shifts in our collective understanding of the role of reading in composition. The earliest *CCC* articles attempt to quantify student reading practices in terms of comprehension and efficiency (J. I. Brown, 1953; Jackson, 1950). Later, Louise Rosenblatt's transactional theory of reading (Rosenblatt, 1969) helped our field redefine reading as a process constructing meaning with the text through attention to analysis, interpretation, and evaluation (Memering, 1977; Meyer, 1982). While Rosenblatt's influence continued to be generate interest through the 1980s and 1990s (Salvatori, 1996), composition scholars also began to critique reader-response theories proposing critical reading as a practice situated within and for understanding social discourses (Haas and Flower, 1988; Recchio, 1991). More recently, the field has emphasized rhetorical reading (Adler-Kassner and Estrem, 2007; Bunn, 2011). Importantly, our field has not discarded any of these historical ways of reading; rather, they have accumulated over time to create layers of expectations for reading (Keller, 2014).

Rhetorical Reading

Contemporary composition scholars often emphasize rhetorical reading as a central purpose in the composition classroom. Rhetorical reading pedagogies seek to guide students in analyzing and evaluating rhetorical choices and genre conventions, often through self (LeVan and King, 2017) and peer review (Bunn, 2013; Mendenhall and Johnson, 2010) and through the study of published texts (Adler-Kassner and Estrem, 2007; Bunn, 2013; Foster, 1997; Keller, 2013; Sweeney and McBride, 2015). While students might benefit from reading models with little guidance (Charney and Carlson, 1995), reading for

rhetoric is often taught as an active reading strategy. For example, Mike Bunn (2011) author of a text my university writing program requires new instructors to assign, promotes actively "reading like a writer," a process through which students identify an author's writerly choices, generate alternatives, and evaluate those options for integration in their own writing.

Reading for Ideas

Reading for ideas also occupies a central place in reading in composition pedagogies. In reading-to-write assignments like research papers and literary analyses, students are asked to analyze and evaluate the ideas of one or more source texts (Adler-Kassner and Estrem, 2007; Keller, 2013). Reading scholar Louise Rosenblatt (1988) classifies such purposes as taking an "efferent stance" to emphasize what students "carry away from the text" (p. 5). I use the phrase reading for ideas to distinguish this purpose of reading from the term comprehension, which historically has been associated with students' perceived proficiency in "correctly" reading a text. While early compositionists fretted about students' reading comprehension skills (J. I. Brown, 1953; Hutchinson, 1955), current scholarship on writing beyond the basic and developmental classrooms has shifted focus from the cognitive reading strategies students may or may not have mastered to call attention to how students use information and ideas from the texts they read in their own writing (Jamieson, 2017; Mendenhall and Johnson, 2010).

Critical Reading

Less common recently are references to critical reading, a term compositionists now sometimes use to refer to a "consciousness of power relations" also essential to critical reading (Shor, 1999), but that has also been used to refer to general critical thinking skills (Haas and Flower, 1988; Horning, 1987, 2011; Jolliffe, 2007; Petrosky, 1982; Recchio, 1991). In the former sense, critical reading analyzes and evaluates the values and beliefs within and around a text, and the critical reader must analyze and evaluate their own beliefs in the process of reading. The latter sense emphasizes cognitive processes of analyzing, inferring, evaluating, and synthesizing. While in both views critical reading depends on analyzing and evaluating reader-writer interactions (Stoecker, Schmidbauer, Mullin, and Young, 1993), I use critical reading to refer to the theories which align with critical pedagogies and emphasize the readers' and/or writers' cultural values within their sociopolitical contexts, and to distinguish this way of reading from general critical thinking skills which still support reading for ideas.

Aesthetic Reading

Borrowing from Rosenblatt's concept of aesthetic reading, scholars at times acknowledge a reader's aesthetic experience in response to a text. Sullivan et al. (2017) hope students experience "reading for pleasure" (p. xx) and Blau (2017) goes as far as recommending a reintegration of literature in the writing classroom in recognition of the "value of pleasure and joy in fostering learning" (p. 278). Sullivan et al. (2017) note declining attention to aesthetic reading since the 1980s has been furthered by the introduction of the Common Core State Standards (CCSS) and a growing emphasis on high-stakes testing.

Jolliffe (2003) offers a caveat more typical in composition studies by acknowledging "the importance of forging some kind of special, private connection to a text" which must be balanced "with the vitality that comes from scrutinizing and interrogating a text's central ideas as they are played out in various public forums" (p. 137). In his subsequent argument, Joliffe's attention to strategies for developing "dispassionate imperturbability" that goes "*beyond* [students'] personal feelings, opinions and observations" reveals an assumption that students do not need encouragement to read aesthetically and suggests elementary students have already been taught this way of reading. Such qualified treatment is most typical in current composition scholarship that rarely invokes aesthetic reading.

Purposeful Readings

Students apply these ways of reading as focal lenses which color and shape attention to text. However, the expansion of reading purposes has made it difficult to design effective reading instruction which addresses our complicated expectations for what it means to read well in FYC. The wide range of reading purposes proliferating contemporary composition scholarship results in a "vertical 'piling up' of multiple forms of reading" (Keller, 2014) and the necessity of "(re)situate[ing] ourselves" in response to these accumulated purposes (p. 6). Indeed, some pedagogies acknowledge students should and do read for more than one purpose in the composition course. Carillo (2015) teaches students to recognize the demands of different ways of reading and to make deliberate shifts through a "mindful reading framework" (p. 112). Salvatori and Donahue (2017) concept of "unruly reading" proposes a similar idea—that readers employ reading for different uses and the most sophisticated readers are those who do so intentionally. Thus, a common pedagogical response to the proliferation of reading purposes has been to develop students' metacognitive awareness of various ways of reading by first making reading practices visible to the students themselves (Carillo, 2015).

Making Reading Visible

This study adds to the existing scholarship on educational technology used to increase the visibility of students' reading practices for instructors. In the 1980s, programmers began to create software which allowed networked readers to share digital documents and annotations (J. S. Brown, 1985; Yankelovich, Meyrowitz, and Dam, 1985). Soon, composition scholars were designing and using HTML annotation and discussion tools in the classrooms (Daniel Anderson, 1998; David Anderson and Chevalier, 1997; Johnson-Eilola, 1992; Schwartz, 1989). Scholars celebrated the hypertext potentials for collaboration (Guyer, Seward, and Green, 1994; Schwartz, 1989), intertextual reading (Schwartz, 1989), conversation between readers and writers (J. S. Brown, 1985; Johnson-Eilola, 1992; Schwartz, 1989), thinking about the relationship between reading and writing (Johnson-Eilola, 1992), and linking in-class and out-of-class discussions (David Anderson and Chevalier, 1997).

Recent developments in social annotation tools allow instructors and students to share the margins of the text for broader and more frequent study of student reading (e.g. Cornis-Pope and Woodlief, 2003; Johnson, Archibald, and Tenenbaum, 2010; Wolfe, 2002, 2008). Like reflective writing and journaling methods, social annotation allows instructors to observe the reading practices of students, several or a whole-class at a time, and at multiple points in the term. Because text annotations are written during the reading event, they also offer a more immediate view of reading not possible with post-reading reflections. Annotations allow students to document their reading processes in the moment rather than forcing them to rely on memory.

The shared margins may also afford student improvement in reading comprehension, general critical thinking skills, and metacognition. Cornis-Pope and Woodlief's (2003) semester-long study of digital annotation in a literature course finds students benefit from rereading and comparing their own annotations to those written by peers; they find students begin to take on roles of readers active in the meaning-making negotiations. Johnson et al. (2010) also highlight the importance of the social aspects in promoting reading comprehension and metacognition.

The purpose of the present study is to describe the ways students read in FYC to identify areas where student practices align with the several purposes for reading and gaps which might be addressed in composition pedagogies. Where previous research in social annotation has focused on how the technology might be used to improve comprehension, to develop general critical thinking, or advance students' metacognition, I expand the view to consider the many purposes for reading in FYC. Using a record of social annotations that spans a full semester of reading tasks, I consider the following questions:

- To what extent do students take up the various reading lenses—for ideas, rhetorical reading, critical reading, and aesthetic reading—that scholars have described?
- To what extent do students vary their practices in response to texts assigned for different purposes?
- To what extent do students simultaneously read for ideas, rhetorically, critically, and aesthetically?

Methodology

I locate my study in my own classroom, an FYC course at a large Midwestern university. My curriculum, adapted from one of three syllabi suggested by the department, centers on 4 major units: literacy narrative, rhetorical analysis, research-based argument, and revised/repurposed argument. For each unit, my students read related texts and produced an argument in the assigned genre. Early in the semester, I assigned Bunn's (2011) "How to Read Like a Writer" to encourage students to read subsequent texts through a rhetorical reading lens.

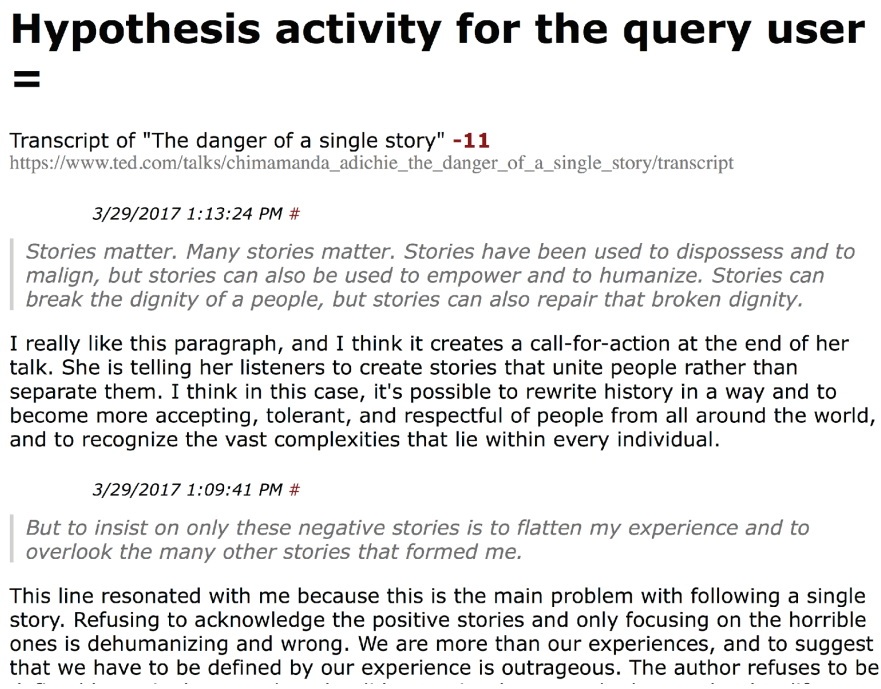

Figure 1. Sample annotations from a single student (username redacted). The title and URL of the annotated text is located at the top next to the total number of annotations made by the student in this text.

In accordance with standard ethical practice, I applied for and received IRB approval to study annotations made by students in my FYC course. Thirteen of 18 enrolled students consented to participate. I archived 1,266 annotations from Hypothesis, a digital, social annotation tool, in HTML files separated by student and assigned text. The HTML files include the student's username, student-selected excerpts from assigned texts, student annotations for each excerpt, and the time and date of annotation (see Figure 1). Each HTML file displays annotations in reverse chronological order.

Using focused coding (Charmaz, 2006), I created several codes to label the reading lenses students applied in annotations (see Table 1). These codes reflect the four major ways of reading in composition scholarship: reading for ideas, rhetorical reading, critical reading, and aesthetic reading.

Table 1. Reading Focal Lenses

Code	Focal lens	Example
Reading for ideas	argument, main idea, key details	"This shows author's understanding of criticism, which is always built on the previous ones and being restated. Therefore the author thinks it is not personal."
Rhetorical reading	writerly strategies and rhetorical situation	"The author uses ethos in this section when describing the people she is citing. By giving the people she is citing credibility, she in turn gives her evidence credibility, which makes her argument stronger."
Critical reading	values and beliefs within sociopolitical contexts	"The author is acknowledging the unfortunate acceptance of the mass diminishing of the arts. Careers in science and medicine have been so ingrained into every family that those who dare to stray do so with an understanding that they will never be respected, never be properly compensated for their work."
Aesthetic reading	emotional and personal	"This ted talk was very powerful to me…I enjoy that a lot and feel that even if you are not a writer, you have to enjoy the pursuit of telling and hearing stories, and why stories matter."

When annotations could not be classified by a single lens of focus, I applied two or more ways of reading codes.

Visible Reading Lenses

Coded student annotations reveal several patterns in reading lenses that reflect the instructional purposes of the assigned readings. Reading for ideas

annotations accounted for the greatest proportion across both instructional texts, assigned to introduce students to reading and writing strategies, and model texts, assigned to introduce writing genres (see Table 2). Reading for rhetoric annotations were almost as common as reading for ideas. Most often, students identified and sometimes evaluated a writerly strategy used within a text, as Brock does in his note: "It is interesting how the author recognizes what he is doing throughout the text by using this third person style." Together, these reading lenses align with the two broad purposes for reading emphasized in much contemporary composition scholarship.

Table 2. Visible Ways of Reading

Reading Focus	Ideas	Rhetorical	Critical	Aesthetic
Instructional (n=921)				
Count	659	621	15	31
% of Instructional	72%	67%	2%	3%
Model (n=345)				
Count	245	269	58	19
% of Model	71%	78%	17%	6%
Total (n=1266)				
Count	904	890	73	50
% of Total	71%	70%	6%	4%

Note. Reading percentages across each text type total more than 100% because some annotations demonstrate more than one way of reading.

While Rosenblatt (1969, 1988) pays considerable attention to aesthetic reading in her work, compositionists, with few exceptions, have not emphasized this way of reading. In this dataset, student annotations reflect aesthetic reading in only 4% of the annotations. Critical reading constituted a lower proportion of annotations. My own lack of emphasis on aesthetic reading, which corresponds to a similar neglect in secondary and post-secondary pedagogies, and critical reading in my explicit instructional goals may explain these low proportions.

The type of texts assigned also influence the ways of reading made visible in student annotations even though students were not asked to annotate the texts differently. Instructional texts and model texts had equal percentages of reading for ideas annotations. Through the annotations, students read strategically to summarize the main ideas and details of the instructions and to connect the strategies to students' reading and writing coursework. How-

ever, rhetorical reading annotations, which I emphasized in my assignment instructions and feedback, were most likely to be made in model texts. While I purposefully assigned model texts to represent more diverse racial, national, and gendered experiences, I did not seek the same diversity in instructional texts. Many of the instructional texts describing how students should engage in reading and writing practices were written from the perspectives of white, American scholars; I missed an opportunity for students to practice a critical reading of academia. These findings affirm the importance of aligning selected texts and reading purposes so that students practice applying the ways of reading lenses intended. They also show instructors can use social annotations to assess the extent to which students take up ways of reading taught in class, allowing for more responsive feedback and instruction.

Overlapping Ways of Reading

In the majority of annotations more than one way of reading was visible. Students frequently annotated by layering rhetorical reading with other ways of reading, most often with reading for ideas (see Figure 2). These layers created more complex readings that reflected my instructional goals. I see this complexity in Megan's annotation which focuses on the intersections of reading for ideas and rhetoric:

> With this sentence, I believe that the author will continue to discuss "quick analysis" in terms of analytical reading. She points out that our initial judgments of the people we encounter every day means that we are analyzing everywhere we go. This is a clever way to lead into her paper, as she has made a real-world connection for the reader and seamlessly begins to introduce her main topic with this one phrase.

Megan reads for ideas by predicting the author's next move and summarizing the argument; she evaluates the writer's introduction through "a real-world connection" in terms of what those writerly strategies facilitate in her own readerly work. Reading to connect the reader's and writer's strategies may also transfer to her own work as a writer, one of my major purposes for assigning reading in the composition course.

The data suggest that students' ways of reading often overlap in a single annotation in ways that do reflect an accumulation of reading purposes in my composition course, much like the accumulation of expectations Keller (2014) describes. In these instances of overlap, the complex student readings are most likely to align with instructor goals for integrating reading in FYC.

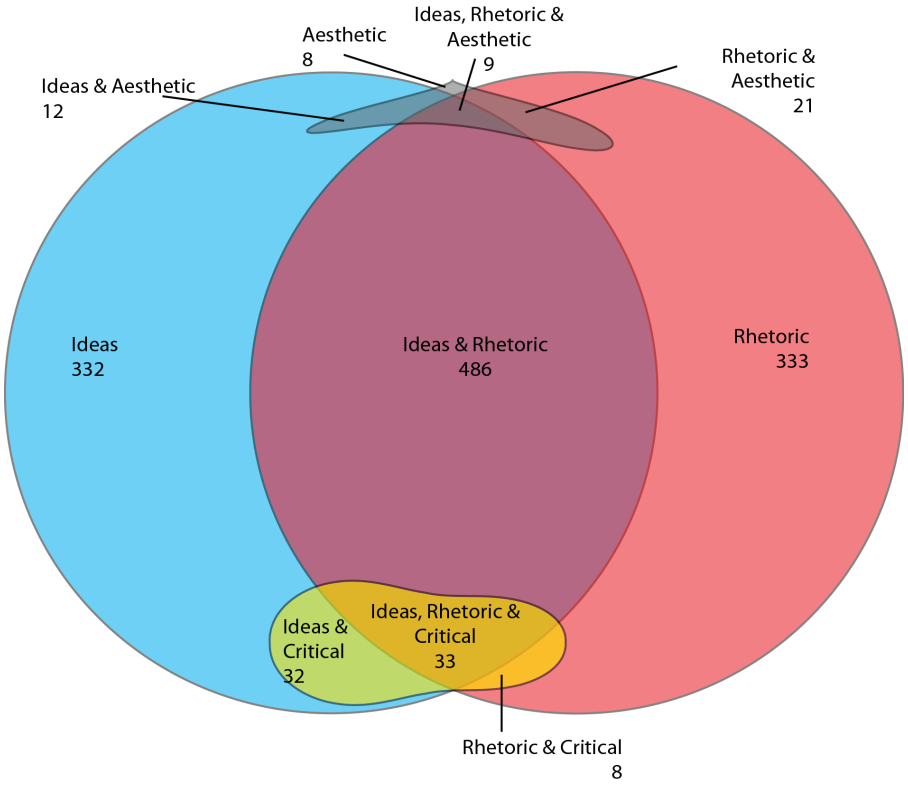

Figure 2. The relative sizes of the ways of reading lenses approximate the proportion of each way of reading in the data set. The areas of overlap represent annotations which made visible more than one way of reading.

Re-Seeing the Relationships Among Ways of Reading

In my FYC course, students primarily read for ideas and rhetoric—lenses of reading which aligned with my department's goals and the instructional and model texts across the genres assigned. Students layered ways of reading lenses atop one another, writing annotations that often combined reading for ideas and rhetoric, and sometimes critical and aesthetic reading as well. This layering suggests that as the goals for reading in composition have shifted, we have not left behind any way of reading. Instead, as we ask our students to shift purposes, they may read with greater attention to one lens even as they continue to read through other lenses. Good, complex reading attends to multiple lenses simultaneously and takes into account writerly choices and their effects on readers in terms of meaning negotiation and reading experience. While reading well in composition may mean applying a rhetorical

reading lens, that way of reading becomes more complex when combined with attention to ideas, critical and aesthetic reading as we saw in the contrasts between Megan's layered annotations and Brock's single-lens annotations. As we continue to make claims related to good reading practices in FYC, social annotation technologies can make visible to research and instructors the ways in which students apply the reading lenses we promote.

Implications for Future Practice

It is not enough to assign readings in FYC, but we should also guide our students in focusing on the reading lenses which best align with our instructional goals and the text types assigned. The large proportion of rhetorical annotations my students made with coaching and feedback suggests that instructors can help students to become aware of and strategically focus the lenses through which they read texts. If we make digitally layering reading lenses an explicit purpose and provided targeted feedback on the practices made visible in students' social annotations, as I did in my instructions for and feedback on reading for rhetoric, students may more frequently and effectively engage in this complex negotiation of meaning and experience.

The types of texts we assign also matter. We can strategically choose texts to encourage student attention to the ways of reading we wish to emphasize. The data suggest that students are most likely to layer multiple ways of reading with model texts. It may be that in model texts students are most likely to see the intersections of ideas, rhetoric, criticality and their own aesthetic response.

Social annotations provide a rich data set for learning about student reading; students themselves might be coached to reread their own annotations to see the lenses they apply and the extent to which they contextualize reading. Individual and collaborative study of social annotations could provide a shared source of data to enhance reflective writing assignments like difficulty papers (Salvatori and Donahue, 2012; Sweeney and McBride, 2015). Students might then use their reading made visible to read more strategically and with greater metacognitive awareness in composition with the goal of transferring learning from reading to writing. This study was limited to the products of students' social annotations. Future research is needed to investigate how social annotation technologies and pedagogical choices interact to mediate students' reading practices.

References

Adler-Kassner, Linda, & Estrem, Heidi. (2007). Reading practices in the writing classroom. *WPA: Writing Program Administration, 31*(1-2), 35–47.

Anderson, Daniel. (1998). Hybrid://literature/cognition/design. *Kairos, 3*(2). Retrieved from http://kairos.technorhetoric.net/3.2/features/anderson/bridge.html

Anderson, David, & Chevalier, Joi Lynne. (1997). Collaborative spaces and education. *Kairos, 2*(1). Retrieved from http://kairos.technorhetoric.net/2.1/features/andchev/bridge.html

Blau, Sheridan. (2017). How the teaching of literature in college writing classes might rescue reading as it never has before. In Patrick Sullivan, Howard B. Tinberg, & Sheridan D. Blau (Eds.), *Deep reading: Teaching reading in the writing classroom* (pp. 265–290). Urbana, IL: National Council of Teachers of English.

Brown, James I. (1953). Improving reading ability. *College Composition and Communication, 4*(3), 91–92.

Brown, John Seely. (1985). Process versus product: A perspective on tools for communal and informal electronic learning. *Journal of Educational Computing Research, 1*(2), 179–201. https://doi.org/10.2190_L00T-22H0-B7NJ-1324

Bunn, Mike. (2011). How to read like a writer. In Charles Lowe & Pavel Zemliansky (Eds.), *Writing spaces: readings on writing, volume 2* (pp. 71–86). West Lafayette, IN: Parlor Press. Retrieved from https://wac.colostate.edu/docs/books/writing-spaces2/bunn--how-to-read.pdf

Bunn, Mike. (2013). Motivation and connection: Teaching reading (and writing) in the composition classroom. *College Composition and Communication, 64*(3), 496–516.

Carillo, Ellen C. (2015). *Securing a place for reading in composition: The importance of teaching for transfer*. Logan, UT: Utah State University Press.

Carillo, Ellen C. (2017). [Special issue]. *WLN: A Journal of Writing Center Scholarship*, 41(7–8).

Charmaz, Kathy. (2006). *Constructing grounded theory: A practical guide through qualitative analysis*. London, UK: SAGE.

Charney, Davida H., & Carlson, Richard A. (1995). Learning to write in a genre: What student writers take from model texts. *Research in the Teaching of English, 29*(1), 88–125. https://doi.org/10.2307/40171424

Cornis-Pope, Marcel, & Woodlief, Ann. (2003). The rereading/rewriting process: Theory and collaborative, on-line pedagogy. In Marguerite H. Helmers (Ed.), *Intertexts: Reading pedagogy in college writing classrooms* (pp. 146–164). Mahwah, NJ: Lawrence Erlbaum Associates.

Foster, David. (1997). Reading(s) in the writing classroom. *College Composition and Communication, 48*(4), 518–539.

Guyer, Carolyn, Seward, Aurelie C., & Green, Ann M. (1994). Collaboration and conversation: Three voices. *Computers and Composition, 11*(1), 3–20. https://doi.org/10.1016/8755-4615(94)90003-5

Haas, Christina, & Flower, Linda. (1988). Rhetorical reading strategies and the construction of meaning. *College Composition and Communication, 39*(2), 167–183.

Horning, Alice S. (1987). The trouble with writing is the trouble with reading. *Journal of Basic Writing, 6*(1), 36–47.

Horning, Alice S. (2011). Where to put the manicules: A theory of expert reading. *Across the Disciplines, 8*. Retrieved from https://wac.colostate.edu/docs/atd/arti-

cles/horning2011.pdf
Horning, Alice S., & Kraemer, Elizabeth W. (Eds.). (2013). *Reconnecting reading and writing*. Anderson, SC: Parlor Press.
Hutchinson, E. J. (1955). The teaching of reading in the freshman course. *College Composition and Communication, 6*(2), 94–96.
Jackson, Boyd. (1950). The organization and use of a reading clinic. *College Composition and Communication, 1*(2), 33–34.
Jamieson, Sandra. (2017). What the Citation Project tells us about information literacy in college composition. In Barbara D'Angelo, Sandra Jamieson, Barry Maid, & Janice R. Walker (Eds.), *Information literacy: Research and collaboration across disciplines* (pp. 115–138). Fort Collins, CO: WAC Clearinghouse and University Press of Colorado. Retrieved from https://wac.colostate.edu/books/perspectives/infolit/
Johnson, Tristan E., Archibald, Thomas N., & Tenenbaum, Gershon. (2010). Individual and team annotation effects on students' reading comprehension, critical thinking, and meta-cognitive skills. *Computers in Human Behavior, 26*(6), 1496–1507. https://doi.org/10.1016/j.chb.2010.05.014
Johnson-Eilola, Johndan. (1992). Structure and text: Writing space and storyspace. *Computers and Composition, 9*(2), 95–129. https://doi.org/10.1016/S8755-4615(05)80021-0
Jolliffe, David A. (2003). Who is teaching composition students to read and how are they doing it? *Composition Studies, 31*(1), 127–142.
Jolliffe, David A. (2007). Learning to read as continuing education. *College Composition and Communication, 58*(3), 470–494.
Jolliffe, David A. (2017). 'Learning to read as continuing education' revisited: An active decade, but much remains to be done. In Patrick Sullivan, Howard B. Tinberg, & Sheridan D. Blau (Eds.), *Deep reading: Teaching reading in the writing classroom* (pp. 3–22). Urbana, IL: National Council of Teachers of English.
Keller, Daniel. (2013). A framework for rereading in first-year composition. *Teaching English in the Two Year College, 41*(1), 44–55.
Keller, Daniel. (2014). *Chasing literacy: Reading and writing in an age of acceleration*. Logan, UT: University Press of Colorado.
LeVan, Karen Sheriff, & King, Marissa E. (2017). Self-annotation as a course practice. *Teaching English in the Two Year College, 44*(3), 289–305.
Memering, Dean. (1977). The reading/writing heresy. *College Composition and Communication, 28*(3), 223–226.
Mendenhall, Anne, & Johnson, Tristan E. (2010). Fostering the development of critical thinking skills, and reading comprehension of undergraduates using a web 2.0 tool coupled with a learning system. *Interactive Learning Environments, 18*(3), 263-276. https://doi.org/10.1080/10494820.2010.500537
Meyer, Bonnie J. F. (1982). Reading research and the composition teacher: The importance of plans. *College Composition and Communication*, 37–49.
Petrosky, Anthony R. (1982). From story to essay: Reading and writing. *College Composition and Communication, 33*(1), 19–36.
Recchio, Thomas E. (1991). A Bakhtinian reading of student writing. *College Compo-*

sition and Communication, 42(4), 446–454.
Rosenblatt, Louise M. (1969). Towards a transactional theory of reading. *Journal of Reading Behavior, 1*(1), 31–49.
Rosenblatt, Louise M. (1988). Writing and reading: The transactional theory. In Robert B. Ruddell, Martha Rapp Ruddell, & Harry Singer (Eds.), *Theoretical models and processes of reading* (4th ed., pp. 1057–1092). Newark, DE: International Reading Association.
Salvatori, Mariolina Rizzi. (1996). Conversations with texts: Reading in the teaching of composition. *College English, 58*(4), 440–454. https://doi.org/10.2307/378854
Salvatori, Mariolina Rizzi, & Donahue, Patricia. (2012). Tracing the moves: How students read. *Reader*(62), 80.
Salvatori, Mariolina Rizzi, & Donahue, Patricia. (2016). Reading [Special issue]. *Pedagogy: Critical Approaches to Teaching Literature, Language, Composition, and Culture*, *16*(1).
Salvatori, Mariolina Rizzi, & Donahue, Patricia. (2017). Unruly reading. In Patrick Sullivan, Howard B. Tinberg, & Sheridan D. Blau (Eds.), *Deep reading: Teaching reading in the writing classroom* (pp. 313–336). Urbana, IL: National Council of Teachers of English.
Schwartz, Helen J. (1989). Literacy theory in the classroom: Computers in literature and writing. *Computers and Composition, 7*(1), 49–63. https://doi.org/10.1016/S8755-4615(89)80006-4
Shor, Ira. (1999). What is critical literacy? *The Journal of Pedagogy, Pluralism, and Practice, 1*(4).
Stoecker, Randy, Schmidbauer, Mary, Mullin, Joan, & Young, Michelle. (1993). Integrating writing and the teaching assistant to enhance critical pedagogy. *Teaching Sociology, 21*(4), 332–340. https://doi.org/10.2307/1319082
Sullivan, Patrick, Tinberg, Howard B., & Blau, Sheridan D. (Eds.). (2017). *Deep reading: Teaching reading in the writing classroom*. Urbana, IL: National Council of Teachers of English.
Sweeney, Meghan A., & McBride, Maureen. (2015). Difficulty paper (dis)connections: Understanding the threads students weave between their reading and writing. *College Composition and Communication, 66*(4), 591–614.
Wolfe, Joanna. (2002). Annotation technologies: A software and research review. *Computers and Composition, 19*(4), 471–497. https://doi.org/10.1016/S8755-4615(02)00144-5
Wolfe, Joanna. (2008). Annotations and the collaborative digital library: Effects of an aligned annotation interface on student argumentation and reading strategies. *International Journal of Computer-Supported Collaborative Learning, 3*(2), 141–164. https://doi.org/10.1007/s11412-008-9040-x
Yankelovich, Nicole, Meyrowitz, Norman K., & Dam, Andries van. (1985). Reading and writing the electronic book. *IEEE computer, 18*(10), 15–30.

PhronesisMU: Reclaiming Aesthetic and Rhetorical Potentials within the Software Obsolete

Geoffrey Gimse, University of Wisconsin–Milwaukee
Kristopher Purzycki, University of Wisconsin–Milwaukee

Since their heyday in the mid-1990s, MUDs and MOOs have become software relics of the early Internet. Despite their age, these platforms continue to hold untapped avenues of potential for the writer, both established and developing. This essay reviews these spaces and how they continue to challenge the current technological and social media paradigms. We then examine the collaborative, creative, and communicative potential within these environments with a view toward their use within a modern context. Finally, this paper serves as an introduction to a new MU*space, *PhronesisMU,* which was developed for a workshop held at the 2018 Computers and Writing Conference, as well as an invitation to create and explore this world dedicated to the CandW community.

Originating with Richard Bartle and Roy Trubshaw's *MUD1* (1978), "multi-user dungeons" (MUDs) were among the earliest of publicly accessible, electronic, networked worlds. Influenced by the text adventure games that were being played at the time, Bartle and Trubshaw's project maintained many of the fantasy trappings found in *Colossal Cave Adventure* (Crowther and Woods, 1976) and *ZORK* (Lebling, Blank, Anderson, and Daniels, 1977). Using text inputs, players of *MUD1* and its progeny could explore text-based environments and interact with other players. MUDs continued to proliferate with many focusing on combat and themes culled from fantasy and science fiction. Among these variants, the "MUD object-oriented" (MOO) focused more on the social connections and creative potentials fostered by these enigmatic places. Unlike most MUDs, where players were unable to manipulate the world and the objects within it, most MOOs offered players the capability to create objects and spaces within the world. One of the more successful of these, *LambdaMOO* (Curtis, 1990) is still in operation today, serving as a testament to a seemingly bygone era of multiplayer games.

As relative newcomers to the Computers and Writing conference, we had been unaware—though not altogether surprised—that many in the CandW community had been wallowing in MUDs and MOOs during their heyday

some twenty years ago. Amy Bruckner and Mitchel Resnick's *MediaMOO* (1993), as the quickest example, became popular through regularly scheduled gatherings. The "Tuesday Cafe" was frequented by affiliates of the conference and, later on, the "TechRhet Barn" on the Connections MOO would become favorited by the same crowd. Jan Holmevik and Cynthia Haynes, who literally wrote the textbook on the pedagogical value of MUDs and MOOs with *High Wired* (2001), are frequenters of the conference. To put it mildly, the CandW contingent is not only familiar with MOO-space, they are among its principal residents and architects.[1]

Just prior to discovering this vein of CandW history, we had created and demonstrated the MUSAIC MUSH ("multi-use shared hallucination") at the Midwest Interdisciplinary Graduate Conference (MIGC), held annually at the University of Wisconsin–Milwaukee. This simple MOO-like space, built from an open-source package provided by *PennMUSH* (1992), garnered a good deal of interest from conference attendees, one of which used MUSAIC in their classroom shortly after the conference. Despite our divergent fields of study within the field of English studies, we each found MU*space[2] to be compelling not just as a distraction from scholarly priorities but as a subject of inquiry in itself. For Kristopher, whose dissertation is a phenomenological look at how players acquire a sense of place within computer games, the MOO served as an archetype and culmination of many of the qualities we seek in online communities. For Geoffrey, examining MU*Space from a technical and science writing perspective opened up avenues for inquiry into the collaborative construction of digital structures via code and how that construction was linked to the cultures and ideals that different MU*spaces embrace.

This paper serves several purposes. First, it evaluates the MOO at the locus of where our perspectives—one metaphysical, the other pragmatic—converge. Though approaching from slightly different origins, the second facet of this essay is a conjoined argument for a revisitation to MU*space. This revisit is not out of nostalgia. We advocate for a look back at MUDs, MOOs, MUSHes, etc. simply because their potentials illuminate how many facets of our digital lifestyles fail to compare to the collaborative, creative, and communicative provisions of these somewhat archaic environments. Finally, this essay serves as a preamble to what we hope will be a boon to the Computers and Writing Conference for some time to come, a MU*space called *PhronesisMU* (2018) which was to be developed as part of a workshop held at the 2018 conference. This workshop was designed to help attendees organize and create a

1 KP: Many thanks to Michael Day for providing this brief history during the 2017 Ride2CW gathering.

2 Derived from the term "MU*" that is used to indicate variations of MOO, MU*space will be used in this essay as our umbrella term for all works in the MUD and MOO lineage

new MU* dedicated to the CandW community. Unfortunately, the workshop was cancelled due to lack of participation. *PhronesisMU* has nevertheless continued to develop and expand thanks to the participation of a few from the conference and others who have discovered the space through other means.

Brief History of MU*space

A brief history of MU*space is warranted given that it has now been forty years since MUDs first pioneered their parcel of the digital landscape:
While students at the University of Essex, Roy Trubshaw and Richard Bartle created the first so-called "multi-user dungeon" (MUD) in 1978. *MUD1* would be among the first digital networked spaces capable of hosting several visitors at once. According to Bartle (2004), "dungeon" was used not out of desire for a fantasy theme but rather as a referent to *DUNGEN*, a clone of *ZORK* that Trubshaw had been playing at the time. Unlike the graphically-rendered spaces of other games like *Maze War* (Colley and Thompson, 1973), *MUD1* took a page from text adventures and represented space verbally. Much like *Colossal Cave Adventure* and *ZORK*, these networked spaces compelled players with descriptive landscapes and catacombs but added the benefit of being able to explore while interacting with other players.

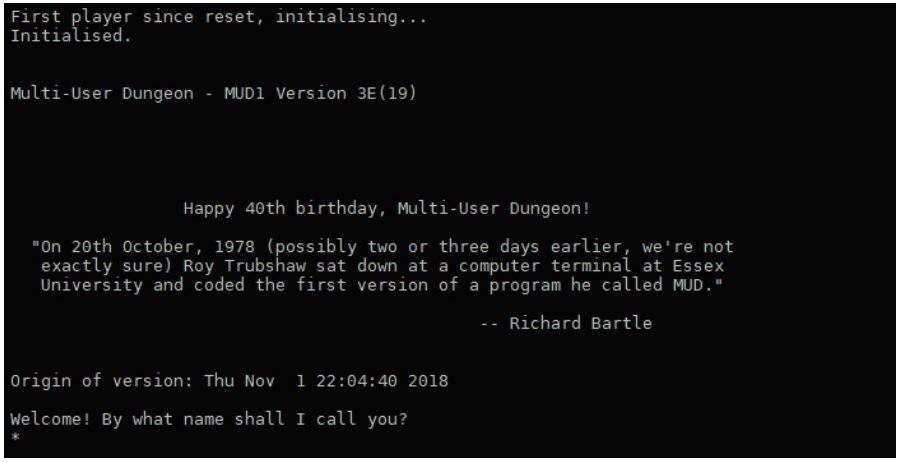

Figure 1: MUD1

Bartle and Trubshaw's innovative space would spawn numerous others, many taking on different themes while adding new capabilities. Due to infancy of the network and limited access, MUD-space was a niche attraction. This factor coupled with the growing bevy of more visually compelling games further slowed the technological evolution of MUD-space. Those that were involved in MUDs, however, formed communities devoted around the shared

sense of place. For many MUD groups, socialization and fellowship became more attractive than dungeon crawling and combat. *TinyMUD* (Aspnes, 1989), among the most (in)famous of these, was released in 1989 by James Aspnes while at Carnegie-Mellon (Haynes and Holmevik, 1998). *TinyMUD* focused more on social interactions and, in later iterations, players could build and furnish their own spaces within *TinyMUD*. Pushing this capability further, Steven White and Pavel Curtis would develop *TinyMUD* into *MOO* ("MUD Object Oriented") during the early 1990's. MOOs not only enabled players to communicate, but these exchanges could also be flavored with "poses" or flavor texts that articulated postures, moods, and gestures. In addition to this more complex method of communicating, players were also privy to creating objects and spaces on MOO servers. Curtis would eventually take over the project and rename it *LambdaMOO* in the 1990s.

MUDs and MOOs provided environments that provided new social and creative outlets that were accessible in an increasingly accessible network space. MOOs continued to proliferate and branch off to form different varieties, but most preserved the ability to connect with others and shape the virtual environment. As such, cliques were formed and, when allowed by administrators, localized governments and sophisticated social dynamics were developed. These dynamics were underscored in Julian Dibbell's (1998) report, "A Rape in Cyberspace" which detailed the reaction of the *LambdaMOO* community to a player's (or multiple players) sexually-provocative abuses of others. Despite social infractions particular to any community, these online places continued to thrive (*LambdaMOO* is still running, in fact) and splinter off into different flavors, including the M*U*S*H. Like it's MOO predecessor, M*U*S*H ("multi-user shared hallucination") environments are electronic text-based worlds that are collaboratively constructed by its inhabitants.

MUDs in the Modern Context

The movement from MU*space to massively multiplayer online role-playing games (MMORPGs) is an example of the way in which the iterative process of modern software development works. Older software is revised and improved upon through succeeding development cycle. In "From MUDs to MMORPGs: The History of Virtual Worlds," Richard Bartle (2009) points out that it was inevitable that graphically rich virtual worlds would supplant those found in MU*space. For software and game companies there is an assumption that these newer software platforms automatically transcend the previous structures on which they have been built. This push to redesign, rebuild, and recreate has become the focus of the development process. As a result, we live in an era of near constant technological change. Often framed as "dis-

ruptive innovation" the hardware and software that we use to create, build, and communicate regularly shifts morphing in form, structure, and capability (Christensen, 2013).

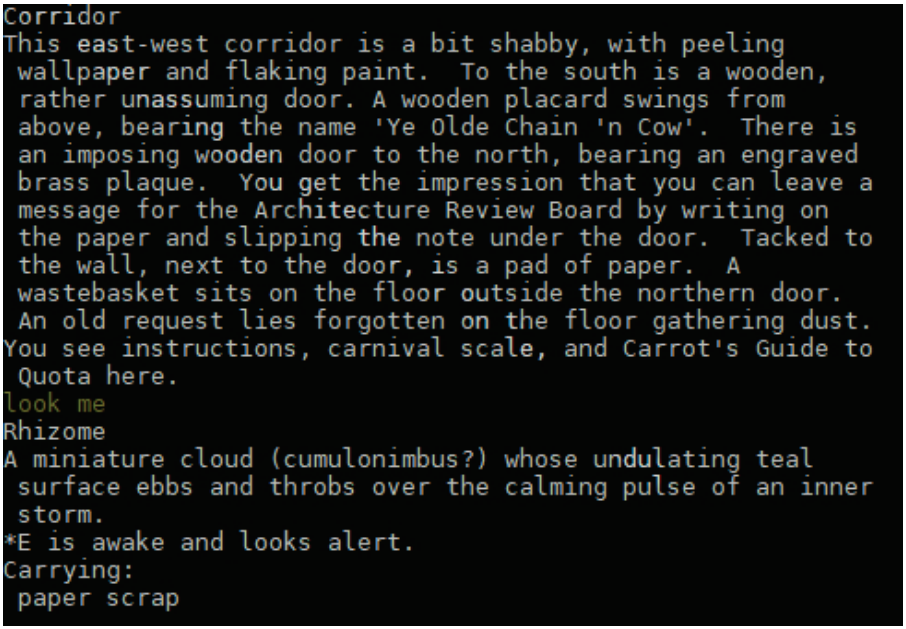

Figure 2: LambdaMOO screen capture

The MU*space and the virtual worlds that follow it actively embrace this model where new features and expansions are regularly added to the already existing world structure. In many ways, the players are engaged in a widespread and unending beta test. Such experiences are becoming common outside of the context of these virtual worlds, however. As these development practices proliferated into other forms of online and social media, more and more people have been pushed to adopt new technologies as they become available without a full understanding of the consequences of that adoption. Often, these updates are mandatory and linked to the growing proliferation of the software as a service (SAAS) model which many MUDs and MMORPGs adopted as a way to finance further development. Focused on this loop of innovative destruction, developers race to create new applications and platforms. As they do, the ways in which we create and communicate using those platforms are irreparably impacted. Creators and scholars can only begin to address the creative and rhetorical limits of a platform or medium before it is replaced by another. This poses a twofold problem. One, we are far from understanding the full consequence of the software and hardware architectures that we employ and are unable to adequately develop that understanding be-

fore the platform becomes obsolete. Two, the creative and communicative opportunities offered by these older platforms are not always replicated in newer forms of software and hardware. In the aggressive push for reinvention, very promising and useful technologies are lost and with them a vast array of opportunities for communication and sharing.

MUDs and their progeny are excellent examples of such lost opportunities. Developed as collaborative and open codebases, MUDs provide a unique look at the development and creation of software spaces at every level from the hardware and networks that supported the MUD and its users, to the system and code that defined the MUD engines, to the internal design and shape of the textual spaces that made up the virtual worlds in which builders and players co-created. While modern software seeks to hide the code of the system and shrouds the bones of the development process isolating it from the larger community of software users, MUDs foreground that process. They invite users to participate not just in structuring the world, assembling and arranging blocks of texts, but in creating the foundations of that world by defining the very objects and behaviors that are possible within it. For all the power that modern games employ, almost none have the same capacity to provide as open a space for creative engagement.

It is this level of openness and collaboration that draws us back to these spaces. Indeed, as participatory structures MUDs offer a series of lessons that highlight what is, in our current paradigm, a significantly different approach to technological creation.

Write the Manual—Write the World

One key difference is that MUD development offers participants in the virtual world an opportunity to contribute to that world's construction from the code level up. MU*spaces actively work to blur the user/developer binary. At the core of this is the development of the MOO world as a shared practice of the players which is very different from the packaged software and pre-designed virtual worlds of today in which agency is doled out and controlled in very specific ways. The starting worlds of most MOOs are small and empty. This is by design. A MOO is a co-created universe built by the users who inhabit that space. While some MUDs will structure a set of rules and hierarchies, many later versions of MOOs allow every level of creation to be discussed and defined. At this very basic level, early MU* creation can be seen as a form of meta-software development. Objects, systems, and behaviors must be architected, methods, and procedures that define their relationships must be defined, and structures of interaction and communication outlined and established. MUD development at this level differs quite a lot from modern development

processes, however. In many current development practices, developers write and design code individually and then merge the resultant work into a larger codebase. The applications that lie at the core of MU* architecture are themselves developed in this way. These applications abstract the layers of object and structural design to provide a space where such elements can be developed from inside the MU* world, where different users can connect to, contribute to, and view that work. MU*s allow for the synchronous co-creation of these structures. A builder can write and prototype immediately and in the presence of other builders who can suggest changes, take control, and modify the form and structure of what is being created on the fly. Because these builders are crafting not only the appearance of the MU* world but its core hierarchies and behaviors, this promotes a much more democratic approach to the creation of the MUDs world.

For rhetorical scholars, this co-mediated production positions the MU*space as a sort of Agora in which citizens argues over the development of the larger polis. MU*spaces in this way also provide relevant examples of the political challenges that come as part of that process. Rules must be developed at both a technical and social level. The definition of the participants themselves is a part of this process. Creators on the MU* must decide who is a citizen, who can build, and who is not. For some, a rigid hierarchy may be designed in which only those who are approved can contribute the construction of the space. These questions and challenges force the designers and the players to confront very difficult and complex notions of access and control with regard to audiences. MU* creators must consider audience response and the goals of the systems they are introducing.

To create these systems, they must write them into the world. For the creators of a MUD the act of writing is the act of world creation not removed by metaphor in practical terms. When a participant writes an object, that object becomes a part of that world. It takes on properties and characteristics within that world. This creation immediately highlights the limits of authorial agency with these spaces of construction. It is very possible, even likely, that an object in the world can be fundamentally altered by others within that world.

In the first installation style MU*space we designed for a conference, a user created an entire art museum complete with paintings and descriptions. It did not take long for other users to abscond with those paintings, freeing them from the limits of the museum, and placing them, haphazardly, throughout the world. All that remained of the paintings was a small bit of graffiti. Meanwhile, explorers in the farther reaches of the MU* universe would often find themselves looking at a strange painting incongruously placed in the most obscure and unlikely of places. This playful mischief belies the deeper theoretical elements at play within this interaction. It raises question about au-

thorial autonomy in the co-created space while simultaneously challenges the idea of what presentation spaces are and what they should be. The individuals who absconded with the paintings and spread them throughout the world forced participants to rethink their own interpretations of art and what art becomes when freed from the structural expectations that surround it.

MUD Strategies: Bricolage and Creative Tactics

The ability to draw from, adapt, and shape existing cultural forms is a crucial part of MU* development. Often MU* designers will create a MU*Space as homage to different fictional worlds. Early MUDs, of course, drew from fantasy games and mixed elements of myth with hack-and-slash combat. This appropriation of cultural material remains a critical part of MU* development, even today. A quick review of those MUDs that are still active shows that most are designed or built around other forms of cultural media. There are several MUDs and MOOs that remain focused on the fantasy genres that marked their creation. Others have taken a page from the 80s cyberpunk genre which is itself a reformation of classic Noir (Shaviro, 2003). MU*spaces in this context do not simply act as packagers of media. Instead, they give the participants the opportunity to engage with and change that media. As with the museum, this ability to interact with these cultural structures, allow the participants to perform critiques and develop counter-narratives that push back against the dominant cultural assumptions. These MU*Spaces then can become spaces of tactical interaction for participants (Certeau, 1984).

It is certainly true that modern technology has provided numerous places for tactical engagement, but what sets MU*s apart in this context is the incredibly low level of risk that these spaces provide for these tactical responses. MU*s are not connected to broader structures of control and observation. There are no Facebook links, no Google tracking; the permanent of nature of the Internet is a bit less permanent inside these systems. Most MUDs and MOOs are also inherently insecure. While some advances have been made in securing modern MU* codebases, participants tend to use aliases and are encouraged to use a random password for access. This openness carries with it a distinct sense of impermanence. Even if a MUD remains intact for decades, there is no record of the builder save the name the builder uses and, occasionally, their network address. MUDs exist in a sort of niche space outside the modern structures of the Internet. In these liminal spaces, they provide opportunities for creative engagement that is just not practically possible in modern online spaces.

As software, MUDs and MOOs exist as archaic remnants of a hopeful past in which Internet technologies were imagined as tools for opening up access

and provided creative tools and opportunities for all. While many of those Utopian ideals have fallen flat, these technologies still carry with them the elements of shared creation. For scholars of digital texts and rhetoric, there is still much to be gained from a deep dive back into these now nearly lost technologies. Of the many different codebases that were, at one time, under active development now just a handful remain. Hobbyists keep a few servers alive, and the software sits waiting for a chance to reconnect people in ways that haven't been replicated in modern development. These applications still offer an incredible amount of rhetorical and creative possibility. Furthermore, the cost for using the software is incredibly low. MUD codebases are open and fairly stable, if older. System requirements for today's MUDs are minimal and installation and management has been streamlined in many ways. At the same time, working on the installation and subsequent development of the MUD connects users to architectures that hidden in modern applications, but just as present. The *PhronesisMU* is just one opportunity to engage with and create using this software.

Conclusion: MU*spaces or MU**places?*

So why a return to MU*space?

As mentioned, these archaic digital worlds remind us of the potentials for creating dynamic, social spaces online. MU*space has inspired numerous several game genres, a few of which have been mentioned. We would argue, however, that to view MUDs, MOOs, and so forth as simply games maintain a focus on structures like rules and architecture which curb experimentation and risk-taking. With such an expansive capacity for creativity, identity formation, and socialization, MU*space quickly exhausts the limits of spatial models. Envisioning *PhronesisMU* as a MU**place*, however, we focused on those elements that reinforced those rhetorics of place which privilege landscape, home, community, and collaboration.

The relationship between space and place is theoretically complex and well beyond the more pragmatic scope of this essay. For the sake of review, however, it is worth noting that this essay relies on theories of place culled from humanist geography which situate place as always preceding space (see Yi-Fu Tuan, 1979). Individually or collectively felt, our sense of place informs our perception of the world as well as the ways we derive meaning from it. Unlike the rigidity and homogeneity of space, place is fluid, overlapping, and at times colliding. Doreen Massey (2005) pointed out that navigating this "throwntogetherness" of place demands one be "open to the challenge of negotiating a here-and-now" (p. 140). Placemaking, according to Massey, is therefore a radical and conscious act (185). With regard to composition, one only has to

consider Dobrin's (2001) ecocritical writer as one who is empowered with the capacity of self-emplacement. Constraints of space, such as those imposed by our now-everyday writing and instruction platforms inhibit this ability. One only needs to think about struggles against over-reliance on auto-correct and other prescriptive capabilities. While helpful, these functions also come with rhetorics that position the technology as yet another load-bearing wall.

How does the developer-as-author impart the potentials for place into the digital? If space, according to Tuan, is written in accordance with the prevailing perceptions of beauty, what is the process by which a sense of place is nurtured? In these places the nature of community may be complicated, even perhaps tenuous. Perhaps more elusive, the player's sense of place peers through in the Being-in-the-worldness as they movs towards a Becoming-with-the-world. With respect to process-relational philosophy and nomadology, such abstruse concepts may seem very far removed from the discourse of composition, at least as it has been developed in existing studies. Attempts to radically rethink space and place can be essential to understand the full expressive potential of aesthetics, which has begun to emerge in the recent state of the art.

Simply put, the electronic spaces in which we work, socialize, and play are dominated by powers that seek nothing less than incorporating publics into a techno-ecology driven by profit. If the internet was once considered a frontier, it has now one that has almost entirely been colonized by platforms aimed at rendering every facet of our everyday experience into exploitable data. Rhetorics of place, on the other hand, are more uncertain and unreliable. They are the risky rhetorics of collaboration and community-building within a foreign and at times hostile landscape. A return to obsolete spaces offers a return to a wilderness that is both wonderous and terrifying. With its archaic commands and obsolete, text-based interfaces, MU*space very much seems like an alien world to many. Yet this is a world where a passive visitor can become an active explorer or, better yet, a participant complicit in the act of placemaking.

The pleasures of place come from opening to the "throwntogetherness" of the relationships that fabricate it—wrinkles and all. Rather than its conquest, it is the cohabitation with the processes and relationships that compose it that provide the meaningful experience. Both lauded and lamented, the author submits herself to the intervention with the work. The most carefully crafted objects are subject to being pilfered, cherished spaces vandalized, but also shared, and cooperatively experienced. But isn't this the community we desire? Don't these interventions, as intersections in the process of Becoming indicate their vitality?

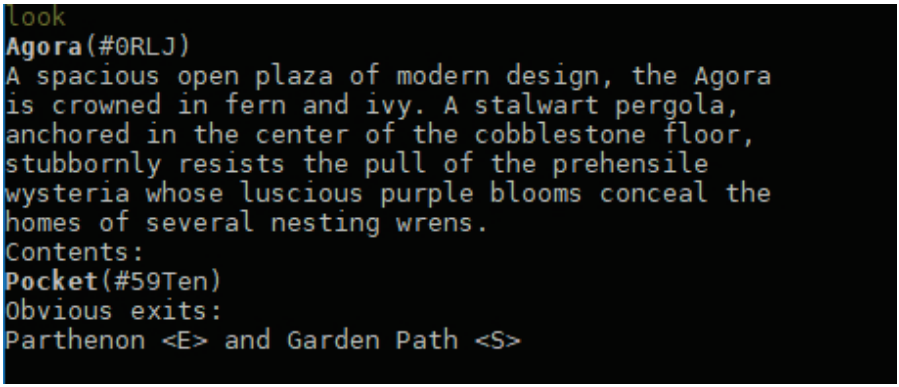

Figure 3: PhronesisMU screen capture

The goal of *PhronesisMU* is to invite the sharing of experience through a unique and experimental platform that draws on now rarely used technical architectures that were built to encourage this type of interaction. What we desire from *PhronesisMU* is an opportunity for participants to devise those structures themselves as much as possible. As a small and niche experiment, we hope that it grows to attract a following similar to that of *MediaMOO* and others populated by the Computers and Writing community. In opening the space to shared creative investment, constructions in both code and text, and the sheer thrill of exploring the results of that work, we are excited to see what comes next. Our hope is to continue to push for collaboration through online interaction and via local gatherings of writers, researchers, and creators at conferences and in smaller more local venues. Through the interactions of these different insights, skills, and ideas there is obvious potential for continued growth in both scholarship and community. What's more, we hope that this return to MU*space presents more than a simple nostalgic look back (though we admit it is hard to resist these temptations) but, as a complementary facet of our digital lifestyle, illuminating the myriad potentials that these collaborative spaces still offer. Ultimately, *PhronesisMU* is one part a labor of love, an homage to people that have built communities that cherish the creative and honor the past, but it is also a look forward to the vistas ahead—even if that occasionally entails rejuvenating the obsolete.

Postscript: Accessing *PhronesisMU*

For more details on how to access PhronesisMU, please contact the authors directly via Twitter at @textandhubris and/or @krispurzycki.

References

Aspnes, James. (1989). *TinyMUD.* [Computer software].
Bartle, Richard. (2004). *Designing virtual worlds*. Berkeley, CA: New Riders Press.
Bartle, Richard. (2009) From MUDs to MMORPGs: The history of virtual worlds. In J. Hunsinger, I. Klastrup L., & M. Allen (Eds.), *International handbook of internet research*. New York, NY: Springer.
Bartle, Richard, & Trubshaw, Roy. (1978). *MUD1.* [Computer software].
Bruckner, Amy, & Resnick, Mitchel. (1993). *MediaMOO.* [Computer software].
Certeau, Michel D. (1984). *The practice of everyday life*. Berkeley CA: University of California Press.
Christensen, C. (2013). *The innovator's dilemma: When new technologies cause great firms to fail*. Boston, MA: Harvard Business Review Press.
Colley, Steve, & Thompson, Greg. (1973). *Maze War.* [Computer software].
Crowther, William, & Woods, Don. (1976). *Colossal Cave Adventure.* [Computer software].
Curtis, Pavel. (1990). *LambdaMOO.* [Computer software].
Dibbell, Julian. (1998). *My tiny life: Crime and passion in a virtual world.* New York, NY: Henry Holt and Co.
Dobrin, Sidney. (2001). Writing takes place. In C. Weisser, & S. Dobrin (Eds),*Ecocomposition: Theoretical and pedagogical approaches* (pp. 11–25). New York, NY: SUNY Press.
Gimse, Geoffrey, & Purzycki, Kristopher. (2018). *PhronesisMU.* [Computer software].
Haynes, Cynthia, & Holmevik, Jan. (2001). *High wired: On the design, use, and theory of educational MOOs*. Ann Arbor, MI: University of Michigan Press.
Lebling, Mark, Blank, Mark, Anderson, Tim, & Daniels, Bruce. (1977). *ZORK.* [Computer software].
Massey, Doreen. (2005). *For space*. London, UK: Sage.
PennMUSH. (1992). [Computer software] Available at https://www.pennmush.org/
Shaviro, Steven. (2003). *Connected: Or what it means to live in the network society.* Minneapolis, MN: University of Minnesota Press.
Tuan, Yi Fu. (1979). Space and place: A humanistic perspective. In *Philosophy in geography* (pp. 387–427). Dordrecht, Netherlands: Springer.
White, Steven, & Curtis, Pavel. (1990). *TinyMUD.* [Computer software].

Place as Interface, Sensory-Data, and Phronesis

Mai Nou Xiong-Gum, North Carolina State University

This paper uses the example of the Plain of Jars, as a physical and digital place, to illustrate how to cultivate the sense of wonder to the sense of knowing in-between the computer screen and user experience. As such, this paper argues that place is an interface because place can be an imagined meeting point, one that shifts us outside of the borders and politics of the computer interface and the potential passively oppressive infrastructure of the classroom into a place where we adjust our subjectivities, where we allow multiples to have agency in expertise. This isn't a rejection of computer-based learning. In fact, use of computer supported learning environments can supplement peer exchanges of expertise, particularly with the advances in geographical information systems that allow us to see into places and vernacular web accounts that allow us to read about places. In sum, sensory-data, experiential knowledge or phronesis, is accessible through places on or off screen.

In "The Politics of the Interface," Selfe and Selfe (1994) argue that the computer, a central instruction space, contains a border that is constructed along ideological axes of cultural power and class privilege. As such, the computer interface demonstrates the politics of data representations because these representations pass along asymmetrical power relations that shape education along the lines of Eurocentric historical and social values. Selfe and Selfe compare the computer interface to Pratt's (1991) contact zone in that the interface is a site where social spaces meet, clash, and grapple with each other. Thus, computer supported writing, or computer supported learning environments, are not egalitarian spaces because they neglect technological underclasses and are discursively designed for and by a technically and linguistically privileged class. With this in mind, this contact zone is potentially problematic for computers and writing: where does a person of difference compose from if they exist outside these ideological borders of the computer interface? With what can a person of difference engage within this territory? But, more importantly, how can students or people of difference in general bring in their experiential knowledge through these borders?

I suggest that looking at place as an interface can be one approach to this issue of the politics of the interface. This approach requires not looking at the binary of the border as *either or*, but instead I approach the border of this

contact zone as fluid and mobile and made permeable and possible through the movement of students' bodies and imaginations and through the experience gained by moving within the screen and off the screen. For this reason, offering a look at places can bring about meaningful peer exchanges and give students a practical social field (Edbauer, 2005) from which to write, compose, make, or create and from which to experience expertise. In this paper, I use the example of the Plain of Jars, as a physical and digital place, to illustrate how to cultivate meaningful movements from the sense of wonder to the sense of knowing and to cultivate movements in-between the computer screens. As such, this paper argues that place is an interface because place can be an imagined meeting point, one that shifts us outside of the borders and politics of the computer interface and the potential passively oppressive infrastructure of the classroom into a place where our subjectivities are mediated by more than the computer interface, where we allow multiples to have agency in expertise. This isn't a rejection of computer-based learning. In fact, use of computer supported learning environments can supplement peer exchanges of expertise, particularly with the advances in geographical information systems that allow us to see into places and vernacular web accounts that allow us to read about places. While we can't possibly take everyone on a walk through the places we speak of, we can offer digital information about these places, to access digital phronesis.

From Computers to Ecologies

More recently, Gane and Beer (2008) suggest interfaces are cultural and should be understood as spatial forms that are tied to broader sets of social and cultural dynamics. However, before this idea, Selfe and Selfe (1994) argued that the interface is a contact zone in digital environments. Looking at their work first offers a good foundation for understanding how the electronic contact zone also enacts borders. I will use literature following this work to build to the idea that technologies, spaces, places, and bodies make up an ecology in which multiple interfaces become possible. However, I distinguish place itself as the interface in which students have agency and with which students can access peer experience at the level of the classroom and at the level of networked information. Place is mobile and embodied: as a body enacts movement in, in-between, and off the screen, places shift accordingly. As such, a student's sense of place becomes a contact zone for multiple environments.

Selfe and Selfe (1994) were responding to changing college student demographics and emerging technology use in the classroom. They argue the computer interface is not an egalitarian space because of multiple issues with

access from the design choices to linguistic choices, not to mention the social and cultural factors that also condition the response to these choices. In addition to the focus on electronic spaces, Selfe and Selfe's discussion of access problems faced by educators wishing to use digital technologies has spurred studies in pedagogy. For example, studies on instructional spaces find that writing in digital spaces occurs "within a matrix of local and global policies, standards, and practices" (DeVoss, Cushman, and Grabill, 2005). Computer learning environments position students to work within multiple systems of literacies in ways that writing alone does not. Students must be familiar with how to type, use software or programs, and so on in addition to the core learning goals of the writing classroom. Furthermore, as students must multitask in this manner, they are asked to sit predominantly in one place. In "Hacking Spaces," Walls, Schopieray, and DeVoss (2009) reiterate Banning and Canard's (1986) concern that "use of the physical environment is perhaps the least understood and the most neglected." Walls et al. (2009) identify spaces as long-standing artifacts that are not apt to change although pedagogical practices have changed in relation to emerging technologies. As a resolution, they offer a framework for space designs that enable physical bodily movement. Adding to this discussion, Syverson (1999) argues that composition depends on shared interactions between people and various structures and positions composition as a distributed and socially situated practice. Edbauer (2005) later articulates this as an ecological approach to composition that sets the scene of writing into a social field. Meanwhile, Reynolds (2004) gives us the idea that places are mobile in that places also move as bodies move in and out of spaces. Out of these approaches grows a burgeoning interest in the pedagogical value of places outside of the classroom for understanding a culture's rhetorical practices (Metzger and Katz, 2010), vernacular discourse (Hess, 2011), and the interrelated perspectives and layers of histories embedded in landscapes (Schmitt, 2015). While helpful, these approaches zoom out from the interfaces such as the computer and into the ecology of the digital environment. I want to zoom back in to see how this might come together with the computer in the classroom.

From Spatial Organization to Sensory-Data

Using the insights gained about interfaces (Gane and Beer, 2008), classroom spaces (DeVoss et al., 2005; Walls et al., 2009), and composition as an ecologically situated practice (DeVoss, Haas, and Eyman, 2006), I suggest a framework that ties these insights together through a strategic use of *place as an interface* for accessing peer knowledge. Although Walls et al. (2009) have published an article with a similar concept as the subtitle, their work focuses

on defining place as the classroom space and as such they argue about spatial arrangement. In contrast, I define place from a phenomenological perspective in which place is filled with sensory-data (Casey, 1996). Sensory-data is the information obtained through perception, but more specifically, through presence, through the skin, through the contact of the inside and the outside (Grosz, 2001). In this approach, place is not only about spatial arrangement but is also a configuration of both spatial arrangement and time, a configuration held together by the stickiness of localized sensations. Sensory-data is indexed through the student, and data processing and transfers occur through movements and engagements. With this in mind, place is the configuration of space and time through which movements are enacted and performed, through which sensory-data (information) indexed by personal experience (perception) becomes mobile and comes into contact other kinds of information. As such, place becomes an interface for accessing and processing sensory-data through student's movements and peer interactivity. Together, places as interfaces enable one part of a system to be sensitive to other parts of another system.

On Phronesis and Making Sense

In *Nicomachean Ethics*, Aristotle suggests that there are three kinds of knowledge associated with wisdom: episteme, techné, and phronesis (Halverson, 2004). For ethical well-being, Aristotle postulates that we must acquire deliberative, emotional, and social skills that enable us to make sense of things as a whole. Halverson (2004) explains the relationship between episteme and techné. Episteme is both necessary and universal; it can be represented apart from the knower, codified into systems of thought, and leads to reproducible effects under similar circumstances. Techné refers to the knowledge of making, ranging from the arts of construction to the creation of states of affairs. Halverson suggests phronesis, or practical wisdom, is a result of how individuals act based on their interpretation of contextual particulars. Similarly, Delagrange (2011) interprets episteme as theoretical knowledge and techné as artistic knowledge. However, while Halverson (2004) positions phronesis as what emerges from in between episteme and techné, Delagrange (2011) positions techné as what emerges from in between episteme and phronesis. The difference draws our attention to the work educators must do. In Halverson's understanding of phronesis, we can be passive about our productions of knowledge: we can understand the universals and understand the processes, and from this we will be able to execute wisdom without actively engaging beyond the level of knowing something historically known and historically doable. Although the three simultaneously inform each other, Delagrange's

model positions phronesis, practical wisdom, as necessary for techné, particularly because techné as "'making,' [is] a productive oscillation between knowledge in the head and knowledge in the hand" (p. 35). Phronesis requires a situated understanding of the habits and the relations located in a place. Thus, to make sense, we need to negotiate what is in our heads with what is in our hands.

As another approach, Reynolds (2004) suggests moving through the world is what we all have in common, as part of our geographical identity, but this is a romantic reading. Reynolds writes, "What we do have in common with students are the places where we meet them as well as everyday experiences in space: moving through streets or hallways, working in institutional rooms, or commuting to work and school" (p. 4). Although this is to some degree true, there are power differences in mobility (Massey, 1993), particularly when we consider the demographic Selfe and Selfe (1994) refer to students from different countries, histories, backgrounds, and languages. So, it is presumptuous to think that we have things in common because we share the college campus as a social space. Students flow into the classroom and they flow back into their lives, and this flow occurs at and in different rhythms and routes.

Also where do we actually meet with students? We meet them in institutional spaces such as our offices, conference rooms, hallways, the classroom, during our commutes and such. This is a limited sample of moving through the world! If this is what we have in common, we risk our learning spaces and the boundaries that contain them to be directed by higher systems of power.

Perhaps as a response, Reynolds takes her students on walks, and this is a nice expansion of the classroom space, but it still nonetheless expands the institutional space of the classroom in doing so. A similar situation occurs with Reynold's example of Socrates and Phaedrus' walk outside of the city. Socrates tells Phaedrus the tale of Boreas and Orithyia at the bank of the Ilissus, but Phaedrus really wants to know if the tale is true. At the location of where Phaedrus thinks it could have happened, he says, "And is this the exact spot? The little stream is delightfully clear and bright; I can fancy that there might have been maidens playing near" (p. 95). Phaedrus enacts wonder. Through the place and by imagining through time, Phaedrus wonders what is possible. *Is it possible* that Boreas and Orithyia were once here? Phaedrus uses both what is in his head (Socrates' teachings) and what is in his hands (the scene of where it once might have happened) to come to his own experience of knowing, to come to a point where it was possible to trust his own judgment through sensory-data. So, perhaps Reynolds was correct about having our students move about in the world through walking and the learning experiences it affords. But is it possible that the walking between students and instructor, or the walking between Phaedrus and Socrates, is not actually what

brings about this experience of coming to knowing something. The walk is in fact dictated by the rules of the instructor and asymmetrical power relations. As such, it's not completely geographical identity, but rather it is engaging in places that brings about experiential learning. It is Phaedrus' engagement with the bank of the Ilissus that situates his understanding, makes him wonder, and pushes him towards phronesis. It is what is sensed, sensory-data, that enables making sense.

The Plain of Jars Interlude

The Plain of Jars, located in Phonsavan, Laos is an ancient archaeological site that the United States air bombed between 1963 and 1974 every eight minutes, twenty-four hours a day, for a decade. Yet, recently, the Plain of Jars has become a UNESCO World Heritage Site nominee on account of the ancient monolithic jars dating back to the Jurassic period. Although unexploded ordnances continue to pose daily threats for villagers, the narrative about cultural heritage is what stands. The Plain of Jars was part of a covert military operation connected to the larger Vietnam War, but it is mostly represented as an emblem of humanity's shared universal cultural heritage. What we understand and know about this place is entangled in myths and legends. When those who have a connection to this place try to detangle this, the politics of the interface interfere.

Phonsavan's color pallet is an arrangement of blues, greens, and yellows. But when the ground breaks free from the green, shades of rust are visible in the reddish brown dirt. The decrepit military tanks and rusting bomb shells left behind from the war have taken on this shade of dirt. They have slowly assimilated to this place as those involved have slowly assimilated to their new ways of living or their lives in the United States. When tourists go to Phonsavan, they go to view the jars. They go to view the blues, greens, and yellows, but I wonder what they make of the rust and the red earth in the surrounding? Do they *wonder* about it? What do they make of the things that have come to belong there, the empty shells or the unexploded ordnances still buried underneath the green? How do we ethically resolve our perceptions with what we are told? How can we say something that is outside of what can be said?

Although I've chosen an example close to me because I am a refugee, I believe that due to changing student demographics, we will at some point have students in our classrooms with "examples that are close to them." We can't ignore the U.S.'s immigration and refugee landscape and how difficult it is to compose as if we have occupied similar subjectivities simply because we have made it into the college classroom. In 1994, Selfe and Selfe noted that by

the end of 2000, 40% of students will have come from a non-English speaking background. Yet, more than twenty years later, collaborative systems and computer interfaces continue to be organized around English and Eurocentric ideologies and designs. While features of computer interfaces have been used by system developers to gain a sense of appropriate behavior framing, this sense of appropriate behavioral framing conditions for a particular identity result that is conditioned by western patterns of understanding, associations, and expectations.

On Using Place as an Interface

First of all, a place does not have to be a physical meeting point. Place embodies sensory-data (Casey, 1996). Place is a meaningful location that refers to the material setting for social relations. Through participation and daily performances, we produce knowledge about a place and produce a sense of belonging (Cresswell, 2002). Cresswell writes, "Even imaginary places, like Hogwarts School in Harry Potter novels, have an imaginary materiality of rooms, staircases and tunnels" where things and actions take place (p. 7). Placeness is sustained by patterns of use, which makes placeness take on the characteristics of the behaviors enacted. We get a sense of something from a place by being there, but we can also get a sense of a place by how it's represented because it shapes how we perceive it. For example, media spaces can become places through the connections and patterns of use among users. Sometimes, placeness can emerge without the underlying notion of space, and this can be seen in virtual communities or diaspora communities who hold together their places through their behaviors and affections.

As mentioned earlier, Gane and Beer (2008) suggests interfaces are cultural and should be understood as spatial forms that are tied to broader sets of social and cultural dynamics. Using this definition of interface allows us to see that an interface is not limited to the screen. For this reason, a place as an interface would allow others to access sensory-data of that place. Place also takes us in-between the screen. For example, in *Voices from the Plain of Jars,* Branfman (2013) uses multimodal composition methods to engage refugee villagers in storytelling. The text was originally published in 1972 as a collective memoir authored in part by the villagers who experienced life under automated air war. Although the book didn't sell well as admitted by the author, it did receive wide critical acclaim. Its material appeared in television shows, opinion editorials in the *New York Times*, and peace movement publications. It now lives as a physical book and an e-book. It offers a space both inside and outside of the classroom for engagement. Its sense of place exists outside the institution. Its engagements may occur in the classroom, but on another level

the engagements occur at the level of the imagination and wonder.

From the reader or viewer's perspective, the images and texts create for them a sense of place through the sensory-data. There are consistent themes of bombs raining from the skies, colored rain, maimed bodies, disfigured homes and landscapes. The reader gets a sense of the place through the villagers' sensory-embedded drawings. From the other side, the composer displays their own sensations through art. The chaos experienced is framed into the making of their art (Grosz, 2001). As the composer is drawing from their own experience, the audience is drawing from their own experience. This act of drawing is situated through the interface, and both engage in expertise through their own ability to make sense and interpret sensations. The Plain of Jars moves from myth, or epistemology, to phronesis through sensory-data, and in a way through techné as making sense. Users arrange their understandings to make sense in ways that mean something to them.

Conclusion

With digital media and the computer, we can further explore places and get a sense of them. By zooming in, we see that places help us filter relevant information that we have experience with. By using place as an interface, the borders of the electronic contact zone bleed into what we know about the world, and what we know can move in-between the computer interface and our institutional spaces by allowing both audience and composer to exercise their expertise. Beyond being in a place, thinking through a place shapes the processing of information. When you are in a place, you understand what might go on in that place. You take on the characteristics of that place through wonder. Where we come from composes us and shapes what we compose because it is a lived, embodied experience of those places. Thus, in using place as an interface, we explore connections, relations, habits, patterns of experience, and engage in the possibility of knowing things about multiple realities, each other. The computer can afford us connections to interfaces. I propose that we continue to explore ways in which we can use place as an interface to allow others to access their experiential knowledge not for only composition but also as a resource in their daily transactions. As for the Plain of Jars, to understand its history, or any place really, you can only understand the history through what is represented and your own experience. Now, we could connect different experiences and could access the sensory-data of a place. And by extension, the sensations of others, even those vastly different from us, are potentially mobile across contact zones. This approach addresses the politics of the interface, and it offers a strategy for empathetic and ethically oriented engagements.

References

Banning, James, & Canard, Manuel. (1986). The physical environment supports student development. *Campus Ecologist*, *4*(1). Retrieved from http://www.campusecologist.com/volume-iv-number-1-1986/

Branfman, Frank. (2013). *Voices from the Plain of Jars* (2nd ed.). Madison, WI: University of Wisconsin Press.

Casey, Edward. (1996). How to get from space to place in a fairly short stretch of time: Phenomenological prolegomena. In Steven Feld & Keith Basso (Eds.), *Senses of place* (pp. 13–52). Santa Fe, NM: School of American Research.

Cresswell, Tim. (2002). Theorizing place. In Ginette Verstraete & Tim Cresswell (Eds.), *Mobilizing place, placing mobility* (pp. 11–32). New York, NY: Rodopi.

Delagrange, Susan. (2011). *Technologies of wonder: Rhetorical practice in a digital world*. Logan, UT: Utah State University Press.

DeVoss, Danielle, Cushman, Ellen, & Grabill, Jeffrey. (2005). Infrastructure and composing: The when of new-media writing. *College Composition and Communication*, *57*(1), 14.

DeVoss, Danielle, Haas, Angela, & Eyman, Doug. (2006). Fostering and sustaining an ecology of digital writing: Community, engagement, and application. Presented at the Computers and Writing Conference, Texas Tech University, Lubbock, Texas, May 25-28, 2006.

Edbauer, Jenny. (2005). Unframing models of public distribution: From rhetorical situation to rhetorical ecologies. *Rhetoric Society Quarterly*, *35*(4), 5–24.

Gane, Nicholas & Beer, David. (2008). *New media: The key concepts*. London: Bloomsbury.

Grosz, Elizabeth. (2001). *Architecture from the outside: Essays on virtual and real spaces*. Cambridge, MA: MIT Press.

Halverson, Richard. (2004). Accessing, documenting, and communicating practical wisdom: The phronesis of school leadership. *American Journal of Education, 11*(1), 90–121.

Hess, Aaron. (2011). Critical-rhetorical ethnography. *Communication Studies*, *62*(2), 127–152.

Massey, Doreen. (1993). Power-geometry and a progressive sense of place. In John Bird, Barry Curtis, Tim Putnam, & Lisa Tickner (Eds.), *Mapping the Futures* (pp. 59–69). New York, NY: Routledge.

Metzger, David, & Katz, Steven. (2010). The "place" of rhetoric in Aggadic Midrash. *College English*, *72*(6), 638–653.

Reynolds, Nedra. (2004). *Geographies of writing*. Carbondale, IL: Southern Illinois University Press.

Schmitt, Casey. (2015). Contours of the land: Place-as-rhetoric and Native American effigy mounds. *Western Journal of Communication*, *45*(4), 307–326.

Selfe, Cynthia, & Selfe, Richard. (1994). The Politics of the interface: Power and its exercise in electronic contact zones. *College Composition and Communication*, *45*(4), 480–504.

Syverson, Margaret. (1999). *The wealth of reality: An ecology of composition*. Carbon-

dale, IL: Southern Illinois University Press.
Walls, Doug, Schopieray, Scott, & DeVoss, Danielle. (2009). Hacking spaces: Place as interface. *Computers and Composition*, *26*(4), 269–287.

Representing Diversity in Digital Research: Digital Feminist Ethics and Resisting Dominant Normatives

Sweta Baniya, Purdue University
Les Hutchinson, Michigan State University
Ashanka Kumari, University of Louisville
Kyle Larson, Miami University (OH)
Chris Lindgren, Virginia Tech University

In this paper, the authors consider how their engaged practices of feminist ethics have come up against specific dominant normatives. Privileging the experiences of women of color, they question the embodied relationship they have with their research participants, and offer their methodological approaches for addressing ethical challenges that have surfaced through conducting their research in both digital and non-digital spaces and places. Collectively, they collaborate to develop newfound strategies and methodologies for negotiating the often mundane, micro-level moments of friction that prevents intersectional phronesis. Overall, they pitch ethical research practices for digital and non-digital research with diverse subjects of different races, backgrounds, and cultures such that voice(s) are not compromised during research.

How can digital rhetoricians conduct research that centers itself upon practicing what we refer to as intersectional phronesis? We begin to develop this term by taking up social problems that Crenshaw (1991) defines as the often neglected "intersections of racism and patriarchy" (p. 1242). By phronesis, we extend Dolmage's (2014) work to mend the separation of metis (embodied cunningness) from phronesis (abstracted, scientific knowledge). Indeed, Crenshaw's call for intersectionality allies easily with Dolmage's (2009) recognition about how "bodily difference fires rhetorical power" (p. 8), and that rhetoricians too often normalize masculine bodies as the ideal rhetor. In this paper, we argue that an intersectional phronesis positions digital rhetoric to become "significantly bodied" (p. 4). In what follows, we each offer the field our own stories that enact this rhetoric—an embodied cunning that develops a wisdom that Royster and Kirsch (2012) refer to as a "polylogical social practice" (p. 95).

Sweta Baniya: Ethical Representation of Women in Digital Spaces during Emergency/Disaster

"It is dark disaster that brings light," says Maurice Blanchot (1995) in his book *The Writing of the Disaster*. Disaster is unpredictable, comes unannounced, and leaves insurmountable amount of disparity and chaos in the lives of people, community, and country. In addition to chaos and disparity, like Blanchot says, it also brings some light. In a globalized and digitized world, disaster creates ripples of affective attunement (Papacharissi, 2015) in online as well as offline spaces providing rhetorical agency to the networked publics to mitigate challenges of the disaster.

Nepal, one of the world's smallest countries, suffered through a massive earthquake on April 25, 2015 that killed around 8,856 people and injured 22,309 others. With this 7.5 magnitude earthquake, Nepal underwent a lot of destruction, disruption, and disjuncture. On the other hand, this earthquake allowed the world to think about Nepal, to support Nepal, and to engage with Nepal. Nepal Earthquake 2015 thus created the circulation of discourses such as a) narratives filled with data and information, b) creation of a dynamic contact zone for the global and the local to come together through a collective globalized digital action, and c) the images and stories of women and children.

I started working at an international organization as a communications practitioner after the Nepal Earthquake. My job was to create digitally saleable stories about the survivors of the earthquake. In 2016, a blog post I wrote about a woman for European Union's website got 400,000 hits and 26,000 likes on Facebook. Those stories especially shared on digital media were mostly about women and children because stories about women and children were more pathos-driven as they were among the highly vulnerable populations during the catastrophic event. Like the organization I was working in, many other western organizations were also publicizing similar stories about women and children, their suffering, and how they were being supported in the digital sphere.

Additionally, I reflect back on my own practices as a communication practitioner and how my purpose was to just fulfill the demands of my job. Reflecting on my work allows me to understand the complexity of fulfilling the demand of the job as well as being responsible about the narratives of people I was writing and sharing. Before coming back to school, I had never been taught about the ethics of representation, but reflecting back with rhetorical education today, I understand my practices and its consequences of representing woman of color in digital media. The images I used for the blog

posts and photo stories were of women's suffering only because they were pathos-driven and fulfilled the nature of the job during that time. In the future, communication practitioners could be trained on responsible representation images of women and children during the time of crisis. This knowledge of human suffering during the disaster gets highlighted and ethics of representing them gets shadowed. With a self-reflection of my own work and analysis of practices of other organizations, I argue that, professional writing practices should include ethical representation of women and children especially during any kind of disaster, and such representations should be emphasized, highlighted, and practiced.

Les Hutchinson: Embodying Reciprocal Research Practices in Relation with the Land

Walking the Ledges Trail one spring morning, I realized that a seemingly everyday experience was actually a complex facet to my forming an ethical research methodology. I have been walking this same trail during the entirety of my time living in central Michigan while earning my PhD. This trail gives me a sense of comfort from the challenges of graduate school; it also provides me with a deep understanding of the land. I walk this land thanks to the centuries of Indigenous epistemological practices that saw a trail that lines the Grand River as a source of knowledge-making. For my research, intersectional phronesis begins by recognizing the land as not only a research participant, but a place where we form all our research relations.

Anishinaabe researcher Kathleen E. Absolon (Minogiizhigokwe) establishes (2011) that "Indigenous research is often guided by the knowledge found within. Aboriginal epistemology (the ways of knowing our reality) honours our inner being as the place where Spirit lives, our dreams reside and our heart beats" (p. 12). Absolon's view of Indigenous epistemology informs methodological practices that support the subjective, personal ways we come to know both in respect to who we work with, but also the places where we learn. Indigenous methodologies call on us, as researchers, to recognize the land as an integral source of knowledge.

Like Absolon, Louise Erdrich (2003) reminds, "Books are nothing all that new. People have probably been writing books in North America since at least 2000 B.C. Or painting islands. You could think of the lake as libraries" (p. 3). Erdrich writes about how the land continues to teach her how to live. She describes the ways the Ojibwe have written with the land, on the land, and from the land. Books, rock paintings, and even the shifting language of the lakes all are stories meant to educate us and inform our place in the world. This

place that we occupy, when following Indigenous epistemologies, sustains itself through practices that sustain the land—that recognize that we exist in relation with the land.

When we talk of phronesis as embodied feminist practice for acquiring intersectional wisdom, Indigenous land-based epistemologies align themselves well. A practice that highlights such alignment is relationality. The Cultural Rhetorics Theory Lab (2015) draws on Shawn Wilson's definitions of relationality in *Research is Ceremony*. They recall that "For Wilson, to enact relationality means to understand one's relationship: to land, people, space, ideas, and the universe as interconnected and fluid. Relational accountability is *how* one is respectful and accountable to those relationships (i.e., practices)" (Act II). The practice of relationality calls on us to consider place—where we come to know—as an essential, given source of data. Indeed, the land teaches us much of what we know, but shapes *how* we come to that knowing.

I walk the Ledges Trail, writing the thoughts about the land and methodology on the Notes application in my phone. Embodied and connected to the device responsive to my fingertips, my mind is thinking about the land, but not with the land. Haas (2018) bids us remember that our bodies are never in isolation from the networked spaces we inhabit, but live relationally to them as well. My mind places my body inside the technological extension. At that exact moment when fingers type while feet step, my foot catches a corner of ground that shifts downward. My ankle bends wrongly, and I fall, spraining it. This happens because I was elsewhere. I laugh then, at myself, and the lesson learned. Relational accountability, to go back a little, urges me to question how respectful I was to the land's story so kindly shared with me. The Ledges Trail is approximately 300 million years old. I can only imagine the stories it has told over this time. I reckon I have a few more to learn before I leave.

Ashanka Kumari: A Reflection on Researching Your Friends and Colleagues

When I chose to pursue a dissertation project looking at first-generation-to-college doctoral students in rhetoric and composition, I recognized the necessity to position myself within this project. I, too, am a first-generation student. My features and body reveal my Indian-American identity whenever I enter a space, and many times in this case, a Skype video call. In determining my participant pool for this semi-structured interview- and document-based project, I chose to include myself and act as both a researcher and interview participant. This critical self-reflection allows my story to additionally inform the conclusions and narratives of first-generation rhetoric and composition doctoral students I collect, analyze, and present.

I am cognizant of several ethical considerations as I conduct my dissertation research study. First, I acknowledge my position as a current graduate student in one of the two programs I am studying. Several of my participants are undoubtedly people I consider close friends in my department. Gesa E. Kirsch (2005) remarks that researchers must be careful to consider and "delineat[e] clear boundaries" as researchers "so that neither party unwittingly compromises expectations of friendship, confidentiality, and trust" (p. 2166). Kirsch cites Pamela Cotterill (1992) who "reminds us that 'close friends do not usually arrive with a tape recorder, listen carefully and sympathetically to what you have to say and then disappear'" (as cited in Kirsch, 2005, p. 2166). With all of my participants, and especially with colleague-friends, I strive to remain clear about the goals of the interview and my research study. Further, I do my best not to discuss interviews in conversations outside the interview space or in the context of my dissertation project unless I am clarifying or following-up with participants regarding interviews, my project, and vice versa. However, as with most research, many of these choices are easier said than done. For instance, while transcribing an interview with a friend-colleague, it became tempting to send a text about a particular comment the interviewee had made. In this moment, I found myself drafting a text briefly before pausing and deleting. Each part of the research process requires continued critical, conscience attention to my relationships with myself, my participants, friends, and colleagues.

As I begin writing about my data, I plan to have my participants involved in various stages of the process to offer them moments to "qualify and challenge [my] reading" and understanding of our conversations and represent their comments accurately (Newkirk, 1996, p. 12). I share transcripts with my participants and give them an opportunity to clarify or omit anything off my record before analyzing my data. Once I write the analysis, I will similarly share chapters with participants to give them a chance to see how their words are being used and interpreted and offer participants time to respond to my interpretations. As Thomas Newkirk (1996) reminds, it is the ethical "responsibility [of researchers] to include participant interpretations even if they conflict with the judgment the researcher is making" to make fair claims (p. 13–14). Finally, all participants are assigned pseudonyms to protect their identities; though, I recognize that a name change might not be enough to protect someone's identity and will also mask any other key identity-revealing details such as their past education, jobs, or names of advisors.

To be a responsible researcher, I must represent myself and my participants with care. When I spend time with my friends and colleagues outside of the project, I consider my position carefully when speaking. These relation-

ships now require conscious considerations to delineate ideas communicated to me in the confidence of a signed IRB-approved research study consent form with and against items told to me casually in conversation. All research is necessarily an embodied practice. However, we continually have to draw hard and soft lines in how we represent ourselves, our bodies, our confidants, colleagues, and research participants.

Kyle Larson: Collateral Violence in Research on Parasitic Publics

Trained in feminist methodologies, I highly value participatory research designs based in grounded theory and community uplift. I highly value my research with feminist counterpublics and the relationships that digital feminist ethics helped me build with participants. But researching a digital white nationalist collective has made me reflect on what a digital feminist ethics entails when the research population is not communities experiencing oppression, but communities actively working to further oppression.

Formed on Stormfront before creating its own digital spaces, "Swarmfront" is a highly organized collective. It swarms digital platforms with demagogic rhetoric against (among other things) "genocidal" immigration and "forced" interracial relationships, propagating their "mind viruses" for more than 10 years now to make these platforms and people on them more susceptible to their ideology. Along with training podcasts on Swarmfront politics and debate strategies, its members use a *massive* online "instructional" seminar called "Bob's UnderGround Seminar" (or BUGS, which is also what its members call themselves)—named after its founder Bob Whitaker, a Ronald Reagan appointee. Swarmfront also has a rhetorical style guide of 19 tactics for spreading propaganda and a topical database called "BUGS Buddy" of copy-and-paste responses used for raids. And in order to raid these platforms collectively, BUGS post links to targeted platforms on a sub-forum titled "Where did you post the Mantra today?"

As someone committed to social justice and in a long-term interracial relationship, I recognize as a central ethical challenge the possible collateral violence that can result from this research. At first, I abandoned the research for this reason. My partner identifies as a biracial Black woman, and we both fear the possibility of her being attacked. After the events in Charlottesville, however, she told me to use my privileged position as a white man to pursue the research and expose Swarmfront *as* a collective, undercutting BUGS' attempts to appear as many individuals on a digital platform who just so happen to share ideologies. I therefore convened a group research meeting with faculty mentors to ensure that the research privileges her safety as an ethical necessity.

A digital feminist research ethics necessarily entails a commitment to social justice. The commitment then requires a critical interrogation of at least two ethical challenges of exposure for this research: (1) potentially dangerous exposure of myself as a researcher—and therefore my partner—during and after the research process and (2) unintentionally beneficial exposure for Swarmfront and its ideologies through publication and citation.

In this context, establishing a researcher-participant relationship with Swarmfront's BUGS would be unethical and, frankly, careless. Among other things, I take technological and procedural precautions in how I access their texts and how much I access at any given time, not knowing to what degree digital activity might be monitored. Texts indicate that Swarmfront maintains private backchannels, but accessing those spaces would also require receiving informed consent to use the collected information as found data. I instead created Google Alerts for main "mantras" to help me better document and understand Swarmfront activities that might not be publicly archived on its digital spaces, but are still publicly available on the swarmed platforms.

Importantly, ethical attention must extend beyond data collection into the rhetorical ethics of framing and citation for publication. Circulating demagogic rhetoric uncritically perpetuates injustice, helping perform the work of demagoguery. I attempt to mitigate the risk by theorizing this collective as an example of what I call "parasitic publics" (as opposed to counterpublics). This theoretical frame heavily historicizes Swarmfront's demagogic rhetoric with pro-slavery, pro-segregationist rhetorics—a practice of critical contextualization that seeks to undercut the ways in which demagoguery can operate through dehistoricization and disinformation. And with citation as feminist memory (Ahmed, 2017), refusing direct citation of this parasitic public's demagogic rhetoric in the final publication performs a citation politics of just erasure as a practice of digital feminist research ethics.

Chris Lindgren: A Reflection on Unmarked Logistical Practices of Field Research

Field research is messy. Graduate programs attempt to tame this messiness through institutionalized coursework in research design, disciplinary epistemologies, and becoming well-read across different problem domains. When I was confronted with the task of selecting a research site, I realized how my training had not prepared me for such a difficult networking process. Indeed, site *selection* fails to justly capture the process involved in meeting and building a relationship with research participants. While my story ends

happily, I speculate that much of my success amounts to a network of support and privilege afforded by my own being as slightly older, able-bodied, cisgendered, white male.

In what follows, I reflect upon my experiences negotiating the technology industry with the attempt to instigate future inquiry into the polylogical nature of the embodied work to locate a research site. It is imperative that Computers and Writing researchers yield more field-based research projects, so we can contribute to intersectional theories and activist research agendas within professional domains. Like many industries, the technology sector has long been known for its biases against any person who is not white, cisgendered, and male (Abbate, 2012; Hicks, 2017), so what gaps in graduate mentoring can be marked by reflecting on questions of when, during a novice's first venture into the field?

I use these questions to identify unmarked boundaries that potentially impede successful and nurturing graduate experiences by reflecting on my graduate research experience as I attempted to find a site for field research. Overall, I offer my narrative as a small step toward developing an intersectional phronesis within the organizational context of graduate programs. I highlight how the arrival and constitution of my case-study was, has been, and is a reflexive negotiation between my identity, research goals, and my substantive experiences with the broader technology industry in which I sought out to study.

Some Embodied Differences During My Site Selection

My selection process involved a rough 6 months of cold calls and meet-and-greets. I followed leads provided by fellow colleagues, friends, and others whom I met along the way. I engaged different computer-coding communities through correspondence and events such as hackathons and meetups. After some time, I found myself inundated with phone calls, emails, LinkedIn message threads. These forms of communicative labor included invisible time and money, none of which I did not anticipate. I hosted people in restaurants and coffee shops, and I attended more hackathons and more programmer community meet-ups.

Along the way, I experienced two main fears in response to my research requests, which can be characterized as fear of 1) leaking of industry secrets, and 2) fearful managers who interpreted me as a threat to productivity. Regarding the first fear, the texts that developers write are defined as patented and licensed technologies. Consequently, many domains with patent-protected hardware and closed-licensed code rejected my requests. Secondly, managers feared that I would harm their productivity. One manager noted how

my research would "take developers from their chairs." Overall, my presence was perceived as suspect and a potentially costly endeavor.

What if I wasn't me?

I look like the majority of people who sustain power in the technology industry: white, heterosexual, and male. How differently would this process have gone, if not for my personal embodied relations? I didn't need to justify my participation in community meetups, hackathons, or email chains. Yet, how would I advise a graduate student to network in these contexts and situations, if they didn't have this embodied sameness? These are questions that I carry forward into my new status as a tenure-track faculty, who will train up the next generations of researchers.

Currently, our discipline borrows training and methodologies from other fields across the humanities and social sciences. Spinuzzi (2018) remains the most thorough treatment of fieldwork preparation and conduct. He helps researchers draft important documents and consider much of the logistical issues noted herein. However, Spinuzzi's adherence to Activity Theory permeates his advice, which requires a commitment to implicitly neutral ideas about "breakdowns" in professional information-workflows. Indeed, feminist organizational researchers (Acker, 2006; Fletcher, 2001; Tatli and Özbilgin, 2012) readily admit their own difficulties to identify how ideological-informed readings of bodies affect workplace communication. In the conclusion below, I ask more questions of privilege that are more easily marked, if we begin with an intersectional phronesis: an eye cast toward the socially organized ways bodies make differences, as much as they make unmarked sameness.

Phronetic Futures

In an effort to move toward a conclusion to this short article, we offer a list of phronetic futures to our individual projects. We felt limited by word-count but also bolstered by sharing space with one another. Together, we question what our bodies go through as we engage in our research: finding research sites, engaging with our participants, recognizing the land where we learn as an additional research participant deserving of ethical attention, and preserving discursive memories while honoring contemporary voices that are often silenced while silencing those that have spoken too loudly within our history.

Baniya, through her embodied experiences and international organization work, offers an understanding of how ethical phronetic practices could be used outside of academia to represent diversity during times of disaster. She uses iconographic tracking developed by Gries (2015) as her methodology

to trace practices of using images of women and children during disasters. She questions: how can feminist ethical practices be used in international workplaces for establishing cross-cultural communication that helps to mitigate the challenges put forth by the disaster?

Hutchinson offers that an intersectional phronesis engages the land where we come to know as an active research participant in our scholarship. Ethical, intersectional feminist research can embrace Indigenous methodologies by recognizing the knowledge-making practices that predate, yet include our bodies. In going forward, she asks: how is *what* we research shaped by *where* we research?

Kumari questions the motivations of graduate program designers and leaders in considering intersectional identities and experiences that shape the people in all their embodiment that navigate doctoral programs. Similarly, how might researchers consider their own intersectional phronesis when conducting empirical research on populations within which they additionally participate?

Larson asks other privileged scholars to consider how feminist research ethics involves an intersectional phronesis of responsibility. It's an ethical responsibility to undertake troubling research increasingly experienced as violent for those with less privilege and especially for those whose embodied identities are being actively targeted. It's an equally important ethical responsibility to account for possible collateral violence during and after this process. And in necessarily taking on this responsibility, what does self-care entail?

Lindgren calls for an intersectional phronesis that supports graduate students as faculty prepare them for the mess of field research. Spinuzzi (2018) offers a starting point. Yet, I suggest that the field would benefit from marking the embodied complexities of fieldwork, which ought to begin with intersectional theories. Consequently, how do we recognize privileged access to resources befit for networking within professional domains, or the logistics of field research shape and are shaped by implicit bodily differences of gender, race, sexuality, and able-bodiedness?

References

Abbate, J. (2012). *Recoding gender*. Cambridge, MA: MIT Press.

Absolon, Kathleen E. (Minogiizhigokwe). (2011). *Kaandossiwin: How we come to know*. Blackpoint, NS: Fernwood Publishing.

Acker, Joan. (2006). Inequality regimes: Gender, class, and race in organizations. *Gender and Society, 20*(4), 441–464.

Ahmed, Sara. (2017). *Living a feminist life*. Durham, NC: Duke University Press.

Blanchot, Maurice. (1995). *The writing of the disaster*. Lincoln, NE: University of

Nebraska Press.
Crenshaw, Kimberlé. (1991). Mapping the margins: Intersectionality, identity politics, and violence against women of color. *Stanford Law Review, 43*, 1241–1299.
Dolmage, Jay T. (2009). Metis, mêtis, mestiza, medusa: Rhetorical bodies across rhetorical traditions. *Rhetoric Review, 28*(1), 1–28.
Dolmage, Jay T. (2014). *Disability rhetoric*. Syracuse, NY: Syracuse University Press.
Erdrich, Louise. (2003). *Books and islands in Ojibwe country*. New York, NY: HarperCollins.
Fletcher, Joyce. (2001). *Disappearing acts: Gender, power, and relational practice at work*. Cambridge, MA: MIT Press.
Gries, Laurie E. (2015). *Still life with rhetoric: A new materialist approach for visual rhetorics*. Logan, UT: Utah University State Press.
Haas, Angela M. (2018). Toward a digital cultural rhetoric. In Jonathan Alexander & Jacqueline Rhodes (Eds.), *The Routledge handbook of digital writing and rhetoric* (pp. 412–422). New York, NY: Routledge.
Hicks, Marie. (2017). *Programmed inequality: How Britain discarded women technologists and lost its edge in computing*. Cambridge, MA: MIT Press.
Kirsch, Gesa E. (2005). Friendship, friendliness, and feminist fieldwork. *Signs: Journal of Women in Culture and Society, 30*(4), 2163–2172.
Newkirk, Thomas. (1992). The narrative roots of case study. In Gesa E. Kirsch & Patricia A. Sullivan (Eds.), *Methods and methodology in composition research* (pp. 130–152). Carbondale, IL: Southern Illinois University Press.
Newkirk, Thomas. (1996). Seduction and betrayal in qualitative research. In Peter Mortenson and Gesa E. Kirsch (Eds.), *Ethics and representation in qualitative studies of literacy* (pp. 3–16). National Council of Teachers of English.
Papacharissi, Zizi. (2014). *Affective publics sentiment, technology, and politics*. Cambridge, UK: Oxford University Press.
Powell, Malea, Levy, Daisy, Riley-Mukavetz, Andrea, Brooks-Gillies, Marilee, Novotny, Maria, Fisch-Ferguson, Jennifer, & The Cultural Rhetorics Theory Lab. (2014). Our story begins here: Constellating cultural rhetorics. *Enculturation*, (18). Retrieved from http://www.enculturation.net/our-story-begins-here
Royster, Jacqueline J., & Kirsch, Gesa. E. (2012). *Feminist rhetorical practices: New horizons for rhetoric, composition, and literacy studies*. Carbondalel, IL: Southern Illinois University Press.
Spinuzzi, Clay. (2018). *Topsight 2.0: A guide to studying, diagnosing, and fixing information flow in organizations*. Austin, TX: Urso Press.
Tatli, Ahu, & Özbilgin, Mustafa. (2012). Surprising intersectionalities of inequality and privilege: The case of the arts and cultural sector. *Equality, Diversity and Inclusion: An International Journal, 311*(3), 249–65.

LinkedIn as a Phronetic Approach to Digital Literacy

Theresa M. Evans, Miami University

Eyman and Ball (2014) noted that nearly all composition today is digital, and they argue that composition studies should emphasize that shift in discussions about digital literacy. Nearly all job search and application processes today are digital, making LinkedIn a practical platform for teaching digital literacy. This essay elaborates on a phronetic approach to composition instruction using LinkedIn, responding to Eyman and Ball's call for classroom practices that focus on "three layers of digital composing": rhetoric, design, and code. As social practices and genre conventions move into the digital realm, instructors must learn how to help guide their students in the practical and ethical uses of those spaces. A digital presence assignment in a business communication course addresses Eyman and Ball's three layers of digital composing through an analysis of LinkedIn's rhetorical situation, creation of a LinkedIn profile page, and production of an elevator-speech video with closed captioning. This multimodal project includes self-reflection, problem-solving, and development of technical proficiency. A phronetic approach uses LinkedIn as a site of critical reflection for reading and composing, alternately asking students to question its conventions, maximize its affordances, and creatively resist its constraints, as they consider their purpose in participating in this professional network.

Eyman and Ball (2014) noted that nearly all composition today is digital, and they argue that composition studies should emphasize that shift in discussions about digital literacy. For composition instructors, Eyman and Ball recommended classroom practices they refer to as "three layers of digital composing": rhetoric, design, and code. This approach relies on phronesis—the kind of wisdom relevant to practical action—which requires an ability to discern how or why to act virtuously and a willingness to encourage practical virtue in others.

As social practices and genre conventions move into digital spaces such as Facebook, Twitter, and LinkedIn, writing instructors must be prepared to advise their students in the practical and ethical uses of those platforms. For example, courses in technical and business writing often include a segment on creating job application materials, and today nearly all job-search and application processes are digital, making LinkedIn an ideal candidate for taking a phronetic approach to digital literacy.

My interest in LinkedIn comes from teaching an advanced business communication course developed at my institution by an interdisciplinary team representing business, communication, and rhetoric and composition (I was part of that team). Launched in Spring 2016, the course is required for all business majors and open only to business majors. Business students are expected to use digital networking tools to find internship opportunities, so the first segment of the course is devoted to creating an effective digital presence, with particular attention directed to creating or improving a profile on LinkedIn (Students who prefer not to establish an account with LinkedIn have the option to create their profile offline). The evaluation of the assignment is based on the profile itself; however, I design class discussions and activities that interrogate additional aspects of the site, such as connecting and interacting with others.

Peterson and Dover (2014) outlined a similar assignment for a marketing class; however, they focused on the how-to aspect of LinkedIn in an assignment that demanded not only that students create a robust profile, but that they also provide evidence of active participation through connections and interactions. Missing was what Selfe (1999) called *critical technological literacy*, a reflective awareness of "the complex set of socially and culturally situated values, practices, and skills involved in operating linguistically within the context of electronic environments" (p. 148). Also absent was the tempered enthusiasm of Alexander and Rhodes (2014), who raised concern about how we are using technology and how technology is using us: "We must see the creeping kinds of normalizations and disciplinary regimes that condition our experience of available freedom" (p. 197). Peterson and Dover appeared to accept LinkedIn without question as the way business networking is done today: Students were mandated to learn how to use it and to demonstrate evidence of its benefits, not to interrogate its purpose, practices, or design. A phronetic approach to LinkedIn is an attempt to help students notice both the practical concerns of how-to and the wise concerns of why and for whom.

As a relatively new user of LinkedIn myself, I do not set myself up as an expert; however, I am somewhat of a resister and a questioner, a reluctant user who feels obligated to be on the platform, not only because I teach this particular assignment, but also because I am under the constant pressure of job-searching and job-researching, as a tenuously employed, non-tenure-track academic.

In this essay based on my presentation at Computers and Writing 2018, I elaborate on how instructors can use LinkedIn to respond to Eyman and Ball's call for three layers in digital composing. First, I will discuss the rhetorical aspects of LinkedIn, which provide an immediately practical incentive for students—and a potential for immediate results—no matter what the focus

of the writing course. Next, I make a case for the "code" of LinkedIn, loosely defined as the technical aspects related to plug-ins, file requirements, and image formats (such as the aspect ratio for banner images). Finally, I discuss the multimodal design possibilities and constraints of a LinkedIn Profile.

The Rhetorical Situation of LinkedIn

Ideally, producers of digital texts consider their purpose, potential audience, and the affordances and constraints of the digital platform. Given that conventions evolve from socially agreed-upon practices, I was not surprised to find that LinkedIn practices appear to evolve from "experts" advising on the proper use of the social media network, to users whose activities on the platform shape expectations for its use, and the affordances and constraints of the platform itself. LinkedIn is continually changing, adding, and promoting new features. Users influence the conventions by accepting or rejecting advice about the purpose of and audience for LinkedIn—and by maximizing the affordances and working around the site's constraints.

LinkedIn merges job application materials with networking and self-promotion. In a study of hiring practices, Gershon (2017) found that resumes have evolved from historical record to marketing strategy, from a paper document directed to a limited set of readers to a digital profile potentially viewed by a wide audience. The results of Gershon's study indicate that job seekers today are expected to be public about their job search, presenting themselves as branded "bundles of temporary business solutions" (p. 88); by creating a LinkedIn profile, they create a database for recruiters. Gershon wondered how dangerous it is to be public and questioned whether LinkedIn users have much control over their image, given that they have limited control over how an audience is viewing their profiles and interpreting their intentions.

I have so far not been as active on LinkedIn as perhaps I should be. Active is defined as constantly updating one's profile, daily adding and sharing information and knowledge, making the time and finding the excuses to connect with and continually interact with other people, and shaping and promoting one's "brand" in ways that also seem to serve the purposes of the site and its advertisers. The idea of presenting a professional self at all times has further added pressure to somehow be genuine, approachable, and to have a sense of humor, without being too transparent, too personal, and too lighthearted to be taken seriously. Then there are the recommendations: Given that companies rarely provide information about former employees beyond their start and end dates, the question is how advisable it is to recommend LinkedIn connections for their work or skills. How much do users really know about their connections?

How connections work on LinkedIn is often a source of confusion. Gershon has stated, "When people first start using LinkedIn, they often are uncertain about how to decide whom to connect to, since a LinkedIn connection is an element of the LinkedIn participant structure that is specific to LinkedIn" (p. 133–34). For example, friends, acquaintances, and family outside of a person's professional field do not necessarily make good LinkedIn connections; such decisions should be based on how each connection reflects on the professional's reputation, as a connection could also be seen as an implicit recommendation. Further, a Dutch study (Utz, 2016) comparing Facebook, Twitter, and LinkedIn suggests that networks of wider, more distant acquaintances have less redundancy of information and thus alert users to more opportunities. Although LinkedIn showed the highest benefit for gaining information, for all three platforms, "posting about professional content and strategically adding relevant people to one's network turned out to be the most important predictors of professional informational benefits" (Utz, 2016, p. 2700).

There is no shortage of advice on how to use LinkedIn. Articles available online tend to be numbered lists of what to do or what not to do, many echoing similar articles that also rarely dig deeply into the pros and cons of , and just a few suggesting that users might have varying purposes for being on the site or good reasons for being wary of the site. Gershon pointed out that job-seeking advice often presents the self-interested view of the advice-giver, not how things really are. Likewise, advice for specific platforms, such as LinkedIn, often come from self-interested parties, including LinkedIn itself.

Reading the advice is where the class project starts: Students read about a half dozen short online articles offering advice about creating a LinkedIn profile and interacting with others on the platform (See Appendix). During class in small groups, students analyze the articles to determine where the so-called "experts" agree and disagree—and also discuss how the students themselves feel about the advice. They then present their findings and interpretations to the class (See Appendix).

Students spend another class session reviewing profiles of professionals in their prospective fields; for example, they search for other college students and alumni with the same major, along with professionals in fields and at companies they are interested in. Again, in small groups, students discuss and interpret their findings for the whole class (See Appendix). For example, students tend to notice that older professionals, especially those in executive positions, have limited profiles or profiles that appear to be written by a third party. Students may initially assume that older professionals are less technologically proficient or less rhetorically astute in digital environments; however, this observation evolves into a key lesson about purpose and audience. They begin to understand that a person's position of power—or lack of

power—within the professional network influences self-presentation: older established career professionals may have less need for a polished and expansive presence. Established career professionals with secure positions likely already have an established network of colleagues. They may be on LinkedIn to observe others rather than to sell themselves.

For peer response, I create a discussion forum on Canvas, and students post the links to their profiles. Students who already have LinkedIn accounts choose whether to revise for peer response or to get feedback on their existing profiles. Peers reply directly to each post and their responses are limited to the landing page (no clicking in and no scrolling required). Every student responds briefly to every other student in the class (23 students in a section, which takes up most of the hour-and-15-minute class period.) The purpose of this activity is to simulate the instant impressions a potential employer may have while looking at many profile landing pages; accordingly, students are instructed to offer each peer one positive impression and to suggest one improvement for the final revision. Students can get a better idea of what needs work on their profile when they get multiple compliments or suggestions on the same sections. I participate in peer response along with the students, placing my comments in the grading portion of the discussion forum.

If the course schedule allowed for a second peer-response session, I would offer another peer-response activity focused on the summary and experience sections. We have at most only three class days available for the LinkedIn Profile assignment within the overall Digital Presence module; some instructors have only two days, if their class meeting day falls on a holiday. Students are encouraged to get additional feedback at the business school's writing center and to seek additional feedback from me via email or my office hours.

Technical Aspects of Composing in LinkedIn

Few would dispute that understanding the technical aspects of composing in LinkedIn is a practical skill; however, Selber (2004) emphasized that such functional literacy is inadequate "without the richly textured insights that critical perspectives can provide" (p. 73). By producing their own LinkedIn profiles rather than merely analyzing the profiles of others, students experience difficulties that do raise critical questions and demand problem-solving to overcome initial failures and to work around legal and technical constraints. Eyman and Ball (2014) argued that technical knowledge in digital environments is broader than specialized coding expertise:

> Coding as literate practice also includes knowledge of appropriate file formats and technical infrastructure, such as knowing which graphic formats are most effective for a giv-

> en image, which encoding schemes will be most usable for delivering audio and video via the Web, and the importance of including transcripts and technical devices that ensure accessibility to the greatest number of users. (p. 116)

Technical aspects of creating a LinkedIn profile include understanding how to customize the LinkedIn page URL, how to link to personal blogs or websites, and how to upload content for readers to download. LinkedIn users must also know enough about digital photos to upload the proper file in the right resolution, to create a banner image with the correct aspect ratio, and to ensure all images are owned by the student, used with permission, or part of the public domain. This knowledge goes beyond the merely technical; for example, a user who posts a professional or banner photo with a digital watermark provides an instant impression of a lack of business ethics.

Another assignment in the digital presence segment of the business communications course asks students to create a potential addition to their LinkedIn profile in the form of a one-minute video of themselves delivering an elevator speech to prospective employers. Posting the video to their LinkedIn profile is optional, and the video is graded separately from the profile. The goal of the video is less about providing information through their words—which are already visible on the profile and through download of their resume—but more about appearing confident, competent, passionate, and likeable through the *techne* of their rhetorical performance, including visual image, stance, gestures, eye contact, pacing of their delivery, diction, and tone of voice. Technical considerations include the timing of the message, the framing of the image, the angle and focus and steadiness of the camera, the audio quality, the use of title slides, and transitions at the beginning and end of the video. Students also learn how to add closed captions to their video to increase its accessibility and how to set their search preferences on YouTube to allow more control over who sees the video by making it available only through a shared link.

Less obvious as a technical strategy, but especially important, is how students work around the constraints of limited technology resources and the limits of their technical expertise. I encourage students to welcome these constraints, which can help focus their efforts because they must be creative with the options available to them, rather than get overwhelmed with an unlimited array of options.

Multimodal Affordances and Constraints of the LinkedIn Profile

Burke (1954) said "a way of seeing is a way of not seeing" (p. 49); i.e., paying

attention to one object means another object is ignored. Lanham (2006) noted that the world is filled with too many objects; he argued that attention is our most precious resource whether we are paying attention or receiving it.

On LinkedIn, a site with more than 500 million profiles, users are both the objects competing for attention and the viewers who see or do not see. As objects, users compete for attention by carefully curating the aspects of themselves that best reflect their "brand," selecting and shaping what is revealed and not revealed. As viewers, users are attracted or not to profiles or parts of profiles of those they see as potential resources or potential competition. Although the design of the profile page is mostly controlled by LinkedIn, users can enhance that design through their choices of text, image, audio, and video.

Eyman and Ball (2014) called design "a rhetorical function that plays an important role in each of the canons of rhetoric, most obviously related to style (particularly in terms of visual rhetoric), but also of organization" (p. 115). Design has a way of organizing attention: What catches the eye first? A professional and rhetorically appropriate photo, a banner in complementary colors with visual images that reinforce the professional image, and a headline that clearly captures and summarizes the person's positioning as a professional with experience, key skills, and qualifications. Students must somehow manipulate the standardized elements of a LinkedIn profile so that they can represent themselves as special. Building their professional image requires trading in images and commodifying themselves as a product within a competitive marketplace. Their challenge is also to establish an emerging professional identity that also reflects well on their academic institution.

The summary complements and visually connects to the banner, professional photo, name, and headline, which are immediately visible on the landing page of the LinkedIn Profile. Under the headline, the first few lines of the summary are also visible. Those first few lines of the summary must draw attention and inspire the reader to click into the summary or scroll down to read the experience section. Students tend to weaken the potential impact of their summaries by starting with wind-up sentences that merely repeat what the viewer can already see in the headline; for example, "Hello, my name is…" (their name is already visible) and "I am an accountancy major at…." (their headline already indicates their major and university). They have to be pushed to consider ways to use that visible space more effectively, for example, "I am a junior actively searching for a summer accounting internship. By next May, I will have completed upper-level courses in financial accounting, managerial accounting, and federal income tax accounting."

Although a cover letter should be brief, a LinkedIn summary can be lengthier. Bremner and Phung (2015) examined the rhetorical structure of LinkedIn summaries and identified four moves that were similar to a conventional cover

letter: "establishing credentials," "identifying client needs," "detailing service," and "indicating value of service" (p. 372). Two additional moves they found in the summaries were identifying the target market and personal branding. Other cover letter moves are already built into the LinkedIn site, including offering one's services and requesting a response. Bremner and Phung noted that, along with the attention-grabbing elements of visuals and headline, the summary is one of the few parts of a LinkedIn profile that allow for creative expression without constraint.

Students frequently complain that the date-oriented sorting of the experience section on LinkedIn prevents them from arranging their experience to highlight the most relevant information. That's where the summary can help. By highlighting key experiences in the summary—or even within the headline—students can better ensure that readers will notice those experiences and be more likely to scroll down to find more details.

Conclusion: Practical Wisdom for Composing in Digital Spaces

Providing students an opportunity to analyze and compose LinkedIn profiles and to interrogate the advice for participation on the site offers not just practical knowledge, but also a practical wisdom that will be useful to them as they negotiate their identities and expand their professional contacts. I believe our responsibility as instructors is to help students approach their engagement with social media platforms with an awareness that networked communication practices have always existed and are not unlike anything ever done before simply because they reside in a digital platform—although digital platforms do create new perils and promises.

For the most part, students have been excited about the possibilities of establishing a LinkedIn presence; they are eager to get started. So far, no student has opted for the off-line profile, although several have expressed some misgivings. I encourage them to use those gut feelings to help them develop their own strategies for negotiating that digital space, including what kinds of information to make available on their profile, with whom to connect, whether or not to "recommend" others, and how often to post and interact with the posts of others. My own understanding of job search and networking genres has evolved as the genres themselves have evolved from print into digital spaces. The old rules are changing, but not necessarily in ways that provide students with more agency, which is important for them to understand as they begin the process of networking in the hopes of finding employment and establishing themselves as professionals in a precarious job market. A phronetic approach uses LinkedIn as a site of critical reflection for reading

and composing, alternately asking students to question its conventions, maximize its affordances, and creatively resist its constraints, as they consider their purpose in participating in this professional network.

References

Alexander, Jonathan, & Rhodes, Jacqueline. (2014). *On multimodality: New media in composition studies.* Urbana, IL: National Council of Teachers of English.

Bremner, Stephen, & Phung, Ban. (2015). Learning from the experts: An analysis of resume writers' self-presentation on LinkedIn. *IEEE Transactions on Professional Communication, 58*(4), 367–380.

Burke, Kenneth. (1954). *Permanence and change: An anatomy of purpose* (3rd ed.). Berkeley, CA: University of California Press.

Eyman, Douglas, & Ball, Cheryl. (2014). Composing for digital publication: Rhetoric, design, code. *Composition Studies, 42*(1), 114–117.

Gershon, Ilana. (2017). *Down and out in the new economy: How people find (or don't find) work today*. Chicago, IL: University of Chicago Press.

Lanham, Richard A. (2006). *The economics of attention: Style and substance in the age of information*. Chicago, IL: University of Chicago Press.

Peterson, Robert M., & Dover, Howard F. (2014). Building student networks with LinkedIn: The potential for connections, internships, and jobs. *Marketing Education Review, 24*(1), 15–20.

Selber, Stewart (2004). *Multiliteracies for a digital age.* Carbondale, IL: Southern Illinois University Press.

Utz, Sonja. (2016). Is LinkedIn making you more successful? The informational benefits derived from social media. *New Media and Society, 18*(11), 2685–2702.

Selfe, Cynthia L. (1999). *Technology and literacy in the twenty-first century: The importance of paying attention*. Carbondale, IL: Southern Illinois University Press.

Appendix

BUS 284: Professional Communication for Business
Module 1: Creating Digital Presence

CLASS ACTIVITY: LinkedIn Profile Discussion: Advisers vs. Users

Small-group Google Slides presentations, based on assigned readings and working in groups of 3 to 4

Agenda

- Introduction and Mini Lecture: 15 minutes
- Group Activity: 25 minutes
- Presentations and Discussion: 30-35 minutes
- Closing: 5-10 minutes

Assigned Readings

Note: These would be reviewed and updated each year.

- "17 steps to a better LinkedIn Profile in 2017" https://business.linkedin.com/en-uk/marketing-solutions/blog/posts/content-marketing/2017/17-steps-to-a-better-LinkedIn-profile-in-2017
- "60+ LinkedIn Profile Tips for Marketers" https://contentmarketinginstitute.com/2016/08/linkedin-profile-tips/
- "The 31 Best LinkedIn Profile Tips for Job Seekers" https://www.themuse.com/advice/the-31-best-linkedin-profile-tips-for-job-seekers
- "29 LinkedIn Tips for Professional Networking, Business and Marketing" https://blog.hubspot.com/blog/tabid/6307/bid/23454/The-Ultimate-Cheat-Sheet-for-Mastering-LinkedIn.aspx#sm.00000nkwrlwvdfd8upwxnxtvn2g3l
- LinkedIn User Agreement https://www.linkedin.com/legal/user-agreement
- LinkedIn Privacy Policy https://www.linkedin.com/legal/privacy-policy
- [*University website and/or video materials about LinkedIn]*

Day 1 Activity: What are the experts saying about LinkedIn?

Note: If time constraints do not allow for two class sessions, the activities can be combined.

1. Review the advice provided in the readings (and video) assigned. At what points do authors agree? Where do they disagree? What do you suspect might be influencing those similarities and differences? What is at stake for each expert in providing the advice?
2. Based on what you have learned, create a slide show that presents and analyzes your findings. Consider using screen shots to help illustrate your group's key findings.
3. Share your group's Google Slides with me and be prepared to present to and discuss with your classmates.

Day 2 Activity: How professionals are using LinkedIn

Note: Students do not need to be grouped by major.

1. Look at LinkedIn profiles of professionals (including alumni) in your field of study or who work for companies you are interested in. Also look at profiles of college students with similar majors as yours (especially students you know who are getting ready to graduate). What do

you notice? How well does LinkedIn advice match up with what users are actually doing? Do you notice any differences in LinkedIn use, depending on the career field or the purpose for being on the site? Hint: Not everyone is looking for an internship or entry-level job.

2. Based on what you have learned, create a slide show that presents and analyzes your findings. Consider using screen shots to help illustrate your group's key findings.
3. Share your group's Google Slides with me and be prepared to present to and discuss with your classmates.

Ways to Combat Fake Content Using Multi-literacies in Technical Communication Classrooms

Nupoor Ranade, North Carolina State University

We live in a world of complex information structures which have made information vulnerable to biases, inaccuracy and inappropriateness. Although it is difficult to prevent generation of misinformation, we can prepare students to take appropriate measures to reduce its propagation. This paper analyzes the strategies used by two popular public collaborative authoring platforms that make dissemination of inappropriate content difficult. The article then discusses ways of incorporating these strategies in classrooms using Cook's layered literacy approach. Strategies are compared to conventional practices in technical communication classrooms which ensure easy adoption without overwhelming the instructors and/or students.

The term "fake news" gained a lot of attention during the 2016 presidential election and quickly made its way from journalism to other fields. Yaffe (2017) has discussed multiple definitions of fake news. One of them is, "information presented as factual but is instead biased and only part of the story that supports the author's conclusions". Another one states "incorrect information in which the facts presented are distorted or otherwise inaccurate, or some mixture of the two" (p. 369). These definitions will be used to engage with the issue of fake content throughout this paper.

The presence of fake news is one of the problems; the other is its propagation. There has been a tremendous increase in the amount of content being generated, the platforms on which content is published and distributed, and the number of developers of content. The large quantity makes the content vulnerable to threats like inaccuracy and misinformation. Focus has shifted from writing content to distributing it heavily in order to make profits. Chandra et al. discuss how this phenomenon of dissemination of fake content is more common in student social media groups. Blinders of in-group trust are one reason for information to get shared without a credibility check (Chandra, Surjandy and Ernawaty, 2017). To prevent this, students need to develop skills required to identify and create reliable content before sharing it. Previously developed pedagogical techniques need to be revisited to make them suitable for the changing nature of content.

The content dynamics described earlier have challenged the goals of information literacy for educators concerned with digital literacy practices. Information literacy aims at teaching skills of identifying, locating, evaluating, and using information to solve problems (ALA, 1989). We often teach students to cite only peer reviewed articles because the content of these articles is verified by scholars in the same field of research and therefore "trustworthy." Interestingly, just like "fake news," writers and researchers have looked at "trust" from different perspectives. Trust is often used interchangeably with related concepts such as credibility, reliability, or confidence in digital environments. Instead of getting into the complex models of trust and credibility discussed by researchers, this paper focusses on the definition used by Rowley and Johnson (2013) for digital content: "Trust in digital information indicates a positive and verifiable belief about the perceived reliability of a digital information source, leading to an intention to use" (p. 496). As stated earlier, peer reviewed work is verified and therefore easily trusted. But, in the age of fake news, what can we say about popular sources? What happens when students are engaged in creating, managing or using content published on social media platforms?

Special skills and competencies need to be developed to manage such influences of technologies that shape the discursive activities surrounding their use (Selber, 1994). Significant research has been done in the past two years on how to identify fake content (Hyman, 2017; Rubin, Chen and Conroy, 2016). On the other hand, little research points to specific strategies that can be used in organizing and structuring content to reduce 'fakeness' by increasing 'trust' and 'reliability', especially on collaborative platforms which are more vulnerable to this issue. Multiple pedagogical strategies have to be utilized to better prepare students for engaging with complex infrastructures that can generate fake content.

This paper discusses the approaches that, when used in combination, can provide an effective framework for handling the issue of fake information. Selber's (1994) research encourages instructors to expose students to functional, critical, and rhetorical literacies to participate fully and meaningfully in social and technological activities. This approach helps students to understand the functioning of complex information platforms like social media. However, such platforms are greatly affected by linguistic, cultural, communicative, and technological factors. A critical literacy model suggested by Luke in her work with the New London Group (NLG) has to be utilized (Cope and Kalantzis, 2000). But the question of how to use these frameworks in technical communication classrooms still remains. Cook (2002), while suggesting a framework for technical communication pedagogy based on six layered literacies—basic, rhetorical, social, technological, ethical, and critical—has drawn attention to the isolation of technical communication instruction from different literacies. Educators can benefit from finding parallels between ideas behind the layered

literacies suggested by Selber, Cook, and NLG to develop strategies that tackle fake content and to incorporate those strategies into technical communication pedagogy thus creating an integrative frame.

The main idea of this paper is to summarize the guidelines and philosophies that encourage communities to verify and ensure the quality of circulating information to prevent "fake content." These guidelines have been derived by comparing two information platforms, Wikipedia and Stack Overflow, both of which are public, collaborative, authoring environments. The last section describes ways of introducing these guidelines into classrooms that use existing digital and information literacy models.

Structure of Collaborative Authoring Platforms

Before delving into the analysis, I want to bring in more context on collaborative authoring platforms. Collaborative writing is where "collaborators produce a shared document, by engaging in substantive interaction about that document, and sharing decision-making power and responsibility for it" (Allen et al., 1987). Online wikis, social networking websites and user forums are examples of collaborative authoring platforms. It is important to note 'what' kind of interactions take place on collaborative platforms. Lowry et al. (2004) describe the various stages of the writing process when collaboration happens as writing, reviewing, etc. Tools like styles, standards and rules control 'how' social interactions take place. If content on these platforms is not verified before it gets published, the fake content can propagate to other platforms that pull data from these through different user interactions like sharing, citing, and so on.

Apart from user interactions with content, there are other significant factors leading to propagation of fake content. Albright's (2017) research points to some of these. The four main reasons why fake information is more prevalent in complex information structures are stated as follows:

- Transparency and Trust: Technologies and sources of information are hidden from users.
- Social Distortion: "Sentiment-based sharing tools" and "emotionally-charged messages" (p.88) lead to biases and faster dissemination of information.
- Attention Models: Social media platforms like Facebook control what information reaches their audience based on their past interactions with data. This leads to a "data blind-spot" (p. 88). Users then receive only parts of the information leaving a huge scope for personal interpretation creating biases.

- Trust and Data: As more actors opt to go "direct" to their audiences using platforms like Twitter, news organizations are forced to "follow the conversation" (p. 88) instead of leading the way to establish narratives that accurately inform the public through their reporting, giving rise to distrust.

Due to these reasons, trustworthiness of collaborative networks has always been in question. However, people continue to use sites like Wikipedia (Bartlett, 2015) or Stack Overflow without doubting the reliability of their content. A critical literacy framework can be used to look at these sites to understand their information model that generates trust among users.

According to the research by NLG, critical literacy involves three perspectives. First we need to understand how knowledge, ideas and information 'bits' are structured in different media and genres, and how these structures affect people's readings and uses of that information in sociocultural contexts in which they are produced and embedded. Second, we need to develop the understanding of technical and analytic skills used to negotiate those systems in diverse contexts. Lastly, we must understand how these systems and skills operate in relation to and interests of power within and across social institutions like collaborative platforms. The next two sections describe findings from a critical literacy analysis of the aforementioned collaborative authoring platforms.

Wikipedia

Wikipedia is a free-content encyclopedia project. It is written collaboratively by users and volunteers. Contributors, with a Wikipedia account, can edit information either anonymously, or under a pseudonym, or with their real identity. Therefore, Wikipedia's content is susceptible to the type of fake news where the contributors' biases produces questionable content.

The community is responsible of maintaining information accuracy. Wikipedia achieves trust by setting up rules for editors and by using automated algorithms to remove inappropriate content. Editing rules of Wikipedia dictate the following things (Wikipedia, 2018):

> Rule 1. Register an account: All contributors must have a Wikipedia account.
>
> Rule 2. Learn the five pillars: The fundamental principles of Wikipedia are summarized in five "pillars" which suggests how contributors should treat the site, the content and each other.

Rule 3. Be bold, but not reckless: referring to advice on pointing misinformation.

Rule 4. Know your audience.

Rule 5. Do not infringe copyright.

Rule 6. Cite, cite, cite: Strict inclusion policy for verifiability.

Rule 7. Avoid shameless self-promotion.

Rule 8. Share your expertise, but don't argue from authority.

Rule 9. Write neutrally and with due weight.

Wikipedia maintains a separate discussion page associated with each "node" or entry, where contributors can justify and debate the merits of their contributions (Emigh and Herring, 2005). An editing history is maintained for all the articles so that changes can be reverted. With such techniques, Wikipedia is able to maintain the accuracy of content to at least 80% for a variety of topics (Medelyan et al., 2009).

Stack Overflow

Stack overflow has been chosen for this study not just because it is a collaborative QandA site (Li et al., 2015) but also because of its popularity among its large user base (Chunyang and Xing, 2016). Posts (content) on Stack Overflow have to be maintained by the community (Chen et al., 2017) comprised of developers who share and learn software programming knowledge. Members engage in a group knowledge-creation process by asking and answering questions, editing the questions and answers posted by others, and voting on the quality of the resulting content. The end result is a curated collection of information that is useful to the original questioner and to other site users interested in the topic (Ahn et al., 2014).

One major challenge for Stack Overflow is maintaining the quality of content since users have varying levels of expertise, commitment, and experience. These characteristics make the site vulnerable to "incorrect information in which the facts presented are distorted or otherwise inaccurate, or some mixture of the two" (Yaffe, 2017) which is nothing but "fake news". Stack Overflow attenuates this through "voting:" a system of gamified motivations for contributing edits. Members can vote posts up or down based on their assessment of its quality. Upvotes, or positive votes, increase a user's reputation. Users with 2000+ reputation scores are considered *trusted contributors*; all others are *novice contributors*. Edits by post owners or trusted contributors

are directly accepted. Edits by novice contributors are accepted only if they are approved by three trusted contributors to guarantee the site quality (Chen et al., 2017). This acts as a way to manage users and the site's content quality.

Stack Overflow provides a set of guidelines that users need to follow when posting a question thus motivating relevant audiences to contribute. The guidelines tell users how to formulate a question as well as provide detailed information on the types of questions that should be asked. The site's FAQ encourages answerable, practical questions specific to the domain; open-ended, chatty questions are discouraged. Questioning guidelines request that answers first be properly researched to avoid duplicate content from being posted; questions must be as specific as possible, and relevant to others (Matthews, 2014).

The next section discusses the aforementioned methods in terms of their use in combating fake content.

Analysis of Strategies

To analyze strategies that combat fake content, we first need to study strategies that develop trust among users. Rowley and Johnson's (2013) study brings out the following factors that lead students to develop trust for content: authorship, currency, references or links to related articles, expert recommendation and judgment based on their own research and findings. Quality and accuracy are important factors for gaining user trust (Matthews, 2014). Students need to know not only how to assess these factors but also incorporate these models into information design practices. A critical analysis of information structures of Wikipedia and Stack Overflow reveals mechanisms used to create content that develops trust and aids in prevention of fake content in information sharing environments. These mechanisms develop trust in the content and in members of the community. These strategies below help maintain the reliability and accuracy of content due to which these sites act as trustworthy sources and remain popular among users.

Trusting Content

The collaborative nature of these sites raises concerns about accuracy, completeness, and verifiability of content. The following mechanisms, together, are used to build trust despite the complex structure of the information platform:

Styling Content

Rules and guidelines determine the style of content on both these platforms. Content on Wikipedia is to be written neutrally, that is, without any kind of bias (Medelyan, 2009). Questions on Stack Overflow have to be very specific

and free from duplicates. Multiplication of content gives more complete and verifiable answers, but results in lower accuracy levels (Fichman, 2011). Therefore, users need to conduct a thorough search before posting their question or answer on the site. The natural language processing algorithms on these sites prevent grammatical errors (Chen et al., 2017), keeping the information as correct as possible.

Hyperlinking

Both sites use hyperlinking to increase quality of content thereby gaining trust. There are two ways of hyperlinking. First is citing sources or references for information. In Rowley and Johnson's (2013) Wikipedia study, references included at the end of the article were mentioned as a key indicator of trustworthiness by many respondents. The legitimacy of references and authors of referenced content are important factors. For example, writing programs (like Purdue Online Writing Lab, University of Maryland and Austin Community college) reinforce the use of credible sources while writing content. Second is hyperlinking relevant content for completeness. In the case of Stack Overflow, hyperlinking navigates users to additional information on a topic.

Updating Content

Updated information is also important to gain trust. Wikipedia's infrastructure makes editing easy, keeping the content up-to-date. Matthews (2014) argues that a similar feature must be incorporated in Stack Overflow for updating old questions to keep the information relevant and useful.

Preserving Content

When content on the site is updated, reasons for change are needed to develop trust. Wikipedia contributors use the discussion page corresponding to each information page to provide "justifications" (Medelyan, 2009) of their actions and to cite relevant sources that support their actions further. Stack Overflow maintains a history of all the relevant answers on a question even if they are not rated.

Removing Inappropriate Content

Wikipedia addresses concerns of inappropriate content by giving all users editorial privileges. The design of Wikipedia makes it easier to make corrections than to add or delete content. This feature allows "good users" to revert back to "good content" in case "bad users" insert "bad content." To demonstrate this, Viégas et al. used a visualization tool to display the dynamic evolution of Wikipedia content over time. They found that most acts of vandalism that occurred during the month of May 2003 were repaired within a matter of

minutes by other site members. This act of "self-healing" is carried out using a 'recent changes' page on Wikipedia that lists the latest edits that have been made to the site (Emigh and Herring, 2005). In Stack Overflow, inappropriate content does not appear as the top result unless it is highly voted which automatically eliminates its potential to harm.

Trusting users

Trust on these websites is based on two main factors: authorship and version control. Anybody can make changes to content. This might sound like a potential threat to the system, but it is actually a mechanism to remove users that have the potential to post inappropriate content. Two social forces are responsible for maintaining the reliability of content on these sites: social norms and sense of belonging.

Social Norms

The "ranking order" is determined by a feedback mechanism facilitated by comments, votes and edits. Users strive to produce quality content more regularly to increase their rank or social status (Ahn et al., 2004). Social norms of styling content enable users to write better by learning from other users who have edited their content previously. This eventually leads to growing numbers of quality producers of content (Emigh and Herring, 2005).

Sense of Belonging

The system of trust embedded in collaborative environments is primarily social. Once users start contributing to the site and receiving feedback, they develop affinity towards the community. This gives rise to a sense of responsibility towards the site pushing users to constantly monitor them for inaccurate or inappropriate content. Such content then gets removed instantly (Ahn et al., 2004).

Transferring Strategies to Technical Communication Skills

Technological developments have constantly created an urgency to modify methods of teaching rhetoric and writing while trying to connect classical rhetorical models and contemporary needs of information literacy. Instructors can no longer simply provide students with opportunities to discuss form, discourse types, or the writing process. Such discussions must be further supplemented with activities that promote collaborative team-building skills and

technology use and critique. To address the issue of preventing the generation and propagation of fake information, skills to detect fake content, write trustworthy content and design information structures must be developed. Cook's layered literacies framework provides "diverse instructions in technical communication programs, ranging from the ancient art of rhetoric to the most contemporary of technologies, from basic reading and writing skills to ethical and critical situational analyses" (Cook, 2002, p. 5). This framework can be introduced in technical communication classrooms to incorporate the strategies mentioned earlier in the analysis section.

> **Basic Literacy:** Conventionally, basic literacy in reading, writing, and document design was limited to a formal set of rules and principles for writing. In layered literacies it becomes a method for gathering information more efficiently; making appropriate reader-based decisions about data presentation, document form, and document construction; engaging readers through effective and appropriate reader-based writing techniques; and responding to complex writing situations (Cook, 2002). This can be seen in Stack Overflow where contributors use a common style for framing questions and are restricted from adding duplicate information. Teaching students to make informed decisions for adding new content will ensure content reliability. Students will learn to explain why their choices are correct or incorrect, given their specific audience, writing situation, or purpose.
>
> **Rhetorical Literacy:** Rhetorical literacy allows writers to conceptualize and shape documents to a specific purpose or audience (Cook, 2002). Styling content is important to tailor it to specific audiences. Setting up guidelines to produce content is one way of doing that. For example, the rule to avoid biases in Wikipedia results in neutral content. Understanding styling elements can help students develop standards for writing unbiased headings or topic titles. This ensures that they attract "good users" with useful inputs. Instructors need to inculcate skills for defining styles for a specific genre as well.
>
> **Social Literacy:** Collaboration, as a component of the writing process appears in Aristotle's work in his definition of dialectic rhetoric as a collaboration or interchange between rhetors and their audiences (Cook, 2002). Critiquing and producing writing in collaborative environments pushes the need to un-

derstand rhetorical principles required for the new pedagogy of writing as design. The analysis demonstrates how the design of information structures provides a way to increase reliability of content (Matthews, 2014). Students should be trained to develop such collaborative design structures. Collaborative editing on Stack Overflow increases the quality of posts without bringing in negative effects on users' motivation to contribute (Li et al., 2015). These techniques can be useful to situate an understanding of social norms and sense of community belonging.

Technological Literacy: A layered literacy approach to instruction requires students to employ technology to develop basic and social literacies through networked collaboration tools like wikis and user forums (Cook, 2002). Technologies for version control systems should be introduced in classrooms. They allow users to maintain a history of changes while mandating justifications for actions. Both these techniques push users towards producing reliable content.

Ethical Literacy: Students need to be introduced to the idea of content credibility. Aristotle's writings explain his notions of ethos as the appeal based on the character of a speaker. While talking about Aristotle's work in classrooms, instructors can draw attention to modern accounts of credibility to explain believability of a source (Hovland et al., 1953). This can be aligned to the process of hyperlinking content to achieve source credibility.

Critical Literacy: Critical literacy promotes reflection, critique, and action. It brings the social, political, ethical, and technological landscapes together. This is important in the 'editing' process. Editing involves working in a team, using different tools, justifying actions, and developing styles, standards and regulations for writing content. Associating these skills to content appropriation will enable students to create effective content.

This framework may help educators to increase students' information literacy for collaborative environments, and thus, help people avoid misinformation, manipulation, and inaccuracy in the contemporary media environment, which is critical as people increasingly turn to online sources for information used to guide their decisions.

Conclusion

In this study we have seen how strategies used by collaborative authoring platforms to maintain trust and reliability of content can also be used to prevent the generation of fake and inappropriate content. These strategies dealt with designing content as well as the ways in which content is circulated and propagated, controlled by both—the structure of the platform and user interactions on the platform.

This is commonly seen in pedagogical discussions to identify missing information, define queries for problem solving and creating texts that enable information to be shared. Moreover, the article proposes the idea to include these strategies in technical communication classrooms by situating them in different forms of literacies. NLG's multiliteracies approach is used to identify strategies from complex information structures of the collaborative authoring platforms. Selber's multiliteracies framework suggests using the strategies in particular situations and Cook's approach helps integrate the strategies in technical communication classrooms. A comparative outlook combined with a multiliteracy model focuses on collaborative authorship, styling content, editing practices, and version control that need to be inculcated in technical communication classrooms to help students combat fake news in their social information contexts.

The suggestions for technical communication curriculum are subject to limitations. This study focuses on the genre of wikis and QandA systems which may not be the ideal design for other types of content. Although features of authorship and editing history may be relevant to other types of information, more comparative research will allow discussions on more generalizable strategies. The collaborative networks used here have not been studied fully. For example, criteria for upvotes, stylistic specifications to avoid biases, natural language processing algorithms, etc. have not been described in this paper. Future research will incorporate quantitative and qualitative findings to provide more evidence on implementing the aforementioned strategies.

References

Ahn, June, Butler, Brian. S., Weng, Cindy, & Webster, Sarah. (2014). Learning to be a better q'er in social QandA sites: Social norms and information artifacts. *Proceedings of the American Society for Information Science and Technology, 50*(1), 1–10.

ALA. (1989). Final report. *ALA Presidential Committee on Information Literacy*. Chicago, IL: American Library Association.

Albright, Jonathan. (2017). Welcome to the era of fake news. *Media and Communication, 5*(2), 87–89.

Allen, Nancy, Atkinson, Dianne, Morgan, Meg, Moore, Teresa, & Snow, Craig.

(1987). What experienced collaborators say about collaborative writing. *Journal of Business and Technical Communication, 1*(2), 70–90.

Bartlett, Jamie. (2015, April 16). How much should we trust Wikipedia? Retrieved from https://www.telegraph.co.uk/technology/wikipedia/11539958/How-much-can-we-trust-Wikipedia.html

Batova, Tatiana, & Andersen, Rebekka. (2017). A systematic literature review of changes in roles/skills in component content management environments and implications for education. *Technical Communication Quarterly, 26*(2), 173–200.

Chandra, Yakob Utama, Surjandy, & Ernawaty. (2017). Higher education student behaviors in spreading fake news on social media: A case of LINE group. In *2017 International Conference on Information Management and Technology* (ICIM-Tech) (pp. 54–59). Yogyakarta, Indonesia: IEEE.

Chunyang, Chen, & Zhenchang, Xing. (2016). Mining technology landscape from stack overflow. Proceedings of the 10th ACM/IEEE International Symposium on Empirical Software Engineering and Measurement. New York, NY: ACM.

Cook, Cargile. (2002). Layered literacies: A theoretical frame for technical communication pedagogy. *Technical Communication Quarterly, 11*(1), 5–29.

Cope, Bill, & Kalantzis, Mary. (Eds.). (2000). *Multiliteracies: Literacy learning and the design of social futures*. London, UK: Routledge.

Emigh, William , & Herring, Susan. C. (2005). Collaborative authoring on the web: A genre analysis of online encyclopedias. In *Proceedings of the 38th Annual Hawaii International Conference on System Sciences* (p. 99a). Washington, DC: IEEE.

Hahn, Udo, Jarke, Matthias, Eherer, Stefan, & Kreplin, Klaus. (1991). CoAUTHOR—a hypermedia group authoring environment. In J. M. Bowers & S. D. Benford (Eds.), *Studies in computer supported cooperative work* (pp. 79–100). Amsterdam, The Netherlands: North-Holland Publishing.

Hocks, Mary (2003). Understanding visual rhetoric in digital writing environments. *College Composition and Communication, 54*(4), 629–656.

Hovland, Carl. I., Janis, Irving. L., Kelley, Harold. (1953). *Communication and Persuasion*. New Haven, CT: Yale University Press.

Hyman, Joshua. (2017). Addressing fake news: Open standards easy identification. In 2017 *IEEE 8th Annual Ubiquitous Computing, Electronics and Mobile Communication Conference (UEMCON)* (pp. 63–69). Washington, DC: IEEE.

Li, Guo, Zhu, Haiyi, Lu, Tun, Ding, Xianghua, & Gu, Ning. (2015). Is it good to be like Wikipedia?: Exploring the trade-offs of introducing collaborative editing model to QandA Sites. In *Proceedings of the 18th ACM International Conference on Computer-Supported Cooperative Work and Social Computing.* New York, NY: ACM.

Lowry, Paul B., Curtis, Aaron, & Lowry, Michelle R. (2004). Building a taxonomy and nomenclature of collaborative writing to improve interdisciplinary research and practice. *The International Journal of Business Communication*, *41*(1), 66–99.

Matthews, Paul. (2014). Knowledge fixation and accretion: Longitudinal analysis of a social question-answering site. *Journal of Documentation, 70*(5), 711–733.

Medelyan, Olena, Milne, David, Legg, C., & Witten, I. H. (2009). Mining meaning from Wikipedia. *International Journal of Human-Computer Studies, 67*(9), 716–754.

Rowley, Jennifer, & Johnson, Frances (2013). Understanding trust formation in digital information sources: The case of Wikipedia. *Journal of Information Science, 39*(4), 494–508.

Rus, Dana. (2014). Technical communication as strategic communication: Characteristics of the English technical discourse. *Procedia Technology, 12*, 654–658.

Rubin, Victoria. L, Chen, Yimin, & Conroy, Niall. J. (2016). Deception detection for news: Three types of fakes. *Proceedings of the Association for Information Science and Technology, 52*(1), 1–4.

Selber, Stuart. (1994). Beyond skill building: Challenges facing technical communication teachers in the computer age. *Technical Communication Quarterly,* 3, 365–391.

Wikipedia: Ten Simple Rules for Editing Wikipedia. In Wikipedia. Retrieved April 13, 2018, from https://en.wikipedia.org/w/index.php?title=Wikipedia:Ten_Simple_Rules_for_Editing_Wikipediaandoldid=836220435

Yaffe, Joanne. (2017). From the editor—Fake news, information literacy, and scholarly communication in social work. *Journal of Social Work Education, 53*(3), 369–371.

Possibility and Play: Ludonarratology as Liberating Praxis

Morgan Read-Davidson, Chapman University

Studying and composing ergodic media like interactive fiction can be one way of liberating students from the constraints of linear textual composition, encouraging them to explore and experiment with multimodality and remediation. A pedagogy that incorporates narratology and ludology teaches awareness of the remediation of narrative into digital, ludic media, and creates opportunities for the transfer of nonlinear, interactive writing practices back into more conventional writing. This paper describes an example of this pedagogical approach in a Writing for Video Games course, and the preliminary steps toward understanding how such praxis might transfer to writing in new contexts.

By now, it should be a given that our students' curricular and extracurricular lives are intertwined with multimodal, nonlinear, digital reading and composing practices, priming them to positively respond to pedagogies that "de-naturalize the established order" of linear and static textual studies (Strasma, 2001, p. 270). Multimodal composition and remediation (Alexander and Rhodes, 2014; DePalma and Alexander, 2015; Murray, 2009; Selfe, 2007; Shipka, 2005 and 2011), for example, has been become a common feature in rhetoric and composition courses, helping students attempt to connect the composing they do outside the classroom with what they practice in it. In her 2017 contribution to the *Computers and Writing Conference* proceedings, Wendi Sierra provides an overview of the field of scholarship focused on incorporating video games into the writing classroom, from James Paul Gee's (2003) *What Video Games Have to Teach Us about Learning and Literacy* to Eric Klopfer, Scott Osterweil, and Katie Salen's (2009) twelve models, to Douglas Eyman and Andrea D. Davis's edited collection (2016) *Play-Write: Digital Rhetoric, Writing, Games*. Sierra emphasizes the opportunity to move from a play-based pedagogy to a maker-based pedagogy, where we not only use games as texts to study through play, but also develop effective pedagogies in the design of a games as *composition*. This essay will describe how a former student in my Writing for Video Games class, inspired by the discourse and practice of both narratology and ludology, composed a non-linear, dynamic senior thesis in literary criticism using Twine, which in turn inspired me to begin preliminary steps toward better understanding how the praxis of

studying and composing interactive narratives can transfer to other writing contexts. The results of this inquiry may offer helpful insights for others incorporating interactive mediums into their pedagogy.

The Question of Transfer

General education writing programs are built upon the outdated banking model of education, or the assumption that the "skills" learned in an introductory writing requirement will transfer to all other writing situations in a students' academic career. Countering this assumption, scholarship in learning transfer (DePalma and Ringer, 2014; ; Nowacek, 2011; Robertson, Taczak and Yancey, 2012; Wardle, 2009), though diverse in approach and terminology, agrees with the view of "transfer as a dynamic activity in which writers have the agency to both draw from and reshape writing knowledge to suit and influence writing contexts" (DePalma, 2015, p. 616). Through purposeful metacognition, students are able to "[make] the learning in one context more available in the other" (Shepherd, 2018, p. 109). In a composition course utilizing multimodal composing and remediation, and in my specific case interactive narratives, with an eye to transfer into composing contexts beyond that classroom, the instructor can facilitate active metacognition, and Shepherd and DePalma suggest two intriguing approaches: the construction of a "theory of writing" (Shepherd, 2018), and a "tracing" heuristic (DePalma, 2015).

Shepherd stresses that when students construct their own theory of writing from past experiences, contextualized by current and projected composing practices, they are better able to "*perceive* learning contexts as being connected" (2018, p. 110, emphasis in original). To facilitate this connection-making, DePalma (2015) designs a heuristic he calls "tracing," specifically for the process of remediation in his course, where students articulate the various moves their text makes as it traverses media, reflecting "on the full range of rhetorical resources that they might use" (2015, p. 635). My Writing for Video Games students informally engaged in both approaches as they studied and practiced narratology and ludology, remediating past knowledge and contexts of narrative into multimodal, digital platforms for composing interactive narratives. This remediation of narratology by ludology became a theory of writing that my students, to the great chagrin of narratologists and ludologists alike, lovingly called *ludonarratology.*

Ludonarratology and the Writing for Video Games Course

Writing for Video Games is a junior-level advanced creative writing course, where students work in groups of three to design and compose an interactive

narrative: a text-adventure, a side-scrolling or platformer RPG, or even a mod adventure for an existing game such as *The Elder Scrolls V: Skyrim* (Bethesda, 2011) or *Fallout 3* (Bethesda, 2008). The course was originally designed to provide a taste of composing in platforms outside of the conventional forms and genres, while still remaining firmly entrenched in the narrative tradition. Thus, students played narrative-based video games like *What Remains of Edith Finch* (2017) and text-adventures like *Zork I* (1980), and studied narrative concepts like time, plot, and verisimilitude via theorists like Chatman (1978) and Genette (1996) within the contexts of these interactive mediums. The course also used portions of Salen and Zimmerman's (2004) *Rules of Play* to layer ludic concepts into the theory and practice of narrative, with a strong emphasis on narrative play. But the text chosen in the initial design of the course as the key entry point into thinking of the potential of narrative in digital mediums was Janet Horowitz Murray's (1997) *Hamlet on the Holodeck*, with an emphasis on her "aesthetics of the medium" (97), specifically *immersion* and *agency*.

When I took over the class, I stayed relatively true to the original syllabus, despite the limitations of Murray's approach. Markku Eskelinen (2012), for example, points out that Murray's singular focus on narrative in "only one unified digital medium" ignores the wide array of digital media currently exploring the possibilities of form and genre in favor of a "speculative development of virtual worlds" (p. 17). Gordon Calleja (2011) acknowledges Murray's contributions to the concepts of immersion and agency but demonstrates that such concepts are far more complex than she, or Salen and Zimmerman (2004), present them. To address these limitations, I complimented Murray with her contemporary Espen J. Aarseth (1997), using portions of *Cybertext* that explored the differences between ergodic and nonergodic media. In addition, I brought in Ian Bogost's (2008) "The Rhetoric of Video Games" to provide another angle into the potential of ludology in writing studies.

The class interrogated theories of narrative, narrative play, and game play to better understand how ludology can help remediate narrative practice and construct new roles and reading/interacting practices from which reader-players to make meaning (Frasca, 1999). They struggled with what could and could not be an ergodic text, for although Aarseth (1997) defines it as a text that requires "nontrivial effort...required to allow the reader to traverse the text" (p. 1), the students argued—as Aarseth claims traditional literary theorists argue—about what "nontrivial effort" might mean. Is the traversing of a text always material, or can it still be considered interactive if it is a mental process? Is linear but branching narrative based on reader-player choice truly ergodic? Is the process of play in the navigation of that text meaningful (Salen and Zimmerman, 2004)? Does it "make claims about the cultural, social, or

material aspects of human experience" (Bogost, 2008, p. 123)? In this praxis there emerged a shift in students' perception of narrative, moving away from a linear story for passive consumption and into the idea of a space of possibility, where they construct the rules of play that enable "free movement within a more rigid structure" (Salen and Zimmerman, 2004, p. 304), turning the control of meaning-making over to their reader-players. Our metacognitive discussions framed their writing as part of a complex system, where choice becomes the affective behavior that determines meaning: choices made by the writer are influenced by the material elements of the platform, by narrative and social and cultural conventions, and by the anticipated behaviors of their imagined reader-players; similarly, once the text leaves the writer's control, choices made by the reader-player in interpretation and use of the text are influenced by the other elements of the system, and in turn affect those elements.

By the third year of teaching the course (2017), I had not yet encountered Shepherd (2018), so my conception of the possibility of learning transfer was influenced mostly by James Paul Gee (2003) and an intriguing chapter by David Williamson Shaffer (2012) that outlined a sophisticated model of tracking the epistemic frame—the grammar of discourse that informs practice—from one situational context to another. While I was not prepared to design a study at the level of Shaffer's, I was trying to facilitate the students' own entrance into the community of practice of writers of ergodic texts, where the grammar of discourse—the ways of "talking, listening, writing, reading, acting, interacting" with the theories, texts, tools, and platforms of digital authoring (Gee, 2003, p. 719)—would become Shepherd's (2018) "theory of writing" (p. 110). This theory of writing, as mentioned earlier, collectively came to be called *ludonarratology*, as the students maintained their loyalty to narratology, but understood how it could be complicated and remediated by ludology. Their favorite theorists, in no small part because of the emphasis in the syllabus, but also because of the accessibility of the writing, were Salen and Zimmerman (2004) and Murray (1997), from which came the terms that they defined their praxis: *immersion* and *agency*.

Immersion

Students understood immersion best as the ability to transport the audience into a constructed reality, and "in a participatory medium, immersion implies learning to swim, to do the things that the new environment makes possible" (Murray, 1997, p. 99). Salen and Zimmerman's (2004) assert that such immersion is not the result of sensual transportation, but "an engagement that occurs *through play itself*" (p. 451, emphasis in original). In ergodic, in-

teractive narratives, the materiality of the form—links, buttons, 360-degree view spaces—is an intricate part of the constructed "world," and reader-player interaction with it through meaningful play becomes the very element that makes immersion possible. This sort of immersion is quite different from immersion in nonergodic media, where awareness of the materiality of the form can actually act as an inhibitor (Murray, 1997). Yet students began to think of instances of writing in nonergodic forms where interaction with the medium may *not* be an obstacle to immersion, an example of forward-reaching learning transfer, reflecting "on future contexts where new knowledge can be used" (Shepherd, 2018, p. 109). Specifically, students pointed to agency as a means of this meaning-making possibility.

Agency

The pleasure of play, or the reward experienced as a result of participatory engagement, is a "combination of acting and interpreting responses to those actions" (Calleja, 2011, p. 56). Agency, then, is the "satisfying power to take meaningful action and see the results of our decisions and choices (Murray, 1997) which comes from Aarseth's (1997) nontrivial effort. This is often achieved through the participatory pleasure reader-players experience in reassembling the nonlinear structure of the narrative, making meaning out of the process of navigation, but even linear-based journeys, including branching narratives, can still produce this pleasure. Whether a journey through a labyrinth, like the text-adventure *Zork I* (1980), a problem-solving "puzzle"—logical, spatial, psychological, social—or even the hypertextual rhizomatic system, where navigation occurs through the traversing of linked points with no center, students recognized the effects of constructing a space of possibility where participation, interpretation, and reassembly is necessary for meaning-making (Murray, 1997; Calleja, 2011; Bogost, 2008). Students also began to articulate connections between what they already knew of narrative, such as Chatman's (1978) theories of suspense and surprise, in these new ludological terms, demonstrating backward-reaching learning transfer, or thinking "back on past learning when [they] encounter a new learning challenge" (Shepherd, 2018, p. 109). When asked if agency of this kind is possible in nonergodic media, one student brought up the HBO television series *Westworld* (2016), where pleasure comes from the reassembly of the nonlinear narrative in the week between episodes. Though such mental interaction is not new in literature, film, and other nonergodic art forms, and though it does not come from an interaction with the material nature of the medium itself, still students argued for the power of such interaction, where interpretations would be validated in the next week's episode. Here they were making active connections

between what they were studying and practicing in the class, and possible writing contexts in the future, ergodic or nonergodic.

The Transfer of Ludonarrative Practice

I've already traced some of the practices observed in the course that Shephard (2018), DePalma (2015), and Shaffer (2016) have described as necessary for making transfer possible, but what made this nebulous possibility far more concrete for me was the English B.A. thesis of one of my former gaming students, Jimmy Evans (2017)[1]. The thesis itself falls into a standard genre of literary criticism, in this case that "an analysis of Bakhtin's chronotopes in *The Witcher 3* reveals how the procedurality of video games suggest a refined heteroglossic form" (Evans, 2017). In fact, early drafts of the thesis followed a standard paper-essay form: linear, nonergodic, conventional. But in an argument about branching narrative, about choice and consequence, about participation and process, Jimmy felt compelled to make the form of his essay match the content. As he writes, "*The Witcher* wants to make sure you understand that choices have consequences," and so he leverages the ludonarrative elements of immersion and agency that he studied and practiced in the game writing class.

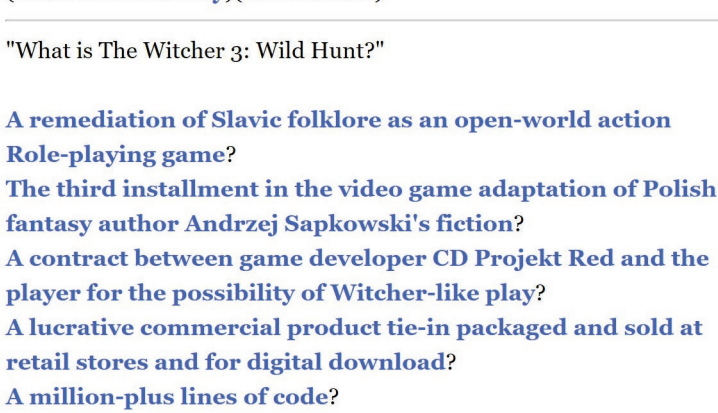

Figure 1. Launch page for "Forms of Time in The Witcher 3"

Using Twine, an open-source platform for nonlinear storytelling, Jimmy immediately structured his essay as a series of open-ended choices for the reader, a labyrinthine system where "the possibility of getting lost or not succeeding heightens players' spatial involvement" (Calleja, 2011, p. 76). At the

1 All citations of student work and survey responses used with student consent and IRB approval

launch page, we are introduced to a title and two links to "Critical Inventory" and "References," with no direction on how to proceed. We must explore and interpret the consequences of our nontrivial navigation in relation to the content of his argument.

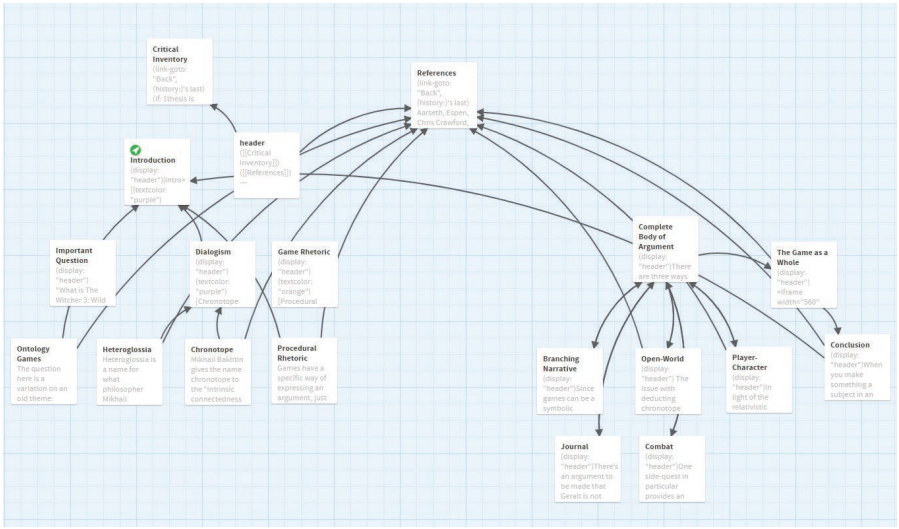

Figure 2. The "labyrinth" of "Forms of Time in The Witcher 3"

The "Critical Inventory" grows in length as we navigate through his thesis, adding specific definitions ("procedurality" and "hypertext," for example) and his thesis statement. The link remains at the top of our page throughout, enabling us to return to those critical concepts (our inventory) or the "References" as we need to. Choice determines where the reader-player begins, and how the thesis will be assembled, so even as the essay explores the procedurality of *The Witcher 3* (2015), it utilizes procedurality itself, calling attention to the subversion of the thesis genre.

Reader-player choices have immediate outcomes, making the *play* of interacting with this essay *meaningful* as new "inventory items" and content are unlocked. New options appear, and the reader-player becomes immersed in the structural elements of the essay itself, where those elements directly represent the theoretical concepts that frame the analysis. Agency develops in the discovery of the pattern of this labyrinth. Though the argument itself remains within the conventions of discourse for an English thesis—heavy paragraphs, integrated references, examinations of multimodal artifacts from the game of study—the ludic activity turns the typically nonergodic form into an ergodic one.

Jimmy's thesis is an example of the transfer of learning in the praxis of designing ergodic media from one composing context to another, both in

how he constructs the text in the new context, and his ability to articulate the grammar of discourse—or the theory of writing—that informs that practice. But Jimmy did not necessarily do this all on his own; he frequently consulted with me, and I would prompt him to consider the praxis of Writing for Video Games. The experience with Jimmy made me wonder if this sort of learning transfer was happening with other students from the class: the construction of texts in new contexts using ludonarrative knowledge, and/or the articulation of the knowledge, regardless of the success of practice. My decision to pursue this question of transfer occurred too late in the Fall 2017 course to have students engage in DePalma's (2015) tracing heuristic, but I adopted a simplified version of the concept in my own tracking of students' articulation and possible transfer in practice of the ludonarrative theory of writing. Since the tracing heuristic means to facilitate the development of "an awareness of what [students] might transfer" (DePalma, 2015, p. 635), I designed an IRB approved online survey with open-ended questions asking students to describe their writing after the course, the course knowledge they recalled, and how that knowledge possibly affected their conceptualization and practice of writing. I deliberately avoided using any specific theory in the questions, other than to ask how "writing interactive narratives" affected their post-course writing, avoiding leading respondents toward the answers I was hoping for, so that any transfer of the grammar of discourse might be more easily recognizable. All forty-five students who took Writing for Video Game since Fall of 2015 were surveyed; of those forty-five, ten responded as of the writing of this paper: five from Fall 2017, three from Fall 2016, and two from Fall 2015. Admittedly, those that responded likely did so *because* of their enculturation in the ludonarrative discourse and practice.

Six of the respondents reference the ludic concept "space of possibility" in how they now conceptualize any piece of writing in the design phase. All ten describe a new awareness of form and genre conventions, audience interaction with "rules" of the text as they read and interpret, and intertextual networks through references and allusions. As a result, respondents claim to spend more time in the design phase of their writing, including utilizing branching narrative mapping tools.

Immersion and *agency* consistently appear in the survey responses, sometimes directly referenced, and sometimes represented as "interaction" and "engagement." The respondents articulate a sophisticated awareness of the relationship between the reader-player and the text, specifically paying attention to the ways in which the reader-player might actively engage with elements of the text. Five of the respondents said they composed ergodic media, from actual video games to experimental narratives composed in webspaces, but even those that only composed nonergodic media framed their writing as

invitations for deeper, meaningful engagement. They expressed a conscious attention to the world constructed within their texts, always questioning the immersive quality. The references to engagement recall Murray's (1997) agency-through-reward description, the "satisfying power to take meaningful action and see the results" (p. 126). Respondents reported taking approaches to narrative that release control of interpretation to the reader-player, so that satisfaction comes through discovery. A screenwriting major, for example, explained the necessity of designing a story structure that requires audience participation to draw conclusions about the characters and understand the deeper meaning of the plot.

The survey responses, then, indicated at least a transfer of ludonarrative praxis in the way that respondents conceptualize and approach subsequent writing situations.

Toward the Future

For my own pedagogy, these preliminary steps toward understanding the potential for the transfer of ludonarrative study and practice to other settings and writing situations have reaffirmed the importance of actively facilitating students' meta-awareness and reflective practices in how knowledge can be transferred between contexts—from past knowledge to current, and from current to future, specifically when praxis of one kind of composing appears quite dissimilar from another. In the Fall 2018 version of the course, I have taken to heart DePalma's (2015) suggestion that "students engage with writing scholarship that theorizes notions of literacy in expansive and varied ways" (p. 632), revisiting my course texts to include more recent scholarship on ludology, such as Calleja's (2011) *In-Game,* as well as providing opportunities for active reflection using an adapted form of the tracing heuristic. Future research will include pre- and post-test surveys measuring the extent of enculturation of the grammar of discourse, as well as interviews with students and analysis of texts they have composed after the course to evaluate how learning turns to practice in new writing contexts.

Finally, I want to stress that such an intense study of narratology and ludology is not necessary for learning transfer and is likely impossible in most composition courses. What matters is the sustained connection between theory and practice coupled with a meta-awareness of how such praxis can be utilized in new contexts. If students can articulate a theory of writing like *ludonarratology* in what they do in the creation of hypertexts, of games, of interactive narratives, and through that theory make connections to composing in both ergodic and nonergodic forms, then pedagogies incorporating multimodality, remediation, and video games can be quite liberating.

References

Alexander, Jonathan, & Rhodes, Jacqueline. (2014). *On multimodality: New media in composition studies.* Urbana, IL: National Council of Teachers of English.

Aarseth, Espen J. (1997). *Cybertext: Perspectives on ergodic literature.* Baltimore, MD: Johns Hopkins University Press.

Bethesda Game Studios. (2008). *Fallout 3.* Rockville, Maryland: Bethesda Softworks.

Bethesda Game Studios. (2011). *The elder scrolls V: Skyrim.* Rockville, Maryland: Bethesda Softworks.

Bogost, Ian. (2008). The rhetoric of video games. In Katie Salen (Ed.), *The ecology of games: Connecting youth, games, and learning* (pp. 117-139). Cambridge, MA: MIT Press.

Calleja, Gordon. (2011). *In-Game: From immersion to incorporation.* Cambridge, MA: MIT Press.

CD Projekt Red. (2015). *The Witcher 3: Wild Hunt.* Warsaw, Poland: CD Projekt.

Chatman, Seymour. (1978). *Story and discourse*. Ithaca, NY: Cornell.

DePalma, Michael-John. (2015). Tracing transfer across media: Investigating writers' perceptions of cross-contextual and rhetorical reshaping in processes of remediation. *College Composition and Communication, 66*(4), 615-642.

DePalma, Michael-John, & Alexander, Karen Poe. (2015). A bag full of snakes: Negotiating the challenges of multimodal composition. *Computers and Composition, 32*(2), 182–200.

DePalma, Michael-John, & Ringer, Jeffrey M. (2014). Adaptive transfer, writing across the curriculum, and second language writing: Implications for research and teaching. In Terry Myers Zawacki & Michelle Cox (Eds.), *WAC and second language writings: Research towards linguistically and culturally inclusive programs and practices.* Fort Collins, CO: The WAC Clearinghouse and Parlor Press. Retrieved from https://wac.colostate.edu/books/perspectives/l2/

Eskelinen, Markku. (2012). *Cybertext Poetics: The critical landscape of new media literary theory.* New York, NY: Continuum.

Evans, James. (2017). *Forms of time in* The Witcher 3. Unpublished manuscript.

Eyman, Douglas, & Davis, Andrea D. (Eds.). (2016). *Play/write: Digital rhetoric, writing games.* Anderson, SC: Parlor Press.

Frasca, Gonzalo. (1999). *Ludology meets narratology: Similitude and differences between (video)games and narrative.* Retrieved from http://www.ludology.org/articles/ludology.htm

Gee, James P. (2003). *What video games have to teach us about learning and literacy.* New York, NY: Palgrave MacMillan.

Genette, Gérard. (1996). *Narrative/theory*. New York, NY: Longman.

Giant Sparrow. (2017) *What remains of Edith Finch.* Los Angeles, CA: Annapurna Interactive.

Infocom. (1980) *Zork I.* Boston, MA: VisiCorp.

Klopfer, Eric, Osterweil, Scot, & Salen, Katie. (2009). Moving learning games forward. *The Education Arcade.* Retrieved from http://education.mit.edu/wp-content/uploads/2015/01/MovingLearningGamesForward_EdArcade.pdf

Murray, Janet Horowitz. (1997). *Hamlet on the holodeck: The future of narrative in cyberspace*. New York, NY: The Free Press.

Murray, Joddy. (2009). *Non-discursive rhetoric: Image and affect in multimodal composition*. Albany: SUNY Press.

Nolan, Jonathan, & Joy, Lisa. (2016). *Westworld*. Los Angeles, CA: HBO Entertainment.

Nowacek, Rebecca S. (2011). *Agents of integration: Understanding transfer as a rhetorical act*. Carbondale, IL: Southern Illinois University Press.

Robertson, Liana, Taczak, Kara, & Yancey, Kathleen Blake. (2012). A theory of prior knowledge and its role in college composers' transfer of knowledge and practice. *Composition Forum, 26*. Retrieved from https://compositionforum.com/issue/26/prior-knowledge-transfer.php

Salen, Katie, & Zimmerman, Eric. (2004). *Rules of play: Game design fundamentals*. Cambridge, MA: MIT.

Selfe, Cynthia L. (Ed.). (2007). *Multimodal composition: Resources for teachers*. Cresskill: Hampton.

Sierra, Wendi. (2017). Creating space: Building digital games. In Cheryl E. Ball, Chen Chen, Kristopher Purzycki, & Lydia Wilkes (Eds.), *The proceedings of the annual computers and writing conference, 2016-2017* (pp. 66–73). Fort Collins, CO: The WAC Clearinghouse. Retrieved from https://wac.colostate.edu/resources/wac/proceedings/cw2016-2017/

Shaffer, David Williamson. (2012). Models of situated action: Computer games and the problem of transfer. In Constance Steinkuehler, Kurt Squire, & Sasha Barab (Eds.), *Games, learning, and society: Learning and meaning in the digital age* (pp. 403-431). Cambridge, MA: Cambridge University Press.

Shepard, Ryan P. (2018). Digital writing, multimodality, and learning transfer: Crafting connections between composition and online composing. *Computers and Composition, 48*, 103–114.

Shipka, Jody. (2005). A multimodal task-based framework for composing. *College Composition and Communication, 57*(2), 277–306.

Shipka, Jody. (2011). *Toward a composition made whole*. Pittsburg, PA: University of Pittsburgh Press.

Strasma, Kip. (2001). Emerging pedagogy: Teaching digital hypertexts in social contexts. *Computers and Composition, 18*, 257–274.

Wardle, Elizabeth. (2009). Mutt genres and the goal of FYC: Can we help students write the genres of the university? *College Composition and Communication, 60*(4), 765–789.

Yancey, Kathleen Blake, Robertson, Liane, & Taczak, Kara. (2014). *Writing across contexts: Transfer, composition, and sites of writing*. Logan, UT: Utah State University Press.

Virtual Dust on a Bookshelf: Abandoned Wikibooks by and for Writing Students

Christopher Scott Wyatt, Slippery Rock University of Pennsylvania

Within composition and rhetoric, scholars embraced wikis and their predecessors. We included students in the creation and maintenance of collaborative open source writing projects, hoping these projects would become exemplars of sustainable living texts. Sadly, the Wikibooks texts *Rhetoric and Composition* and *Professional and Technical Writing* offer examples of student-led writing projects that now collect virtual dust on the Wikibooks library shelves. Both projects were last revised significantly in 2010, with only minor edits in the eight years since. Similar neglect affects other open source publishing efforts. What contributed to Wikibooks failing to attract new and ongoing collaboration? Why did readers not embrace the texts? Can the projects be revived—and should they be? Identifying why the projects did not achieve sustainability might help us avoid embracing digital writing technologies that fade as quickly as these Wikibooks did.

Wikibooks and Unrealized Potential

This paper explores the current state of the Wikibooks library, presents data on Wikibook collaboration trends, examines potential explanations for these trends, and concludes by asking if our disciplines can, and should, actively attempt to revive neglected crowdsourced, open source texts.

When Matt Barton (2008) guided his students at St. Cloud State University of Minnesota through the creation of the Wikibook *Rhetoric and Composition*, some of us anticipated a wave of similar efforts. I encouraged students at the University of Minnesota, Twin Cities, to create the *Professional and Technical Writing* text in 2008, as one of several project choices for collaborative groups. Swept up by my idealism, I posted to various mailing lists and online forums seeking involvement by students at other universities. I dreamed of a project that would expose students to collaborative writing in a complex online setting. Students enthusiastically embraced this project and several others intended to offer authentic audiences for writing. According to the Wikimedia Foundation, 2007 was also the peak for collaboration on

Wikipedia. As data in this paper demonstrate, the two books were largely abandoned within three short years.

Barton (Cummings and Barton, 2008) expressed concerns that wiki projects might turn into "virtual Roanokes," a prescient fear. My technical writing students at three universities contributed to a half-dozen Wikibooks between 2007 and 2013, on topics including AppleScript programing and Podcasting, known as "audio drama" at the time. Each of these books has been neglected for several years. After an initial burst of enthusiasm for online publishing on a topic, collaboration lasts two to three years before dropping precipitously. Without constant encouragement and support, online texts appear unsustainable.

Crowdsourced Academic Texts

Composition and rhetoric scholars have a tradition of embracing innovative technologies for planning, composing, publishing, distributing, and consuming texts. As early as 1984 our discipline welcomed *The Computer in Composition Instruction* (Wresch), a collection featuring scholars including Hugh Burns, Lillian S. Bridwell, and Cynthia L. Selfe. For more than three decades we have sought out and embraced technologies that enable collaborative writing and publishing. Many of us embrace collaborative, social pedagogies and we believe students should create works with authentic audiences. Major figures in writing studies have embraced technology in their teaching and their scholarship, as symbolized by the annual Computers and Writing conference.

For these reasons, we naturally embrace wiki authoring platforms. The first wiki was created in 1994 by Ward Cunningham, who envisioned a Web-based, multiuser version of Apple's HyperCard authoring tool (Cunningham and Leuf, 2001). With the slogan "Open Books for an Open World," Wikibooks launched during the summer of 2003 according to domain registration records and the Wikibooks "Welcome" page (Wikimedia Foundation, 2017). Wikibooks are, as the name suggests, complete book-length digital texts based on the same World Wide Web technologies as the article-based Wikipedia. The guidelines on "What is Wikibooks" state: "Wikibooks is for textbooks, annotated texts, instructional guides, and manuals. These materials can be used in a traditional classroom, an accredited or respected institution, a home-school environment, as part of a Wikiversity course, or for self-learning."

The Wikimedia Foundation anticipated the creation of open source reference books and textbooks equal to those issued by traditional academic publishers. The foundation anticipated experts would engage with the crowdsourced efforts, ensuring that the books would meet or exceed academic stan-

dards for content and research. Citation and indexing standards emerged, reflecting the digital nature of the texts while respecting academic traditions.

Open source textbooks differ from open access texts, which offer free access after a work is digitally published. Open access works in composition and rhetoric follow the same workflow as other academic monographs and edited collections. Once published, the open access texts become static artifacts locked in time; there might be further editions of a work, yet these also become static editions. Open source texts, also known as crowdsourced and open content texts, rely on active community participation. Generally, a core set of contributors and editors guide Wikipedia and similar communities, just as a core set of computer programmers tend to dominate specific open source software projects (Simonite, 2013).

As with Wikipedia, many of the earliest pages created were scientific and technical in nature. Books were soon assembled on the C programming language and the TeX/LaTeX typesetting system. University students in the United Kingdom soon added study guides to the "A-Levels" to help peers prepare for the A-Level topic exams in various subjects. Unlike Wikipedia, popular culture has not come to dominate either new content creation or the most visited pages on Wikibooks.

The ideal open source books are dynamic, living works, updated and edited when appropriate. There are no editions, with the text always current. But what happens when a text fails to achieve this ideal? The Wikibooks platform in general has failed to achieve the ideal, potentially disappointing those of us working in academic disciplines that had embraced the platform for research, pedagogical, and ideological reasons.

Wikimedia, MediaWiki, Wikipedia and Wikibooks

Using Wikibooks within a writing course leads to discussions of how writing requires technology, and how writing itself is a technology (Barton, 2008; Haas, 1995). As a technical writing instructor, I use Wikibooks to expose students to the technologies of content management systems. As someone who worked in information technology for several decades, I value the distinctions between software, platforms, and solutions.

The Wikimedia Foundation is the non-profit organization that oversees the development and maintenance of the MediaWiki software and database application platform (Wikimedia Foundation, 2017). MediaWiki uses the PHP scripting language and MySQL database servers to implement a content management system (CMS) (MediaWiki, 2016). Contributors prepare content using the Wikitext markup language, which was meant to be a simplified alternative to HTML. Wikipedia and Wikibooks are collaborative projects

supported by the Wikimedia Foundation, using the MediaWiki software. As an open source platform, any individual or group can download and install MediaWiki software as a CMS.

The Wikimedia Foundation distinguishes between the MediaWiki software and the Wikibooks platform. For the purposes of this paper, I refer to the Wikibooks platform. This platform includes the PHP software, the database, Wikitext markup, templates, and extensions to MediaWiki that enhance Wikibooks.

Wikibooks Collaboration Data

Examining Wikibook activity illustrates the challenges faced by the platform and, potentially, faced by similarly crowdsourced, open source, and open content publishing communities. To examine the health and sustainability of Wikibooks, I collected data on completion status, editing activities, founding contributors, and active editors.

Alexa.com, the Internet metric provider owned by Amazon, ranks global Web traffic based on data from Domain Name Server (DNS) requests. As of April 2018, Wikipedia occupies the fifth spot in global traffic and sixth in the United States; compared to Wikibooks at position 1914 in the world and 2198 in the United States. The top 100 global sites account for over 90 percent of human readers, and it is interesting to note that "bots" surpassed human visitors to websites in 2016 (Glaser, 2017). Though Wikibooks is active, sites not in the top 500 for traffic have few human readers. We also know that editors and contributors are an even smaller percentage of visitors to a site such as Wikibooks (Simonite, 2013).

Wikibooks faded quickly, based on server activity and traffic metrics (Alexa, n.d.). The peak usage years were 2007 through 2013, a five-year window. Curiously, Newsgroups, Yahoo Groups, MySpace, AOL Instant Messenger, and other Internet based communities had similar periods of peak engagement (Alexa, n.d.). Based on Alexa data, rarely does an online technology thrive for more than five years, with disruption the norm. Dominant names fade or disappear, and Wikibooks never managed to achieve meaningful momentum like its sibling Wikipedia. The active years were only active by comparison to the current state of Wikibooks.

One explanation for this activity pattern might be that there were many new topics to address when Wikibooks appeared, since no content existed on the platform. However, the dearth of subject matters on Wikibooks to this day suggests that the "holes to fill" argument does not explain why activity rapidly declined after 2013. A narrower version of this explanation is that the technically-oriented users and contributors to the Wikimedia content plat-

forms were only interested in a handful of specialized topics. Yet, this does not explain why there are not complete texts for most popular programming languages, though many were started over the years.

The organization of Wikibooks challenges contributors and users to locate information. Categories and subcategories have similar names; the "General" subcategory exists within many primary categories. Rhetoric projects exist within the "Humanities" category and within the "Communication" subcategory of "Social Studies." To analyze contributions and edits, it was necessary to search through the Wikibooks structure manually, as topical searches did not locate all Wikibooks on rhetoric or writing.

Book completion data were verified April 30, 2018. Data on book completion statuses features the terminology from Wikibooks. A "freshly started" book might have been abandoned many years ago, but the label remains the standard within the Wikibook platform. There are ten major categories in the Wikibooks library, with varying numbers of subcategories. The Science category presents a unique problem for analysis, as interlinking of chapters and sections within books leads to 30 "complete" books that borrow heavily from other books within the system, including incomplete books.

Table 1. Status of books by category and subcategory, in Wikibook order

Official Wikibook Category	Complete	Nearing Completion	Half Finished	Partly Developed	Freshly Started	Unknown
Computing	2	1	5	8	14	6
Humanities: Literature	0	3	0	5	8	4
Science	[30]*	15	4	3	12	4
Mathematics: Applied	2	2	1	5	3	2
Social Sciences: Communication	3	0	0	2	10	2
Social Sciences: Communication: Written	5	2	2	8	8	0
Languages: Europe	1	2	5	23	26	2
Engineering: General	3	1	2	2	2	0

At the top-level of subject, the data suggest few books have reported as "Complete" by the contributors and editors. For example, Computing has three "Complete" or "Nearly Complete" works and 33 considered "Half Fin-

ished" or less, an 8 percent completion rate. Rates vary within Categories and Subcategories, but the completion rate is less than 10 percent for all sampled textbook groupings. Because anyone can create a book, it is possible that many were created in moments of enthusiasm and quickly abandoned. Editors can and do remove neglected books, but a great many neglected books remain in the Wikibooks library.

Four of the Wikibook texts we might associate with composition and rhetoric indicate they originated at universities. This suggests that instructors proposed the projects and led students through the wiki authoring process. *Rhetoric and Composition* and *Professional and Technical Writing* were outlined and organized by professors, according to the Wikibook editing logs. When a project is associated with a specific course at a university, as these texts are, we need to consider how this might negatively affect the viability of the project. The texts credits to specific university courses were created in 2005, 2008, and 2009, all within two years of the peak Wikimedia activity during 2007. This suggests the courses embracing Wikibooks followed general online collaboration trends.

Table 2. Source of original content, based on "About" or "Introduction" pages

Wikibook	Originating Team	Year
Digital Rhetoric	James Madison University	2009
Professional and Technical Writing	University of Minnesota	2008
Rhetoric and Composition	St. Cloud State University	2005
Visual Rhetoric	James Madison University	2005

The Wikibooks platform enables any contributor or editor to view the history for a text. Wikibook, as MediaWiki software implementation, provides data including the most recently added pages, the most recent modifications, and historical trends. To analyze the activity of the writing and rhetoric texts, I consulted the Wikibooks reporting system. Because the "Table of Contents" sections experience automatic updated, only content sections were considered for activity analyses.

Editing activity logs include all saved versions of a page within Wikibooks, resulting in multiple entries if a user saves work while editing. For this reason, log entries by a single contributor within five minutes of each other were counted as a single editing session. Shared computer labs might account for the same Internet Protocol (IP) address editing a page hours apart within the same day, so any gaps longer than five minutes were counted as unique editing sessions. Wikibooks does not require a user account to edit a page, which explains IP addresses in place of usernames within the logs.

Table 3. Books on academic writing and rhetoric, found within Social Sciences: Communication: Written

Wikibook	Status	Pages	Created	Last Edited	Last Activity
Composition	Partly Developed	1	Jun 2006	Oct 2007	Editors rejected various revisions from 2014 through 2017.
Digital Rhetoric	Nearing Completion	10	Apr 2009	Aug 2010	Minor edits to first page.
Professional and Technical Writing	Completed	72	Aug 2008	Apr 2010	MLA Citation pages updated.
Rhetoric and Composition	Nearing Completion	108	Apr 2005	Feb 2017	Commonly Confused Words page created, a single-day revision.
Visual Rhetoric	Nearing Completion	15	Apr 2005	Sep 2016	Editors merged and reorganized pages, content static since 2007.
Writing a Research Paper	Freshly Started	1	Nov 2007	Mar 2013	Editors rejected revisions in 2014 and 2018, maintaining the 2013 text.
Writing Better University Essays	Completed	17	Apr 2008	Mar 2018	Editors rejected revisionsin 2016 and 2017, maintaining the 2013 text.

Digital Rhetoric was created in 2009 as a nearly-complete work, suggesting the copying of text into the Wikibook system from elsewhere. For example, the page "Collaboration and Wikinomics" received 22,487 bytes of content in a single editing session from an anonymous IP address. The text appeared within seconds, which suggests the contents were pasted into Wikibooks.

Some automated and minor grammatical edits were made to the otherwise static *Rhetoric and Composition* and *Professional and Technical Writing* pages sampled. In each case, three or fewer characters were changed in 2017. This accounts for reports of "no significant activity" within the Wikibook system for several years, despite edits listed within page logs. Also, some additions later removed from all the texts examined were the result of attacks or exploits. The 2016 edits to *Visual Rhetoric* and the 2017 edits to *Writing Better University Essays* reflect misuses of the Wikibook for commercial purposes and the inclusion of links to suspicious websites. The single-page texts *Composition* and *Writing a Research Paper* are frequent targets for misuse, leading to rejections by Wikibook editors of additions and edits by anonymous users.

Table 4. Editing of active Wikibook pages over time

Wikibook	2006	2007	2008	2010	2012	2014	2016	2017
Composition	29	32	0	4	0	3	2	2
Digital Rhetoric: "Collaboration and Wikinomics"	-	-	-	0	0	0	0	1
Professional and Technical Writing: "Cover Letters"	0	0	16	17	1	0	0	1
Rhetoric and Composition: "Planning and Prewriting"	15	20	5	0	2	3	0	1
Visual Rhetoric: "Semiotics of Fashion"	0	6	0	4	1	2	6	0
Writing a Research Paper	-	7	1	2	0	2	0	0
Writing Better University Essays: "Main Part"	-	-	2	0	0	5	2	13

Waning Wikibooks

Before analyzing why the Wikibooks created and maintained by students of writing courses failed to achieve sustainability, addressing the general decline of Wikibooks offers insights. Overall, the decline of Wikibooks has followed the arc of other websites and technologies, as previously mentioned. The five- to seven-year cycle of web-based communities revealed by Alexa data suggests that it would have been unusual for Wikibooks to remain vibrant. The software, platforms, and services that thrive online evolve to meet changing user needs and expectations.

Wikibooks today resembles the platform released in 2003. For content collaborators and readers, the Wikibook experience has failed to keep pace with other CMS platforms. Wikibooks requires at least some markup skills, at a time when other platforms seek to simplify content formatting. In 2018 the popular blogging platform WordPress adopted a new visual content editor known as Gutenberg (WordPress.org, n.d.). Popular CMS Drupal 8 has also shifted to an integrated visual editor (Drupal.org, 2017). The WordPress and Drupal development teams have each argued that online writing should not require coding or markup skills. The popular Medium blogging service reduced default formatting options to: bold, italic, underline, two heading levels, block quotes, and links (Medium.com, n.d.).

The goal of Wikibook projects was to engage students in the creation and maintenance of collaborative texts. The pedagogy included emphasizing genuine audiences, demonstrating to students that readers and contributors from around the world visited the pages. However, readership fell precipitously af-

ter 2010, suggesting other sources offered more academic value. If other students and self-directed learners were using the Wikibooks as text alternatives, these readers found other alternatives in recent years.

Dedicated Sources

The Purdue Online Writing Lab (https://owl.purdue.edu) and similar offerings from universities offer current and detailed guides to academic writing standards. Instructors and students likely trust these university-maintained sites more than the Wikibooks on writing and rhetoric. *Silva Rhetoricae: The Forest of Rhetoric*, maintained by Gideon O. Burton at Brigham Young University (http://rhetoric.byu.edu), is a complete text on classical rhetoric. I also refer students to *The Stanford Encyclopedia of Philosophy* (https://plato.stanford.edu) to research individuals and concepts within rhetoric.

As instructors, we emphasize the trustworthiness of "edu" domains and peer-reviewed journals. The rise of open access journals and books likely resulted in some decline among Wikibooks users and contributors. We consider journals more reliable than ever-changing crowdsourced open source texts. In our disciplines, open access publishing makes many journals and monographs freely available. In 2003, when Wikibooks launched, there were few open access journals. The Public Knowledge Project (PKP) had released the first version of their PHP-based open journal software in 2001 but gained greater usage with a major software upgrade in 2005 (PKP, 2016). The Public Library of Science published its first journal, *Biology*, in 2003 (PLOS.org, 2017). As of 2018, the Directory of Open Access Journals (https://doaj.org) lists 12,192 journals. Journals included in the DOAJ are encouraged to join the Open Access Scholarly Publishers Association and adhere to traditional peer review standards, according to the "Principles of Transparency and Best Practice in Scholarly Publishing" (DOAJ.org, 2018).

Other Trusted Sources

The early Wikibooks were largely technical in nature. Apple and Microsoft have made much of their technical documentation freely available, reducing the demand for open source textbooks on the hardware, software, and programming languages these companies distribute. As an example, Apple offers complete manuals and training guides for their Swift programming language. The Wikibook on Swift now opens with a link to the Apple documentation and a note that the Wikibook is not maintained. The Wikibook on FutureBASIC is likewise no longer maintained because the compiler developer offers all materials freely via download.

Reviving Interest—or Letting Go

Searching via Google Scholar and library portals reveals articles on Wikibooks within composition and rhetoric declined after 2014. Articles discussing the texts by and for our university writing students also declined precipitously after 2012. Scholarship followed general Web activity trends, as our scholars' interests shifted to social media platforms or, more accurately, returned to social media with Twitter and Facebook having replaced MySpace, Friendster, and LiveJournal as places for study. Wikibooks were only a promising location for research when the texts appeared to have a viable future.

We could revive Wikibooks through a concerted effort, requiring collaboration on the Wikibooks platform. From 2007 through 2011, I sought out other instructors who might include Wikibook projects in their writing and rhetoric courses. Though some colleagues responded with support for my efforts, none expressed an interest in class projects using the writing and rhetoric Wikibooks.

Wikibooks are unlikely to thrive in the future, especially with outdated content editing features. The texts were curiosities that technically-oriented educators embraced, while the wider Internet ignored the existence of these texts. Based on my experiences as an instructor, most students were unfamiliar with Wikibooks and few found the texts useful. My students contributed because it was the most appealing assignment choice from several options. They engaged, some enthusiastically, during a writing course. When the writing course ended, so did their contributions to Wikibooks.

It is possible that the Wikibook moment was an illusion, a goal many of us shared but one that was unlikely to achieve the same popularity as the more focused, short-article based Wikipedia. The nature of textbooks might limit the appeal of Wikibooks, and that limited appeal leads to neglect by writers and readers. Once written, the pages and books collect virtual dust on the bookshelf.

References

Alexa.com. (n.d.) Retrieved April 30, 2018, from https://www.alexa.com

Barton, Matt. (2008). Is there a wiki in this class? Wikibooks and the future of higher education. In Robert E. Cummings & Matt Barton (Eds.), *Wiki writing: Collaborative learning in the college classroom* (pp. 175–193). Ann Arbor, MI: University of Michigan Press.

Collaboration and Wikinomics. (n.d.). In Wikibook Digital Rhetoric. Retrieved April 30, 2018, from https://en.wikibooks.org/wiki/Digital_Rhetoric/Collaboration_and_Wikinomics

Composition. (n.d.). In Wikibooks. Retrieved April 30, 2018, from https://en.wiki-

books.org/wiki/Composition
Cover Letters. (n.d.). In Wikibook Professional and Technical Writing. Retrieved April 30, 2018, from https://en.wikibooks.org/wiki/Professional_and_Technical_Writing/Career/Cover_Letters
Cummings, Robert E., & Barton, Matt. (Eds.). (2008). *Wiki writing: Collaborative learning in the college classroom*. Ann Arbor, MI: University of Michigan Press.
Cunningham, Ward & Leuf, Bo. (2001). *The wiki way: Quick collaboration on the Web*. Boston, MA: Addison-Wesley
Digital Rhetoric. (n.d.). In Wikibooks. Retrieved April 30, 2018, from https://en.wikibooks.org/wiki/Digital_Rhetoric
Directory of Open Access Journals. (2018, January 15). Principles of transparency and best practice in scholarly publishing. Retrieved from https://doaj.org/best-practice
Drupal. (2017, May 17). CKEditor module overview. Retrieved from https://www.drupal.org/docs/8/core/modules/ckeditor/overview
Glaser, April. (2017). Internet traffic from bots surpassed human-generated traffic in 2016. In Recode. Retrieved from https://www.recode.net/2017/5/31/15720396/internet-traffic-bots-surpass-human-2016-mary-meeker-code-conference
Haas, Christina. (1995). *Writing technology: Studies on the materiality of literacy*. New York, NY: Routledge.
Main Part. (n.d.). In Wikibook Writing Better University Essays. Retrieved April 30, 2018, from https://en.wikibooks.org/wiki/Writing_Better_University_Essays/Main_part
MediaWiki. (2016, December 4). Welcome to MediaWiki.org. In MediaWiki. Retrieved from https://www.mediawiki.org/wiki/MediaWiki
Medium Help Center. (n.d.). Format text. Retrieved from https://help.medium.com/hc/en-us/articles/215194537-Edit-post
OA Cooperative Project. (2017, Dec 24). The open access publishing cooperative study. Retrieved from http://oa-cooperative.org
Planning and Prewriting. (n.d.). In Wikibook Rhetoric and Composition. Retrieved April 30, 2018, from https://en.wikibooks.org/wiki/Rhetoric_and_Composition/Planning_and_Prewriting
Professional and Technical Writing. (n.d.). In Wikibooks. Retrieved April 30, 2018, from https://en.wikibooks.org/wiki/Professional_and_Technical_Writing
Public Knowledge Project. (2016). History. Retrieved from https://pkp.sfu.ca/about/history/
Public Library of Science (PLOS). (2017). Our history. Retrieved from https://www.plos.org/history
Rhetoric and Composition. (n.d.). In Wikibooks. Retrieved April 30, 2018, from https://en.wikibooks.org/wiki/Rhetoric_and_Composition
Semiotics of Fashion. (n.d.). In Wikibook Visual Rhetoric. Retrieved April 30, 2018, from https://en.wikibooks.org/wiki/Visual_Rhetoric/Semiotics_of_Fashion
Simonite, Tom. (2013). The decline of Wikipedia. MIT Technology Review. Retrieved from https://www.technologyreview.com/s/520446/the-decline-of-wikipedia/

Visual Rhetoric. (n.d.). Retrieved April 30, 2018, from https://en.wikibooks.org/wiki/Visual_Rhetoric

Welcome. (n.d.). In *Wikibooks*. Retrieved April 8, 2018, from https://en.wikibooks.org/wiki/Wikibooks:Welcome

Wikibooks. (n.d.). Writing better university essays. Retrieved April 30, 2018 from https://en.wikibooks.org/wiki/Writing_Better_University_Essays

Wikimedia Foundation. (2017). About Wikimedia. Retrieved from https://wikimediafoundation.org/about/

WordPress. (n.d.). Say hello to the new editor. Retrieved April 18, 2018, from https://wordpress.org/gutenberg/

Wresch, W. (1984). *The computer in composition instruction: A writer's tool*. Urbana, IL: National Council of Teachers of English.

Writing a Research Paper. (n.d.). In Wikibooks. Retrieved April 30, 2018, from https://en.wikibooks.org/wiki/Writing_a_Research_Paper

Experiments in Transductive Writing and Rhetoric with the Kinect

Matthew Halm, North Carolina State University
Steven Smith, North Carolina State University

The emergence of networked and physical computing technologies has prompted scholars of rhetoric to reevaluate the canon of delivery. Collin Brooke (2009) and Sean Morey (2016) each explore digital delivery through the lens of posthumanism and argue that digital technologies act as a prosthesis to the hand or body; this allows delivery to extend into cyberspace networks and create reciprocal relationships between the audience and *who* or *what* may be doing the delivering. This interaction occurs through processes of transduction, or "the conversion of one form of energy into another" (O'Sullivan and Igoe, 2004, p. xix). In the context of digital rhetoric and writing, transduction can be framed as integral to the processes of invention: "discovering the available means of transduction is the basis for invention" (Rieder, 2017, p. 14). Furthermore, transduction demonstrates how persuasion, articulated as eversion, or a folding "of the virtual into the real," occurs (Rieder, 2017, p. 14). This paper describes experiments using the Microsoft Kinect (a depth camera) to focus on the concept of transduction as a means of describing rhetoric and writing in complex contexts such as those presented by digital media.

The emergence of networked and physical computing technologies has prompted scholars of rhetoric to reevaluate the canon of delivery, which has traditionally focused on human attributes like gesture and tone of voice during oration. Collin Brooke (2009) and Sean Morey (2016) each explore digital delivery through the lens of posthumanism and argue that digital technologies act as a prosthesis to the hand or body; this allows delivery to extend into cyberspace networks and create reciprocal relationships between the audience and *who* or *what* may be doing the delivering. David Rieder (2017) explores the canon through the emergence of physical computing technologies, or interactive objects and environments that sense and respond to the analog world. This interaction occurs through processes of transduction, or "the conversion of one form of energy into another" (O'Sullivan and Igoe, 2004, p. xix).

In the context of digital rhetoric and writing, transduction can be framed as integral to the processes of invention: "discovering the available means of transduction is the basis for invention" (Rieder, 2017, p. 14). Furthermore, transduction demonstrates how persuasion, articulated as eversion, or a folding "of the virtual into the real" occurs (Rieder, 2017, p. 14). The Microsoft Kinect is one such method of making transduction visible by everting reality. The experiments described below use the Kinect to focus on the concept of transduction as a means of describing rhetoric and writing in complex contexts such as those presented by digital media.

Transduction and Delivery

Transduction is a term used in a variety of disciplines to describe a process of movement and change. In the context of physical computing Dan O'Sullivan and Tom Igoe (2004) describe transduction as "the conversion of one form of energy into another," such as an electrical impulse being used to trigger the movement of a motor, or a change in lighting conditions causing an alarm to sound (p. xix). Attempting to name exactly what has "transduced" in these examples is difficult. In a certain sense the electrical impulse has "become" movement of the motor and in a certain sense it has not. Under this definition there is less attention paid to "what" is transduced—all that matters is that transduction has happened.

Transduction is also a term widely used in the context of genetics, where it refers to the relocation of DNA from one cell to another as a byproduct of the movement of a third entity (a virus) between the other two (Griffiths et al, 2000). A virus incidentally picks up DNA from one cell and when it moves to another cell it leaves some of it behind. As a simplistic metaphor, the muddy boots of a burglar might unintentionally leave tracks in a variety of different homes as the burglar engages in an entirely different process. Much like O'Sullivan and Igoe's definition, transduction here emphasizes a conversion—if the result of the process is taken as a whole, the combination of DNA is different at the end than it was at the beginning. But genetic transduction also provides a connotation of mutation. For geneticists, transduction is a key way of understanding species diversity; transduction causes unexpected results.

It is this unexpectedness that is emphasized by post-structural theorists like Bernard Stiegler (1998) as well as Gilles Deleuze and Félix Guattari (1977), who get their understandings of transduction from Gilbert Simondon. According to Simondon (2009) transduction is "an operation—physical, biological, mental, social—by which an activity propagates itself from one element to the next" (p. 11). This propagation is not a one-to-one transfer, however, since as noted above transduction requires a change in form. At each "stop"

along the way the transduced element "mutates," becoming something slightly different. The physical computing examples of O'Sullivan and Igoe still hold: an electrical impulse "mutates" and becomes a motor's rotation. The addition of the notion of mutation emphasizes the fact that this rotation may not correspond directly to the electrical impulse—indeed it cannot correspond in an exact way since it is not the same form of energy. It must, by necessity, be different.

Considering the canon of delivery with transduction in mind complicates traditional assumptions about how it operates. While traditionally the study of rhetorical delivery encompassed voice, or the tonal delivery of an oration, and gesture, which focused on the hand positions, body poses, and mien, contemporary uses have sought to expand the canon in light of the emergence of digital technologies. Collin Gifford Brooke (2009), for example, makes the argument that scholars should see delivery as both a practice *and* a performance as opposed to its traditional roots as a transitive process between a speaker and audience. By keeping in mind the classical idea that successful delivery requires good personal character (*ethos*), Brooke believes that online, interconnected media can cultivate performative environments that allow for the transmission of information. To justify this theory, he cites two examples (one from a personal blog, and another a critique of Wikipedia) of how anonymous users online can establish *ethos* for themselves via delivering credible content to open-source interfaces such as Wikipedia. Delivery in new media, then, is the *act* of establishing ethos in networked environments and using that credibility to create discourse that is capable of circulation. The fact that this requires multiple venues and technologies means that transduction is implicit throughout the process; we can see this process occurring regularly given the rise of multimodality in our composing practices, wherein a range of semiotic components such as animation, graphics, sound, and visuals may be transduced and manipulated to create digital discourse.

In focusing on contemporary uses of delivery, Brooke neglects to explore delivery's traditional aspects of voice and gesture and their influence on the pervasiveness of digital technologies. Sean Morey (2016) seeks to address the ways that delivery and digital technologies interact with one another. Through his inclusion of *posthuman* theories, he argues that digital technologies act as a prosthesis to the hand that allow delivery to extend through cyberspace networks. For Morey, the idea of delivery still very much involves the body, but with an emphasis on the body's extension into virtuality. The significance of the reciprocal relationship between the "deliverer" and "audience" is still stressed, and it is ultimately the connection between deliverer/audience/digital technologies that blend together and push us to become *posthuman*. Again, viewing delivery as posthuman and prosthetic foregrounds the role of

transduction: because there are a complex of technologies and forms of media involved in delivery, the actions of a rhetor must be transduced numerous times. This is not necessarily a new state of affairs but it is one highlighted by digital technologies.

The Kinect

Originally released by Microsoft in 2010 for the Xbox 360, refreshed in 2013 for the Xbox One, and discontinued in 2017, the Kinect is a depth camera capable of detecting human users and relaying the movements of those users to various software applications. The Kinect achieves this by projecting infrared dots onto the space in front of it and detecting those dots with an infrared camera. The exact mechanisms of this process differ between the two generations of Kinect, but the result is a three-dimensional "depth map" of the area directly in front of the Kinect. Software then generates human-shaped "skeletons" made up of joints placed in locations according to the human shapes detected by the depth camera.

Despite being a "dead" technology (for now), the Kinect offers a way to make visible the means through which it interacts with the physical world, in Rieder's terms "everting" the technical reality in which it is situated. The residual traces of that interaction—the leftover evidence of the various mutations and changes in energy involved in transduction—are taken up by bodies engaged in its processes (perhaps by being conditioned to move in a certain way to accommodate an anomaly in the way the Kinect "sees"), and these residual traces can be used as a method for seeing and understanding the relationship between the "inside" and "outside" of a technological subject (as explored, for example, by Sánchez, 2017). The following examples show two such approaches toward using the Kinect to reveal the technical and material processes at work in rhetoric and writing.

Digital Chironomia (Steven)

The *Digital Chironomia* is a response to ongoing conversations occurring in the contemporary uses of rhetorical delivery (Brooke, 2009; Morey, 2016; Porter, 2009; Welch, 1999), physical computing (Rieder, 2017), archiving (Bernardi 2018; Giannachi, 2016), microethnography (Giddings, 2009; Taylor et al., 2015), and orientation (Ahmed, 2006; Bay and Rickert, 2018), and is an attempt at bridging together the digital humanities and digital rhetoric. The project digitizes 19th century gestures from Gilbert Austin's manual treatise, *Chironomia, or a Treatise on Rhetorical Delivery*, into a program that can track a participant's embodied movements via the Microsoft Kinect v2 and the mul-

timedia software TouchDesigner. The *Digital Chironomia* works threefold: first, archivally, through its alternative methods of archiving inspired by Gabriella Giannachi's "Archive 3.0," which calls for the inclusion of animated or mixed-reality technologies when creating a site of knowledge; second, methodologically, via analyses brought forth by microethnographical research that provides opportunities to explore technocultural activity and the affective relationship between bodies and technologies; and third, theoretically, via what it means to be spatially oriented in the presence of digital technologies. For now, however, I want to draw attention to the transductive potentialities of coding gestures into the TouchDesigner software via the Microsoft Kinect v2.

Coding gestures into TouchDesigner was a lengthy trial and error process that involved setting up the Microsoft Kinect in a spacious room and moving back and forth from my PC to properly input the desired range of bodily coordinates that I wanted to track—because the Kinect tracks a user's entire body, it was necessary to parse out which body parts I wanted it to recognize for each specific gesture. For example, when creating *Supplico*, a gesture explored in Austin's *Chironomia* which is meant to "implore" someone to do something and is achieved by holding each hand in a position relative to the torso, I parsed out the data from my hands and hip provided by the Kinect as it does not recognize one's torso (the Kinect's skeletal data is essentially a set of appendages connected by a spine). From there, the Kinect provided the coordinates of my hands and hip on an imaginary plane and I had to input a desired range for it to track on this plane so that it would cause a reaction in the TouchDesigner software. For my specific purposes, as the location of the room, the distance from the Kinect, and the height of a user all influence how the body is tracked on the imaginary plane in *pixels* (the unit of measurement used in the software). My hands had to be in relation to one another greater than 0.5 pixels across the x, y, and z boundaries but less than 0.7 pixels, and equal to approximately 0.2 pixels in relation to my hip—if my hands were too far apart, too close together, or too far up/down my torso, then the gesture would not be recognized by the software.

The *Digital Chironomia* project showcases the transductive capabilities of technology in the wake of embodied interactions. As a user approaches the Kinect, it begins defining the joints of a skeleton, and that data is then delivered to the TouchDesigner software. When registered by the Kinect, the user's virtual skeleton is placed on an imaginary plane that tracks the x, y, and z coordinates of their joints numerically. As a user moves their body, the Kinect registers those movements and delivers the information to TouchDesigner which ultimately executes the coded program—in the case of *Supplico*, when a participant holds their hands in the correct location relative to what's been coded in TouchDesigner, a *reward mechanism* is executed in the form

of an audio file that explains the use of the gesture. Through the coalescence of embodied manipulation (that is, a physical embodied enactment), skeletal tracking, imaginary planes, and audio files, the *Digital Chironomia* project transduces material/motion energy into sound energy via the vibration of matter. Of course, the practice of gesticulation itself acts as mode of transduction, but the potentialities afforded by today's digital technologies and their inclusion of our modes of sensation, whether sight, sound, touch, etc., allows for a reconfiguration of the ways we approach the study of delivery.

Writing with the Kinect (Matthew)

To generate a program that allows users to use the Kinect to "write" onscreen with their bodies, I used the Processing coding language to create a "sketch" based on data from the Kinect sensor. Using Processing libraries developed by Thomas Sanchez Lengeling (2015), I created functions that use data from the Kinect to write lines on the screen in various ways.

The first iteration of my Kinect writing program placed small dots at the location of the user's right hand each time the Kinect generated a new position for the user. This creates a built-up network of dots forming a dotted line corresponding to the changes in position of the user's right hand. When a second user steps in front of the Kinect running this iteration of the program, the second user also generates dots based on the position of his or her hand.

The following code snippet shows two lists (*handx* and *handy*, established earlier in the program) each of which are appended with the most recent position of the user's hand (one list contains the horizontal coordinate while the other contains the vertical coordinate). These lists are then used to draw dots for each item in the list, thus building up a chain of dots at each position the user's hand has been at since the program started running.

```
handx.append(joints[HAND_RIGHT].getX());
handy.append(joints[HAND_RIGHT].getY());


for (int n = 1; n<handx.size(); n++) {
stroke(255);
fill(255);
ellipse(handx.get(n),handy.get(n),10,10);
}
```

The code shows that the data originally gathered by the Kinect is not intrinsically identifiable as belonging to any individual human. The Kinect gathers coordinate data, and it is the software that turns that data into what we might recognize as a human image on the screen (in this case, the position of the hand). If the software does not account for the way the data has changed as it moves from the sensor to the eventual output, it will not create something recognizable to humans.

A failure of the sketch to account for transduction is revealed in its second version. This iteration replaced the dots with lines drawn from the most recent position of the user's hand (*n*) to the second-most recent position (*n-1*), shown in the code snippet below. The result is a more continuous version of a line "drawn" by the user's hand.

```
handx.append(joints[HAND_RIGHT].getX());

handy.append(joints[HAND_RIGHT].getY());


for (int n = 1; n<handx.size(); n++) {

stroke(255);

line(handx.get(n-1),handy.get(n-1),handx.get(n),handy.
get(n));

strokeWeight(10);

}
```

However, when a second user steps in front of the Kinect running this iteration of the program, the second user's hand positions are added to the same lists as the first user's just as they were in the first version of the program. While this was not problematic when the software created discontinuous points for each position of the hand, when the points are connected with lines the result is a series of lines running back and forth between the two users' hands. Rather than a separate line for each user, the program treats both users as part of a whole. While this was not the intended result of the program, the second iteration reveals something of its own inner functioning: while it may have appeared in the first iteration that each user skeleton had an associated set of dots tracing his or her hand's path, the program instead records hand position for all users at the same time. Because of this, when the second iteration replaced dots with lines, the lines did not differentiate between users. For the Kinect, under this iteration of my program, all users are treated as a single subject of the sensor.

While the result of the second version of the Kinect writing program may or may not have been unexpected to imagined programmers of varying levels of experience with the Kinect, the result nevertheless reveals one way that the Kinect "sees" its surroundings. In turn, this machine perception is transduced in the form of visible lines which, though they bear an association with what the Kinect "saw," are a new entity in and of themselves. The fact that this version of the program treats all users as a single entity is neither solely a virtue of the Kinect's construction or of my program, but of their interaction. Data which might normally differentiate between distinct users for the purposes of a game, for example, is taken up by my program in a way which does not account for such a difference. The Kinect only sees distinct users if it is instructed to do so *retroactively*. The Kinect, of course, does not "see" like a human does, it gathers coordinate data which is interpreted as sight by a combination of computer software and human perception of that software's output. Each of the changes along the way from a human waving their arms around in front of a device to an image on a computer screen involve a transformation of one form of energy into another (transduction.), and with each of these transformations the information taken up by the next step in the process is altered substantially. Visual data becomes coordinate data which becomes a three-dimensional computer image which becomes a "skeleton" of joints and limbs, able to interact with various software applications on the computer. None of these versions corresponds exactly to the human standing in front of the sensor or to one another.

Conclusion

David Rieder (2017) argues that "all writing, including alphabetic writing is a *transductive* technology" (p. 133). If transduction is a key feature of writing then these examples, which use the Kinect to demonstrate or reveal processes of transduction, can tell us something about how writing works, and might further offer paths for a broadening of what counts as "writing." By way of these experiments and this research, we suggest that writing is a form of gesticulation and shares important characteristics with rhetorical gestures, such as those that are described in Austin's *Chironomia*. Gesture is a manipulation of the body that enables opportunities for communication to take place. Writing introduces an additional (or simply different) medium into the interaction between the gesturing body and a potential recipient. Writing is a result of physical, habitual movements and gesticulation itself is a form of embodied inscription laden with communicative capabilities. Our use of the Microsoft Kinect in these experiments has sought to capture the relationship between gesticulation and writing in real-time in order to put emphasis on

the transductive nature of writing/gesture. The movements that are enacted by participants in either experiment showcase the conversion of energy that occurs during communication, and as such transduction is integral to future studies of writing.

References

Ahmed, Sara. (2006). *Queer phenomenology: Orientations, objects, others*. Durham, NC: Duke University Press.

Bay, Jennifer, & Rickert, Thomas. (2018). New media and the fourfold. *JAC*, *28*(1), 209–44.

Bernardi, Joanne, & Dimmock, Nora. (2018). Creative curating: The digital archive as argument. In Jentery Sayers (Ed.), *Making things and drawing boundaries: Experiments in the digital humanities* (pp. 187-197). Minneapolis, MN: University of Minnesota Press.

Bogost, Ian. (2007). *Persuasive games: The expressive power of videogames*. Cambridge, MA: MIT Press.

Brooke, Collin Gifford. (2009). *Lingua fracta: Towards a rhetoric of new media*. Cresskill, NJ: Hampton Press, Inc.

Bulwer, John. (1974). *Chirologia, or the natural language of the hand, and Chironomia, or the art of manual rhetoric*. James W. Cleary (Ed.). Carbondale, IL: Southern Illinois University Press.

Deleuze, Gilles, & Guattari, Félix. (1977). *Anti-Oedipus: Capitalism and schizophrenia* (R. Hurley, M. Seem, & H. R. Lane, Trans.). New York, NY: The Viking Press.

Giannachi, Gabriella. (2016). *Archive everything: Mapping the everyday*. Cambridge, MA: MIT Press.

Giddings, Seth. (2009). Events and collusions: A glossary for the microethnography of video game play." *Games and Culture*, *4*(2), 144–57.

Griffiths, Anthony J. F., et al. (2000). Transduction. In Anthony J. F. Griffiths, et al. (Eds.), *An introduction to genetic analysis* (7th ed.). New York, NY: W. H. Freeman. Retrieved from https://www.ncbi.nlm.nih.gov/books/NBK21760/

Holmes, Steve. (2016). Ethos, hexis, and persuasive technologies. *Enculturation*, *23*. Retrieved from http://enculturation.net/ethos-hexis-and-the-case-for-persuasive-technologies

Lengeling, Thomas Sanchez. (2015). Kinect v2 Processing library for Windows. Retrieved from http://codigogenerativo.com/kinectpv2/

Morey, Sean. (2016). *Rhetorical delivery and digital technologies: Networks, affect, electracy*. New York, NY: Routledge.

O'Sullivan, Dan, & Igoe, Tom. (2004). *Physical computing: Sensing and controlling the physical world with computers*. New York, NY: Cengage Learning.

Porter, James E. (2009). Recovering delivery for digital rhetoric. *Computers and Composition*, *26*(4), 207–24.

Rieder, David. (2017). *Suasive iterations: Rhetoric, writing, and physical computing*. Anderson, SC: Parlor Press.

Sánchez, Raúl. (2017). *Inside the subject: A theory of identity for the study of writing*. Urbana, IL: National Council of Teachers of English.
Simondon, Gilbert. (2009). The position of the problem of ontogenesis. *Parrhesia*, *7*, 4–16.
Stiegler, Bernard. (1998). *Technics and time, 1: The fault of epimetheus* (R. Beardsworth and G. Collins, Trans.). Stanford: Stanford University Press.
Taylor, Nicholas, Kampe, Chris, & Bell, Kristina. (2015). Me and Lee: Identification and the play of attraction in The Walking Dead. *Game Studies*, *15*(1), 1–13.
Welch, Kathleen E. (1999). *Electric rhetoric*. Cambridge, MA: MIT Press.

Meaning-Making and Randomization in E-Poetry Machines

Amanda Hill, St. Mary's University
Laura Okkema, University of Central Florida

In this paper, the authors propose a dialectic of pattern and randomness as an interpretative lens for electronic poetry. By examining the complex interplay of recurring patterns and randomly generated elements in two electronic poems, they demonstrate how poetry and code work together and how meaning can be made from randomly generated poetic works. They showcase two of their own electronic poetry projects as case studies, the poem Wayfarer's Song (Okkema) and the Dada Poetry Generator (Hill). Wayfarer's Song generates a Villanelle poem from a set of randomly chosen, pre-written verses. On the level of content, the poem exemplifies the interplay of pattern and randomness by juxtaposing arbitrary arrangement with the poetic pattern of Villanelle. Reading the poem in light of pattern and randomness reveals further layers of meaning on the levels of code, interface, and hardware. The Dada Poetry Generator engages users in creating poems from "found" texts. Because each iteration of the machine generates a different arrangement of the texts, the context and meaning of the poems change each time the code runs. In deforming and decontextualizing these texts, the users encounter symbolic randomness. Examining the interplay of pattern and randomness in each project reveals the multifaceted and complex meanings which can emerge from readings of electronic poetry.

In this paper we use a dialectic of the concepts 'pattern' and 'randomness' as a lens to interpret electronic poetry (e-poetry) and explore how meaning can be made from randomly generated poetic works. We present two e-poetry project case studies: the poem "Wayfarer's Song," composed and coded by Laura Okkema, and the Dada Poetry Generator created by Amanda Hill. By identifying moments of pattern and randomness in each e-poem, we showcase a method of reading and interpreting works of digital literature in their respective contexts. Case One examines "Wayfarer's Song" as an example of digital Oulipo poetry, exploring the interplay of pattern and randomness at the levels of content, code, interface, and hardware. Case Two presents the Dada Poetry Generator, where users, in deforming and decontextualizing 'found' texts, encounter symbolic randomness as an opportunity for further exploration and meaning-making. Our goal is to demonstrate that the pat-

tern-randomness dialectic is a useful tool in understanding how meaning emerges on several levels in works of electronic poetry.

We adapt the notion of a pattern-randomness dialectic from the work of Katherine Hayles. Hayles first introduced the pattern-randomness dialectic two decades ago in *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics* (1999), where she examines how electronic media have changed signification. Hayles explores phenomena which arose in the 1980s and 90s, such as the replacement of the physical desk with a virtual desktop, the possibility of virtual reality, or the exchange of the typewriter (which left physical, tangible marks on the page) for the keyboard, which yields virtual letters made visible through countless chains of code unknown to the user. Text, once stable and printed on a page, becomes a flickering image, with several layers of commands and human-machine communication between the keystroke and the letter on the screen. Hayles expresses concern over what she then perceived as a trend towards dematerialization, arguing that the rise of information technology in the 20th century has led to a disregard for the material, physical, components of the human (and textual) body. Following Hayles, the flickering text is characterized by a complex dialectic of pattern and randomness, expressed in the many layers of machine-computer language that lie between signifier and signified.

In later publications (2005, 2008), Hayles acknowledges that debates over a rigid binary between materiality and immateriality have begun to fade in the 21st century, in favor of more complex discussions concerning the entanglement of bodies, machines, materiality, virtuality, code, text, information and meaning. Her recent scholarship in fact revolves around electronic literature and thus addresses electronic poetry, but she does not apply the expression 'pattern-randomness dialectic' from her earlier work to this subject. Here, we rely on Hayles' argument that pattern and randomness are two concepts which are central to understanding digital media and information technology, while adapting this dialectic as a lens to interpret electronic poetry. As the case studies will demonstrate, identifying moments of pattern and randomness allows readers and students of electronic poetry to explore the many facets and layers of meaning of these works.

In the context of this paper, we engage the term 'pattern' to mean a recognizable structure, i.e. any configuration or arrangement of elements (whether it be particles, molecules, building bricks, knitted fabric, words, sentence structures etc.) which can be identified as such by a human or machine. By randomness, we mean the arbitrary determination or disruption of elements within a structure. While this definition is somewhat narrow (excluding the idea that randomness can exist apart from structure altogether), it is helpful in the context of electronic literature, as it stresses the idea that the sequence

of words in a text can be determined haphazardly, for example via a randomized algorithm. Moreover, defining randomness in this fashion allows us to discuss the occurrence of unpredictable events in otherwise regulated processes, such as glitches and errors in a computer program.

We use the term "electronic poetry" or "e-poetry" following e-poet Stephanie Strickland's (2009) definition: "E-poetry relies on code for its creation, preservation, and display: there is no way to experience a work of e-literature unless a computer is running it." Whenever we use the term "e-poetry machine," we specifically refer to such e-poems which rely on a randomized algorithm; this includes both of our case studies.

A Brief History of (E-)Poetry Machines

Poetry machines are not unique to electronic media; the precursor to the e-poetry machine is the *Oulipo* poem. The *Ouvroir de littérature potentielle (Oulipo),* or workshop of potential literature, was a group of avant-garde writers and mathematicians founded in the 1960s. Raymond Queneau's (1961) poem "Cent Mille Milliards de Poèmes," for instance, is a literary machine with the potential to produce 10^{14} = 100,000,000,000,000 different sonnets. Queneau crafted 10 sonnets in such a manner that each verse could be replaced with another verse occupying the same line-position within the structure of the sonnet. The work as a whole is unreadable to humans; to arrive at an understanding of the work, the underlying mathematical structure must be taken into account.

Works of 20th century avant-garde poetry can help us better understand e-poems because they often rely on 'analog' mathematical algorithms, thus forming precursors to the computer algorithms in e-poetry. Digital poet and scholar Loss Pequeño Glazier (2008) argues that e-poetry is an heir to 20th century avant-garde poetry and its innovative poetic practice, including the works of William Carlos Williams, Ezra Pound, as well as Raymond Queneau and François Le Lionnais of *Oulipo*. Glazier makes the case that poetry as practiced by *Oulipo* is "uniquely qualified to equip us to enter and investigate the expanded textuality of digital writing" (p. 121). In emphasizing the 'expanded' textuality of electronic writing, Glazier points to the importance of interpreting e-poetry in the context of digital media: e-poems rely on the unique affordances of the electronic medium to make meaning, and therefore cannot simply be interpreted with the same tools and methods which are traditionally applied to print poetry.

Contemporary works of generative poetry borrow their structure from "Cent Mille Milliards de Poèmes;" however, the literal cutting and pasting that Queneau intended for his poem is translated into a machinic algorithm

in e-poetry machines. To produce an iteration of a poem, print-based poetry machines required that a human reader physically manipulate pages of a book. In e-poetry machines, this process is replaced through the execution of the code, or *performance* of the poem. Scott Rettberg (2014) affirms that "[w]orks of e-lit are generally interconnected in ways that are not easily amenable to print publication, and they branch, or importantly perform on request" (p. 170). Performance occurs when the e-poem's code is executed on a compatible electronic device. For example, Nick Montfort's (2009) e-poem "Taroko Gorge" performs by randomizing verses based on a pre-coded grammatical pattern, drawing on a set of arrays containing substitutable verbs, nouns, and adjectives. Another, more expansive example for generative poetry is Scott Rettberg's (2009) Ruby-based poetry machine "Frequency." Rettberg applies the principle of Queneau's machinic algorithm but takes the idea of potential poetry far beyond the single form of the sonnet. Taking advantage of the affordances provided by digital media, *Frequency* can generate poetry based on various constraints, outputting forms such as Shakespearian, Petrarchan, and Spenserian sonnets, as well as Haiku and Tanka.

The successful execution of an e-poem's code depends on a variety of factors, such as the availability of compatible software. Depending on those factors, performance may not always be smooth; however, in e-poetry, randomness, disruptions, glitches and noise are, in fact, desirable, and sometimes build intentionally into the poem. Lori Emerson (2014) argues that this "glitch aesthetic" radically redefines "what counts as an aesthetic object or an aesthetic experience and asserts that its disruptiveness (in that a glitch constitutes a moment of dysfunctionality in the computer system) defamiliarizes the slick surface of the hardware/ software of the computer and so ideally transforms us into critically minded observers of the underlying workings of the computer." In in other words, electronic works are often built to complicate the interface, reminding us that the screen is merely the surface level of meaning-making in electronic communication. While the technology industry may work hard to draw our attention to the shiny interface of their product, away from the levels of code and hardware, e-poetry and literature push in the opposite direction. The two cases below serve to demonstrate how the concepts of pattern and randomness can help us strip and analyze the different layers of meaning in e-poetry machines.

Case One: "Wayfarer's Song"

"Wayfarer's Song" (http://scriboergosum.net/test.php) generates a Villanelle poem from a set of randomly chosen, pre-written verses. Readers who visit the site that hosts "Wayfarer's Song" see the poem appear one line after the other, at an interval of a half second. Five seconds after the poem is complete,

the site automatically refreshes, the old version is lost, and a new version of the poem appears one line at a time. Figure 1 shows three screenshots of "Wayfarer's Song" during performance.

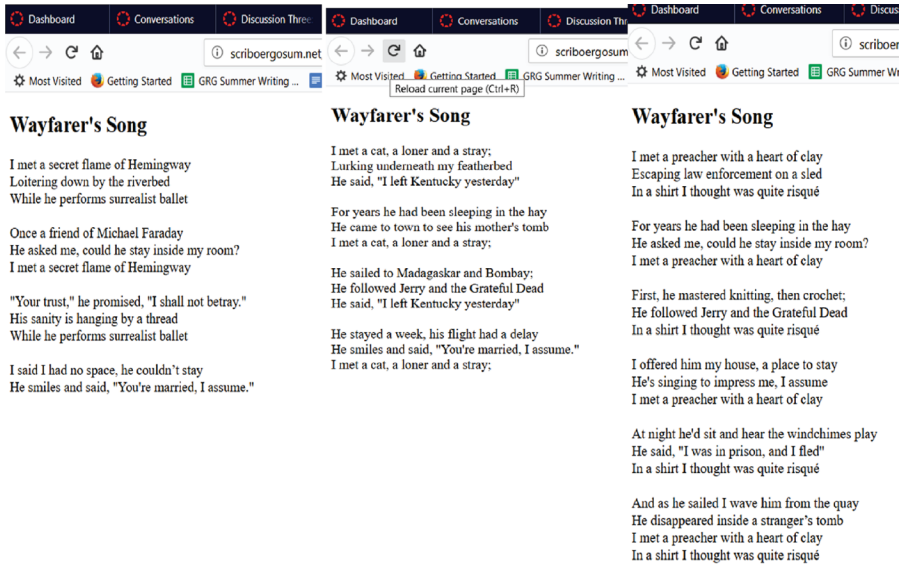

Figure 1. Three iterations of "Wayfarer's Song"

"Wayfarer's Song" is essentially an electronic *Oulipo* poem. Like Montfort's "Taroko Gorge," "Wayfarer's Song" was built in html and JavaScript and thus relies on a similar randomization algorithm. It is an Oulipo poem in the sense that it emulates the principle which underlies Queneau's "Cent Mille Milliards de Poèmes" in a digital environment, but instead of sonnets, it produces Villanelle poems. To interpret works like "Wayfarer's Song," "Taroko Gorge," or "Frequency," it is important to bear in mind that an individual instantiation – such as the screenshot of a rendering of "Wayfarer's Song," or a single Haiku plotted by the *Frequency* machine – is only a fragment of the entire work. Looking at one rendering can be insightful in many ways, as will become evident in the discussion of The Dada Poetry Generator, but it cannot lead to a thorough understanding of the complete work.

Poems like "Wayfarer's Song" function on several levels of meaning; a lens of pattern and randomness allows us to explore each level individually. On the level of content, we find patterns of literary form - the Villanelle structure in the case of "Wayfarer's Song." As a form, the Villanelle follows a strict pattern of five tercets and one quatrain; the first and third line are alternately repeated at the end of each tercet, and finally brought together in a couplet at the end. The rhyme scheme is accordingly ABA ACA ACAA. In the case of

"Wayfarer's Song," the Villanelle pattern serves as a container for randomized content. This brings us to the level of code.

The program-part of "Wayfarer's Song" draws the content of each line from a set of pre-composed verses. A villanelle has nineteen lines, six of which are repeated; this means thirteen lines are unique. In "Wayfarer's Song," five alternative versions exist for each of the thirteen unique lines. When the program loops through an iteration, it is told: randomly pick a line from the array called "Line A," i.e. the set of lines that grammatically and rhythmically fits the first line of the Villanelle and print it. The program then moves on to line 2, and so on. Figure 2 shows part of the poem's code, including the arrays containing the lines and the randomization function.

```
<script type="text/javascript">

    var line = [];
    var lineA = ["I met a cat, a loner and a stray;","I met a creature, beak and feathers grey","I met a preacl
    var lineB = ["Lurking underneath my featherbed","Loitering down by the riverbed","In my kitchen, stealing
    var lineC = ["As he was on the road to Mandalay","He said, \"I left Kentucky yesterday\"","In a shirt I th
    var lineD = ["He was known a cannibal gourmet","For years he had been sleeping in the hay","Once he was a
    var lineE = ["He asked me, could he stay inside my room?","He came to town to see his mother's tomb","He s
    var lineF = ["First, he mastered knitting, then crochet;","He sailed to Madagaskar and Bombay;","He stole
    var lineG = ["A questionmark emerges from his head","He followed Jerry and the Grateful Dead","He said, \"
    var lineH = ["I offered him my house, a place to stay","He stayed a week, his flight had a delay","He took
    var lineI = ["He took my wrist and sniffed for my perfume","And from his flaring nostrils rises fume","He
    var lineJ = ["His knees caved in when he began to pray","He chokes and coughs the ashes from the tray","At
    var lineK = ["He said, \"I was in prison, and I fled\"","A river from his eye is running red","No gentlema
    var lineL = ["And as he sailed I wave him from the quay","He danced and sung all night to my dismay","And
    var lineM = ["And so he leaves at dawn to meet his doom","He left at dawn and journeyed to Khartoum","He j

    function randomize(line) {
        var rand = line[Math.floor(Math.random()*line.length)]
        return rand;
    };
```

Figure 2. A section of code from "Wayfarer's Song"

While coding the poem, the programmer relies on patterns and rules of the respective programming language (JavaScript in our example). These patterns must be strictly followed so the machine can process the commands. For the computer, the 'human' content of the poem – for example, the word 'wayfarer' – is just a random string of signs to which meaning is assigned via variables. For humans, machine language –especially on the deeper levels, such as binary code– may seem like a random assembly of numbers. In other words, when composing a work like "Wayfarer's Song," the programmer-author must keep two audiences in mind: human *and* machine.

Part of the aesthetic in print poems is their arrangement on the page: the line breaks and verses may form patterns or, in the case of concrete poetry, specific visual forms and images. In e-poetry, on the level of the visual interface, we can identify similar visual patterns. In addition, however, e-poems are embedded in the environment of the screen, the operating system, and the browser in which they are run. We may, for example, identify familiar design patterns when we look at the poem displayed in our preferred browser window. If viewed on an old screen, we may see flickering patterns of color and light while reading the poem, whereas a newer screen will provide smooth,

even backlight. These visual patterns can be disrupted by random errors and glitches on the display, which may influence our ability to read the poem.

To appreciate works of e-poetry in their full complexity, we need to look beyond the surface level of the interface and consider the deepest level of the machine, the hard drive, where the poem is physically inscribed. We often think of screen text as effervescent and immaterial, which is far from true. As Matthew Kirschenbaum (2012) has pointed out, hard drives are "mechanisms of extreme inscription" (p. 74). Interpretation on the microscopic level of hardware is unfamiliar territory for most humanities scholars. Again, looking through the lens of pattern and randomness can guide our interpretation. During inscription, patterns of binary values are converted to voltage spikes which pass through the read/write head of the drive. Randomness and noise can enter the system on this level as well – even though the user will hardly notice, except maybe in extreme cases – for example when lightning literally strikes. While this is a radically simplified description of a highly complex process, it reminds us of the complexity of electronic works and the importance of looking beyond the interface in our readings of such texts.

Interpreting "Wayfarer's Song" with the pattern-randomness dialectic in mind demonstrates that e-poems are not so much about content as they are about the medium through which they are delivered: they comment on its nature, its materiality, its textuality. Like avant-garde poems, they might be called 'meta' poems or, as Oulipo has called them, 'potential' poems. The following section introduces another example, The Dada Poetry Generator, and expands upon ways in which the pattern-randomness dialectic can serve as a lens to make meaning from randomly generated digital texts.

Case Two: The Dada Poetry Generator

The Dada Poetry Generator (https://bit.ly/2HL9CO5) is an e-poetry machine that engages users in creating a poem from several "found" texts: a news article, a passage from a book, and an excerpt from a website. It invites readers to make new inferences about the texts which are currently in front of them. Because each iteration of the machine will generate a different arrangement of the texts, the context and meaning of the poem can change each time the code runs. In deforming and decontextualizing these texts, users will encounter symbolic randomness. This seeming nonsense is an opportunity for further exploration and meaning-making. The three texts a user chooses will relate to each other in different ways. If the texts the reader chooses cover different topics or come from different realms of the reader's life, the Dada Poetry Generator additionally provides a way to make a connection to various branches of daily life (eg. home, work, school) which create the user's "world of experi-

ence." O'Gorman suggests nonsense "can take us across cultural and cognitive fields." By connecting texts from different areas of our lives, we make leaps from one subject to another and are afforded the opportunity to find common themes and patterns that are emerging in our daily lives and our society.

Visitors to the Dada Poetry Generator can begin a new poem by clicking the "Make a New Poem" link in the center of the page. Visitors are transported from the home page to the Dada Poetry Generator. On this page, they will find three spaces to copy and paste specific texts into the generator. The machine asks for texts culled from a news article, a book, and a blog or website to encourage users to engage with texts they are currently exploring in their daily lives in new ways. From each of those texts, visitors select one important word from which to create a title for their new poem. Visitors then sign their name and click "submit." When visitors submit their responses, they are redirected to a page that shows a poem created out of the three texts they provided. Figure 3 gives an example of such poems.

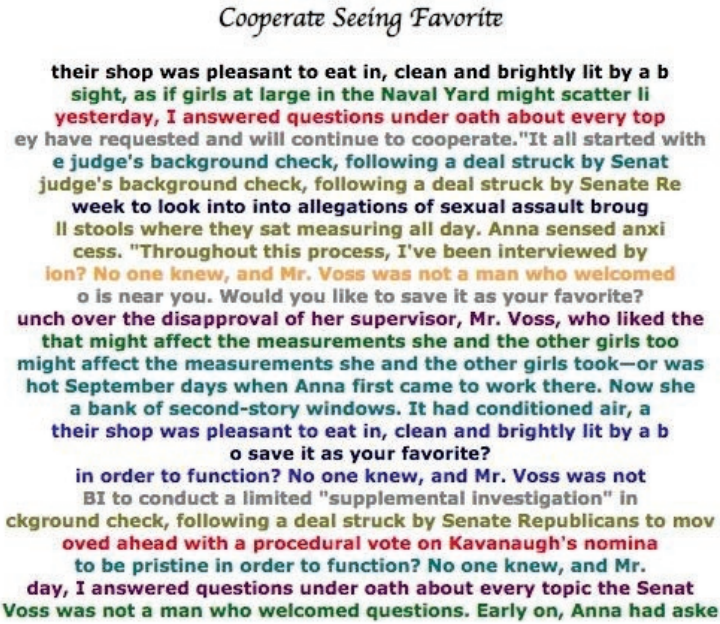

Figure 3. A poem produced by the Dada Poetry Generator

What the users don't see is the coded program enabling the deformation of the incorporated texts. The machine draws the content the users input into each data entry field. It engages in a process of random fragmentation pulling from each of the three input fields and reiterates these fragments to users in a poetic format. The code makes use of arrays and randomization functions in order to produce the recombination of lines into a poem (see Figure 4).

```
public function writePoem()
    {
    //echo "The writePoem method is running<br>";
    for ($i=0; $i<$this->lines; $i++)
        {
        echo "<div align=\"center\"><span style=\"color:".$rand_color."\">";
        $rand_index = array_rand($this->colors);
        //echo $rand_index."works";
        $rand_color = $this->colors[$rand_index];
        //echo $rand_color."works";
        $startpoint = rand(0,$this->stringlength);
        //echo $startpoint;

        $lineLength = rand(55,70);
        //echo $lineLength;
        $oneLine = substr($this->cleantext,$startpoint,$lineLength);
        //echo $oneLine;
        echo strip_tags($oneLine);
        }
    }
```

Figure 4. A section of code from the Dada Poetry Generator

The Dada Poetry Generator is a machine inspired by the work of the Oulipo and Dada artists. Stephen Ramsay (2011) discusses the "combinatorial" possibilities of Oulipo works (p. 25) in his book *Reading Machines: Toward an Algorithmic Criticism*. Ramsay discusses the deformation of text as a means of creating new knowledge and meaning. The user-created poems in the Dada Poetry Generator are readable, although they sometimes may seem illogical. Ramsay suggests, "Deformation is a part of our permanent capacity for sense-making" (p. 48). Many Dada artists created works using found objects; a good example of this in poetry might be the cut-up poem, in which artists cut and paste different words traditionally out of newspapers in order to create a poem that may or may not be related to the original text. The Dada Poetry Generator uses a series of coded functions to replicate this process for the user. In so doing, it deforms the texts they provide in order to reassemble them in a way that has the potential to generate new meaning for the readers.

Dada artists were inspired by the current happenings in their daily lives, especially WW1. Similarly, the Dada Poetry Generator encourages users to engage with texts they are currently exploring in their daily lives. By examining the texts that are right in front of them, users might find new connections, insights, or pathways of thought that they may not have otherwise discovered. Ramsay discusses this idea in his chapter "Potential Readings." While considering how transformations to text increases sense-making abilities he advises readers to "consider the patterns that emerge from various combinations of textual information" (Ramsay, 2011, p. 35). While he is speaking here of the information contained in a single text, it is easy to see how the combination of textual information grows when we combine multiple texts together as the Dada Poetry Generator does. In deforming the user's texts, the Dada Poetry Generator provides a way for the user to misread the texts on purpose as a means of criticism and interpretation. The questions that appear directly be-

low the user-created poem aims to help readers gain insight from their new poems:

> How would you describe the way the three texts fit together?
>
> Which part of the poem makes the most sense?
>
> Which part of the poem makes the least sense?
>
> Did the texts fit together in way your anticipated? Why or why not?
>
> Did the combination of the texts surprise you in anyway?
>
> What are you now curious about? (Hill 2014)

These questions ask users to reflect on the creation and reading processes of their new poems as well as to think through the implications of meaning making within the combination of the texts. In deforming these texts, the users will most likely encounter the creation of nonsense. This nonsense is an opportunity for further exploration and meaning-making according to scholars like Marcel O'Gorman. O'Gorman (2006) suggests nonsense and play are integral to future study. He writes, "Various instances of nonsense...can short-circuit the rational world and act as short cuts between worlds of experience" (p. 81). Viewed another way, readers might find it useful to view the coded randomness of their texts as a process of what Victor Shklovsky calls "defamiliarization." In his seminal essay "Art as Technique," Shklovsky writes that the process of defamiliarization "makes the familiar seem strange" (p. 779). Indeed, the works created through the Dada Poetry Generator are works based in defamiliarzation, that is to say, a work that is created artistically: "A work is created 'artistically' so that its perception is impeded and the greatest possible effect is produced through the slowness of the perception" (p. 783). The algorithms used to produce the new poems in the Dada Poetry Generator use code to produce artistic works, bringing pattern and randomness together to make the reader view familiar texts without "deautomatized perception" (p. 783), and allowing for "short cuts between worlds of experience" to create meaning.

Elza Adamowicz suggests one of the ways the meaning of verbal collages can be identified is through an identification with the "appropriated texts" (p. 16). If the collaged text is seen as sharing the identifying markers of the original three texts, it is logical to assume some of the identity can be unified back into the original text. The three texts a user chooses will relate to each other in different ways. They might all focus on the same topic(s); or they might cover completely different ones. The Dada Poetry Generator provides a way

to make a connection to various branches of the user's "world of experience" by visually placing them in close proximity to one another. Additionally, the new texts might highlight pieces of the originals that may have gone unnoticed, taking us, as O'Gorman suggests "across cultural and cognitive fields" (p. 81) in a way only nonsense can. By connecting texts from different areas of our lives, we make leaps from one subject to another and gain the opportunity to find common themes and patterns that are emerging in our daily lives and our society. This is the ultimate goal of the Dada Poetry Generator.

Discussion

In applying a dialect of pattern and randomness as an interpretative lens to e-poetry, we hope to offer readers and students of e-poetry a powerful tool to understand the complex nature of works created in the digital medium. We presented interpretations of our own two projects, "Wayfarer's Song" and the Dada Poetry Generator, to demonstrate that paying attention to the interplay of pattern and randomness can deepen our understanding of e-poetry and, by extension, digital works of literature and art.

In Case One, we examined the e-poem "Wayfarer's Song" with an eye to emerging patterns and instances of randomness. Pattern in "Wayfarer's Song" is at its most obvious in the structure of the poem: the Villanelle scheme. Randomness in "Wayfarer's Song" is at its most obvious on the level of code: the randomizing computer algorithm, modelled on the 'analog' algorithms used by Oulipo, determines the order of verses and thus, with each iteration, alters the possibilities of interpretation. But these instances of pattern and randomness only touch upon the surface layer of meaning. E-poems like "Wayfarer's Song" comprise not only all of the unwritten iterations of the poem - all the possible combinations, the *potential* versions of the poem - but it is also a .php file on a server, a link, a randomized algorithm, a nanoscopic etching on someone's hard drive, all of the flickering, effervescent images it produces on the screen, as well as the traces it leaves in the caches of browsers across the world. Meaning thus emerges from the interplay of random factors and patterned information across content, code, interface, and hardware. The pattern-randomness lens help make sense of poetry machines like "Wayfarer's Song:" poetry machines produce potential meanings, they are meta-work which comments on the nature of the digital medium and its complexity.

Case Two showcased the Dada Poetry Generator and demonstrated how readers can make meaning from textual material with no apparent syntactic pattern. The case showed how poems generated from algorithmic fragmentation, automation, and recombination have the power to ignite a new way

of exploring poetic works. Meaning and, by extension, pattern, emerge from readers' interpretation and the connections they make.

Together, the two cases illustrate that attending to the interplay of pattern and randomness in e-poetry can serve as an invaluable method of understanding the complex and multifaceted layers of meaning in digital texts. In future projects, we hope to apply the approach to other electronic works, including electronic art, different genres of electronic literature, as well as digital games. In the meantime, we hope that scholars and students in the fields of digital humanities, digital media, electronic literature, and digital art will find our interpretative lens useful in reading, composing, and analyzing electronic poems and other electronic artforms.

References

Adamowicz, Elza. (1998). *Surrealist collage in text and image*. Cambridge, UK: Cambridge University Press.

Emerson, Lori. (2014). *Reading, writing, interfaces. From the digital to the bookbound* [kindle edition]. Minneapolis, MN: University of Minnesota Press.

Hayles, N. Katherine. (1999). *How we became posthuman: Virtual bodies in cybernetics, literature, and informatics.* Chicago, IL: University of Chicago Press.

Hayles, N. Katherine. (2005). *My mother was a computer: Digital subjects and literary texts.* Chicago, IL: University of Chicago Press.

Hayles, N. Katherine. (2008). *Electronic literature: New horizons for the literary.* Notre Dame, IN: University of Notre Dame Press.

Hill, Amanda. (2014). Dada poetry generator [electronic poem]. Retrieved from https://bit.ly/2HL9CO5

Kirschenbaum, Matthew K. (2012). *Mechanisms.* Cambridge, MA: MIT Press.

Montfort, Nick. (2009). Taroko Gorge. In Stephanie Boluk, Leonardo Flores, Jacob Garbe, & Anastasia Salter (Eds.), *Electronic literature collection, volume III*. Cambridge, MA: Electronic Literature Organization. Retrieved from http://collection.eliterature.org/3/works/taroko-gorge/taroko-gorge.html

O'Gorman, Marcel. (2006). *E-crit: Digital media, critical theory and the humanities*. Toronto, CA: University of Toronto.

Okkema, Laura. (2016). Wayfarer's song [electronic poem]. Retrieved from http://scriboergosum.net/test.php

Pequeño Glazier, Loss. (2008). *Digital poetics: The making of e-poetries*. Tuscaloosa, AL: University of Alabama Press.

Queneau, Raymond. (1961). *Cent mille milliards de poèmes.* Paris, FR: Gallimard.

Ramsay, Stephen. (2011). *Reading machines: Toward an algorithmic criticism*. Urbana, IL: University of Illinois Press.

Ray, Robert. (1995). *The avant-garde finds Andy Hardy*. Cambridge, MA: Harvard University Press.

Rettberg, Scott. (2009). Frequency. In Stephanie Boluk, Leonardo Flores, Jacob

Garbe, & Anastasia Salter (Eds.), *Electronic literature collection, volume III*. Cambridge, MA: Electronic Literature Organization. Retrieved from http://collection.eliterature.org/3/works/frequency/frequency_info/frequency_wordlist.html

Rettberg, Scott. (2014). Electronic literature. In Marie-Laure Ryan, Lori Emerson, & Benjamin J. Robertson (Eds.), *John Hopkins Guide to Digital Media*. Baltimore, MD: John Hopkins University Press.

Shklovsky, Victor. (2007). Art as technique. In David Richter (Ed.), *The critical tradition* (pp. 775–784). Boston, MA: Bedford/St.Martin's.

Strickland, Stephanie. (2009, February 13). Born digital. A poet in the forefront of the field explores what is–and is not–electronic literature [essay]. Poetry foundation. Retrieved from https://www.poetryfoundation.org/articles/69224/born-digital

Interweave: The Virtual Places of Rural Space

Krystin Gollihue, North Carolina State University

Many textile mills in central North Carolina have been repurposed as adaptive reuse development. Through these gentrification efforts, much of the mills' histories have been lost or erased. Drawing from Nicholas Gane and David Beer's (2008) definition of interface as a membrane and Jacqueline Jones Royster and Gesa Kirsch's (2012) feminist historiography, I consider how places like the textile mills are different materializations of history that can be accessed through a material engagement with land and space. By viewing the leftover remnants of the mills as an interface to the embodied knowledge of place, I explore how the mills - both the old structures and new construction - produce a virtual interface with the past that connects the community to an inherited, embodied wisdom of the land before, and yet constituted within, gentrification and late capitalist economies.

In their 2018 article in *Rhetoric Review*, Casie Cobos, Gabriela Raquel Ríos, Donnie Johnson Sackey, Jennifer Sano-Franchini and Angela M. Haas trace "the multiple, mutually-informing, and overlapping ways in which rhetoric and culture interface" (p. 141) in order to develop a disciplinary history of cultural rhetorics research. Beginning with rhetorical scholars whose focus was on the cultural production of knowledge, Cobos et al. point to Steven Mailloux's (2006) theory of rhetorical hermeneutics as a progenitor of the field of cultural rhetorics. Mailloux argued for "the use of rhetoric to practice theory by doing history" (p. 42) so that our understanding of intellectual production, especially in but not limited to the academy, would be situated within communities of practice that were culturally and historically constituted.

What might a rhetorical hermeneutics of phronesis produce for composition and rhetoric scholars? What does a cultural rhetorics approach to phronesis teach us about the practical wisdoms of everyday people? In their opening to "Our Story Begins Here: Constellating Cultural Rhetorics," the Cultural Rhetorics Theory Lab (2014) sets the scene, "working out a relationship to the land, to the lake, to the histories of this place. Building a space in which our work exists alongside those histories. Building a practice we can remember when we're not all together, not in this place/space" (Prologue, para. 4). Elsewhere, Gabriela Raquel Ríos (2015) writes, "land-based rhetorics are literal *acts* of interpretation and communication that grow out of active participa-

tion with land… land-based rhetorics recognize the ways in which nature can *produce* relations" (pp. 64-65). These scholars situate an understanding of literacy, communication, and knowledge within an intimate relationship to and practice alongside the land. Land teaches us something; it has wisdom that we access through "embodied ways of knowing/being derived from land and from with working/living/being with land" (p. 65).

My purpose in constellating cultural rhetorics research with the theme of this year's conference is to propose a different way of understanding phronesis, or the practical wisdom born from everyday experience. This everyday, lived, contextual wisdom is necessarily tied to places – the land we work, the buildings we live in, the histories of those places, and the cultural practices that are constitutive of place. Within a cultural rhetorics tradition, we might consider how place mediates our relationship to history and works as a kind of material-historical record of different times, different people and different stories. What wisdom can be found in the materiality of place? How might we access that wisdom through specific historical records: official records, unofficial records, and embodied relationships to the land? And finally, in what ways are these different records, different ways of interfacing – different mediating devices that allow us to listen to and learn from our familiar places?

In this essay, I will explore the ways that textile mills in central North Carolina perform wisdoms that are inaccessible through an official or unofficial historical record due to adaptive reuse development, the process of rehabilitating older structures in order to preserve their histories while updating their economic use. While interface theories are largely concerned with the digital screen, I use Nicholas Gane and David Beer's (2008) definition of interface as a *membrane* to show how an embodied engagement with the mills allows us to access a history that is no longer available due to these gentrification efforts. The leftover traces of the factories, their machines, and their infrastructures creates a virtual interface with the past that connects us to an embodied memory of the land before, and yet constituted within, global labor practices and gentrification.

Exigency: Listening to Place

In early 2017, I began researching my family's history in relation to the textile mills of North and South Carolina. My grandfather and great-grandfather had managed Columbia Manufacturing Company in Ramseur, North Carolina, and my grandmother's family members had worked in the mills and the shops that sold mill goods to area townspeople. I had recently moved to the next town over, to a little neighborhood on the banks of the Haw River

that had once been a mill town. I lived in a shotgun house whose bathroom had only just been added in the late 2000s. My community's and my family's histories were beginning to run together.

This was my first historiographic project, not a scholarly pursuit to any degree, so I visited with my local library which had amassed a sizable collection of newspaper clippings and records of the textile industry in the nearby counties. What I found surprised me: nothing on the mills *as they were*, but overwhelming coverage of the mills amidst their massive closures in the 1980s and 1990s. Even more, a development project, a huge housing development that was slated to bring in millions of dollars in revenue to the community, had spurred new development and adaptive reuse projects of the mills in recent years. This was the subject of much community dialogue, specifically how gentrification would affect local residents, and so the library had archived hundreds of op-eds that discussed the new use of the mills: as shopping districts, co-operative groceries, yoga studios, and fine-dining restaurants.

What struck me about this experience with the archives was that I could physically walk to the mills, touch them, buy things in them, and yet have no historical or cultural context for reference. Where was their history, and why was it so elusive if they were still physically standing? It was as if I was pushing a button on a device to open up a place and something was malfunctioning. I no longer had the family histories of the textile factories; the stories of the mills had started to fade as my family members passed away or lost their memories due to disease. There were so few left in the community who had worked in the mills, even though many were open up until the late 1990s. Without a historical record *or* an oral history, I was overcome with the question of how we would remember, how we would access, how we would interface with those histories and continue to learn from a place that was so integral to people's identities in the central Piedmont region. I was listening to place and only hearing its physical traces speak back.

From Story to Theory: Frameworks

In this essay, I am interested in exploring the ways memory is inscribed into these physical traces and how "users" interface with land, structures, and buildings to access that lived knowledge of place. I specifically use a definition of place as the medium by which space is practiced. In her 2012 CCCCs address, Malea Powell writes that space is

> a place that has been practiced into being through the acts of storied making, where the past is brought into conscious

> conversation with the present and where—through those practices of making—a future can be imagined. Spaces, then, are made recursively through specific, material practices rooted in specific land bases, through the cultural practices linked to that place, and through the accompanying theoretical practices that arise from that place—like imagining community "away" from but related to that space. (388)

In my own understanding of the space of central North Carolina, I see the places of the textile mills as an accumulation of layered histories and cultural practices, some of which overlap with others, some of which colonize and enslave others, and some of which exploit and capitalize on the labors of others. While the relationship between place and space has long been theorized, Powell's invocation of land is different, and one that applies to the place of the mills, where land-based practices have long been used to practice community before and after the mills. Further, while land is the material on which the textile mills are built, they are material entanglements of and with land: they are both designs imposed and relationships with land. They are traces of land bubbling up from the ground. When we access buildings, though they may be human-made, we also touch the land that those buildings are on, the histories and cultural practices that the land carries. By using the term "land" in this paper, I am specifically leaving room for the ways human-made things, including buildings, emerge from relationships with land.

In considering the relationship between these elements, I ask the following questions:

1. How do we listen to the wisdom of physical space? What does it say?
2. How is this knowledge different than a historical record or an oral history?
3. In what ways are these historical engagements different interfaces with space?

I will examine these questions in the context of two adaptive reuse spaces in central North Carolina: the Chatham Mills Label Factory in Pittsboro, North Carolina, and Carr Mill Mall, formerly Alberta Mills, in Carrboro, North Carolina. These two spaces house coffee shops, co-operative groceries, upscale restaurants and boutiques, and office space. For the most part, their histories prior to their adaptive reuse states are inaccessible through traditional archival means.

I use two frameworks to address these historic sites: interface theories that resist an explicitly digital understanding of interface, and feminist historiography which prompts us to listen for new historical patterns and materializations.

Feminist Historiography of Place

In Jacqueline Jones Royster and Gesa Kirsch's (2012) *Feminist Rhetorical Practice: New Horizons for Rhetoric, Composition, and Literacy Studies*, critical imagination plays an integral role in a feminist rhetorical practice. Using Geertz's notion of tacking in and tacking out, Royster and Kirsch suggest that we "look back from a distance…in order to broaden our own viewpoints in anticipation of what might become more visible from a longer or broader view, where the scene may not be in fine detail but in broader strokes and deep impressions" (p. 72). Feminist historiographies often use this tacking in and out approach to "envision the possibilities of women's practices…and to bring intellectual rigor to the analytical task" (p. 76). Terese Guinsatao Monberg (2008) points out the ways that traditional feminist historical lenses do not listen for certain stories to be told, and Royster and Kirsch's critical speculation allows us to hear cultural difference in such a way that we are able to see what is missing in the traces that are left.

These theorists are especially useful in considering how we might tack in and out in order to listen to nonhuman historical actors, material places in particular. I bring these feminist historiographic practices into an ecological focus and ask what we might hear or see when we recuperate the stories that land must be telling alongside and entangled with the human record. Alison Jones and Kuni Jenkins (2008) propose a post-interpretivist view of history by considering what happens when we foreground the materiality of events rather than interpretations of what happened, whether official records or oral histories. By explaining how the site of a Maori and British meeting materializes three different accounts as real and separate events, Jones and Jenkins show how histories are differentially materialized via geography and memorializing practices. Here, there is power in being able to reject a recorded history and to propose other realities that have emerged from material accounts.

While all of these scholars have focused on the materializations of human history *by* humans, their work leaves room for the idea that land itself might produce a different materialization of history. Land is not simply a historiographic text that has events etched *on* it; it produces its own histories that are evident in its traces, in both geographic formations and entanglements with human-made things. In what ways might these physical traces speak back actual events? What marks does history leave on the land, and how might we learn and act upon that emplaced wisdom? A feminist historiography of place must necessarily focus on this materiality and the ways that physical traces *are* a historical record. It must also consider the ways that our embodied access to those materializations transfers a kind of wisdom or understanding of our own lived experiences contextualized within that history.

Place as Interface

In addition to thinking of the ways place might serve as historical materializations in addition to our own official and unofficial records, I situate a reading of the mills within an understanding of place as *interface* to history. Many scholars have been interested in the affordances of the digital screen as an interface (Galloway, 2012; deSouza e Silva, 2006; Kember, 2016). Alex Galloway (2012) argues that the interface is an *effect* of new media ethics, a relationship to simulation and information. The interface is the glass-sided mobile device that offers a new kind of access to place – navigable, inhabitable space inside the digital – which consists of "pathways for connection" (Schaefer, 2011, p. 64). Adriana de Souza e Silva and Jordan Frith (2012) define the interface as "something that makes a connection between two parties but…becomes part of that system, influencing how they interact with each other" (p. 2). These interfaces are transformative of both users and messages sent between users. Our mobile devices recondition how we interact with place *as* we interact with it.

But our internet-enabled devices are not the only surfaces that allow us to access information, create simulation, or become enmeshed within a system. "Users" of a landscape have access to both physical and theoretical or conceptual space, as places "carry the resonance of things" (Brewer and Dourish, 2008, p. 965). When we access land, we access these resonances and synthesize old information with new, a process that reflects the fluid mechanisms of location-aware interfaces like mobile phones and geo-tagging technologies. James Waldram (1997) writes that through the land, information "forms a constant loop in which new information is interpreted in the context of existing information" (qtd. in Castellano, 2000, p. 23). In this way, I find Nicholas Gane and David Beer's (2008) definition of interface much more useful, as it leaves room for the idea of land-as-interface. In their chapter on interfaces in *New Media: The Key Concepts*, Gane and Beer define interface as a "membrane" (p. 62). I am drawn to this definition particularly because of its fluidity: skin, water, grass, brick, cellphone, Jacquard loom, and our own embodiments – all are interfaces through which we experience different material entanglements, give and take information, and are transformed by that exchange.

Interfacing With the Mills

In explaining how feminist historiographies of place intersect with interfaces of place, I have shown how place speaks back a history to us that is at times only accessible through a physical entanglement with its remnants. The textile mills of central North Carolina are only one such set of places that speak

their own histories, but I choose them as an artifact for this particular framework because of the peculiar ways they create a *virtual* relationship to the knowledge of the past. A place might be in literal ruins; it may no longer be standing or may have been completely erased. It might be accessible through the interface of a museum, but the archival process can disembody a place from its *emplacement*, its context, and its life. The mills, on the other hand, *are* living, extensions and erasures of relationships between people and practice. They are a unique artifact because they are both *there* and *not there*, only there through their leftover, at times aesthetically intentional, remnants.

How do we interface with place? By embodying it: by walking, talking, touching, and sensing it (Pink, 2012). My interface with the Chatham Mills Label Factory and Carr Mill Mall involves a slow kind of ambling through their hallways. It involves an intentional sensing: paying attention to the feeling of the floorboards creaking and foundations sagging in certain places, grazing my knuckles against the painted over bricks. It involves looking in places that are not looked at: up, between the rafters; under, in the crawlspaces or boiler chambers; behind, in the storage barns where old machines are housed; around, at the land formations bumping against the building; or between, in the spaces where shops join together. An interesting result of the adaptive reuse development of these spaces is that they are intentionally compartmentalized to accommodate many businesses in one location. With that, there are pockets of old building structure that are essentially forgotten. Then there are the things that are hiding in plain sight: the old electrical piping used as light fixtures, the rafters which create a lofted aesthetic to the building, or the gas valves used as display for a set of earrings and a necklace. Such a walking, talking, and sensing interface also presupposes a given human embodiment that cannot be ignored. Some histories will materialize for me because my body is white, female, fat, and rural. Other bodies will have other histories materialized for them: histories of Indigeneity and colonization, histories of enslavement and the cotton industry, and even more contemporary histories of immigrant communities and corporate agriculture.

While the structures of the mills are clearly still intact, their socialities are erased through many different mechanisms, in particular the adaptive reuse gentrification process. However, this walking-and-sensing method shows me the ways that textile workers *were* in that space - how they bumped against it, broke it in places, used it, negotiated it. Things carry the traces of their use, but they also carry the traces of those who used them (Novotny, 2015). By touching the gravel of a broken brick painted over with latex white paint, I am entering several communities of practice: the bricklayer who built the factory, the millworker who scraped across that particular brick, and the laborer hired by the developer to wash over everything. All of these socialities are accessed

through one single brick. Whereas the historical record cannot account for these layers of cultural experience, none are replaced in light of the other if we pay attention to what place itself has to communicate; all are present simultaneously in that single physical structure.

This experience of the mills is what is so strikingly *virtual* to me: that my interfacing with a place so intimately apart of my family history involves both hidden and obvious features that are inscribed with varying layers of history, capitalism, work, leisure, and commerce. The mills weave old and new information together and create a subject in me that is both connected and disconnected to place, a hybrid being feeling her way around the walls. But they are also synthesizing that information themselves, collating the touch of early capitalist economies with the touch of late capitalist economies. New forms entangle with old to create an *effect* of a place, a virtual experience of both history and contemporary economy.

Conclusion: From Place to Wisdom

Through a material engagement with place, we gain access to a different kind of engagement with history, one that shows the traces of activity, both economic and social. Though their "membranes" are not the same kind of aluminosilicate glass found in our mobile and internet-connected devices, the surfaces and textures of place allow us access to different kinds of information, different kinds of embodied knowledge - knowledge that is not only *emplaced* but *of* place. In this essay, I have explored the ways my interfacing with the virtual place of the textile mill has granted me an understanding of the meaning-making and sociality of my ancestors' and relatives' lives as workers there. But I argue that place is always materializing a record of history and calling us to interface with it. For the places we encounter that have lost their histories to development, colonization, disaster, or neglect, we may not be able to use the archive or even the spoken word as an interface to understand and connect with our pasts. But the physical places themselves, their traces, their hauntings, carry those histories with them and create virtual spaces through which we might learn of other embodied, emplaced wisdoms, ways of being and knowing in the world.

References

Brewer, Johanna, & Dourish, Paul. (2008). Storied spaces: Cultural accounts of mobility, technology, and environmental knowing. *International Journal of Human-Computer Studies, 66*, 963–976.

Castellano, Marlene Brant. (2000). Updating aboriginal traditions of knowledge. In

George J. Sefa Dei, Budd L. Hall, & Dorothy Goldin Rosenberg (Eds.), *Indigenous knowledges in global contexts: Multiple readings of our world* (pp. 21–36). Toronto, Canada: University of Toronto Press.

Cobos, Casie, Ríos, Gabriela Raquel, Sackey, Donnie Johnson, Sano-Franchini, Jennifer, & Haas, Angela M. (2018). Interfacing cultural rhetorics: A history and a call. *Rhetoric Review*, *37*(2), 139–154.

de Souza e Silva, Adriana, & Frith, Jordan. (2012). *Mobile interfaces in public spaces: Locational privacy, control, and urban sociability*. New York, NY: Routledge.

Gane, Nicholas, & Beer, David. (2008). *New media: The key concepts*. Oxford, UK, and New York, NY: Berg.

Galloway, Alex. (2012). *The interface effect*. Cambridge: Polity Press.

Jones, Alison, & Jenkins, Kuni. (2008). Indigenous discourse and "the material": A post-interpretivist argument. *International Review of Qualitative Research*, *1*(2), 125–144.

Kember, Sarah. (2016). *iMedia: The gendering of objects, environments, and smart materials*. Basingstoke, UK: Palgrave Macmillan.

Mailloux, Steven. (2006). *Disciplinary identities: Rhetorical paths of English*. New York, NY: Modern Language Association.

Monberg, Terese Guinsatao. (2008). Listening for legacies, or how I began to hear Dorothy Laigo Cordova, the Pinay behind the podium known as FANHS. In LuMing Mao & Morris Young (Eds.), *Representations: Doing Asian American rhetoric* (pp. 83–105). Logan, Utah: Utah State University Press.

Novotny, Maria. (2015). Craft as a memorializing rhetoric. *Harlot of the Arts, 14*. Retrieved from http://harlotofthearts.org/index.php/harlot/article/view/247/172

Pink, Sarah. (2012). *Situating everyday life: Practices and places*. Thousand Oaks, CA: SAGE.

Powell, Malea. (2012). Stories take place: A performance in one act. *College Composition and Communication, 64*(2). 383–406.

Powell, Malea, Levy, Daisy, Riley-Mukavetz, Andrea, Brooks-Gillies, Marilee, Novotny, Maria, & Fisch-Ferguson, Jennifer. (2014). Our story begins here: Constellating cultural rhetorics practices. *Enculturation*. Retrieved from http://enculturation.net/our-story-begins-here

Rìos, Gabriela Raquel. (2015). Cultivating land-based literacies and rhetorics. *Literacy in Composition Studies*, *3*(1), 60–70.

Royster, Jacqueline Jones, & Kirsch, Gesa. (2012). *Feminist rhetorical practice: New horizons in composition and literacy studies*. Carbondale, IL: Southern Illinois University Press.

Schaefer, Peter. (2011). Interface: History of a concept, 1868–1888. In David W. Park, Nicholas W. Jankowski & Steve Jones (Eds.), *The long history of new media: Technology, historiography, and contextualizing newness* (pp. 163–175). New York, NY: Peter Lang.

Waldram, James. (1997). Traditional knowledge systems: The recognition of indigenous history and science. *Saskatchewan Indian Federated College Journal, 2*(2), 115–24.

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This book includes selected proceedings from the 2018 Computers and Writing conference, exploring topics in digital rhetorics, multimodal composition, and pedagogies. Contributions engage the 2018 conference theme, Digital Phronesis: Culture/Code/Play, using a variety of cultural, theoretical, playful, and pedagogical approaches familiar to scholars of digital rhetorics, multimodal composition, and closely related fields.

Chen Chen is Assistant Professor of English at Winthrop University in Rock Hill, SC, where she teaches first-year writing and professional and technical communication courses. She studies how graduate students professionalize into the field of rhetoric and composition across different disciplinary space as well as technical and professional communication pedagogies and curriculum design.

Kristopher Purzycki is a dissertator at the University of Wisconsin–Milwaukee, focusing on digital media studies and playful writing pedagogies. His research interests include communication design, media philosophy, and play as a form of critical intervention.

Lydia Wilkes is Assistant Professor of English and Director of Composition at Idaho State University where she teaches courses in online writing instruction, composition pedagogy, digital rhetoric, and professional and technical communication. She researches paradoxes of rhetoric and war, military veterans in higher education, rhetorics of guns and gun violence, and sustainable writing program administration. .

Series Editors
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