

The Unboxing of Techné: Thinking Outside the Algorithms

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In response to Jeff Grabill's caution about robots in his keynote speech at Rochester, this workshop will explore ways that algorithms limit our wonder as well as activities through which we can recapture that wonder by thinking outside of the algorithmic box. The following limiting trends will be explored: the algorithmic limits on Internet searches, the self-limiting habits of hurried citizenship, the local ramifications of commercial internet use, and the existential threats to academics. Activities will include upsetting the Google cart, exploring photo, video, and social media apps, exploring social implications of such apps, and thinking about pedagogical significances. This workshop heightened the awareness of the problem of algorithmic limitations and invited further conversation.

In Rochester at Computers and Writing 2016, Jeff Grabill cautioned against robotic writing and Big Data. He suggested that software products that claim to teach writing are instead automating work and deprofessionalizing teaching. The situation may even be more dire than he suggested: coffee pots will soon watch us (LaFrance, 2016); algorithms may be accepted as evidence in court (Garber, June 2016); robots may eliminate many jobs, leaving millions without an identity (Williams-Grut, 2016; Brynjolfsson & McAfee, 2014, p. 30; Pinker, 1994, p. 193); and robots will eventually control everything (Devaney, 2016).

However, this increasing mechanization may only be an extension of ourselves. Marshall McLuhan (1994) claimed that all media have the power to translate experience into new forms like metaphors, which means technologies and the information they provide are translations and extensions of our human consciousness. He argued that electric media enable human beings to put physical bodies into the extended information systems. He also predictably advised to maintain smart consciousness so the media cannot influence us too much to the extent that we would live in the illusions of the entertainment industry. Indeed, our identities, selfhood, sense of gender, concepts of ethnicity and race, class, sexuality, nationality, and so on that divide our own sense of belonging to others are all shaped by radio, television, the Internet, and other products of media culture (Keller, 2015, p. 8). Therefore, media are not only extensions of us, but we are gradually becoming extensions of media. Daniel Anderson (2003) held that in new media composition, human beings are producers and consumers at the same time, hence the coining of the term "prosumer," which signifies new territories of virtual and real-life identities. According to the logos of prosumer, photo and video app users' experience will be shaped not only by their identities as producers but also by their identities as consumers when they evaluate and digest others' and their own visual, audio, and multimodal compositions on a daily basis. This everyday composition process will in turn define and change their values toward class, ethnicity and race, gender relations, and their behavioral patterns in many ways.

At the same time, multiple trends suggest that we are being forced into smaller and smaller boxes that actually separate us from one other while claiming to give us what we want. For example, Google search algorithms give us more of the same sort of stories. Also, in *Digital Cosmopolitans*, Ethan Zuckerman (2014) suggested that most Internet users never venture beyond news of their own locale, even though the world of news is available, mostly in English (p. 55). Even that locale is being problematized. Sut Jhally (2015) argued that in consumer culture, it is difficult to locate origins of people's most cherished values and assumptions because everything seems so natural and therefore so normalized that what we used to value as fundamental happiness (control of one's life, self-esteem, happy family life, loving relations, tension-free leisure time, and good friendships) is weighted only by its market value (Dines & Humez, 2015, pp. 246–248). That consumer culture is also changing. Erik Brynjolfsson and Andrew McAfee, in *The Second Machine Age* (2014), suggested that local providers of goods will be outsold by Internet shops, ending the local small business (p. 162). This tendency may even become an existential threat to

academics in the era of MOOCs (Massively Open Online Courses). In addition to exploring these trends, this workshop suggested ways to think outside the algorithms, including changing one's Google profile, creating and taming chaos, becoming a digital cosmopolitan, and brainstorming ways to be curators. With these activities, we followed Grabil's admonition to do more than resist and critique the hegemony of algorithms: we suggested solutions to the problem of software limiting our thinking.

It's Worse than We Feared

In our presentation, we alternated the scholarship, as outlined above and below, with the activities, which will be described in more detail later.

The Self-limiting Habits of Hurried Citizenship

We ourselves, and the way we use the Internet, may in fact be the biggest limitation of digital use. In the rush of our daily life, we may never venture beyond the news of our own friends and comfortable web sites. As Ethan Zuckerman (2014) suggested and noted above, most of us seldom or never seek out international news or social media, even though a great deal of it is in English (p. 55). Even if there is no language barrier, there can still be cross-cultural considerations. For example, Guiseppe Getto and Kirk St. Amant (2014) suggested four factors for communication designers to consider when developing personas of users in different cultures (p. 34). Similarly, Huatong Sun's Culturally Located User Experience (CLUE) approach (2012) focused on the cultural contexts of specific users and was a significant reference frame for this study. We have chosen both Asian and American participants in order to understand different cultural contexts in which user experience is set with different photo and video apps. Whitney Quesenbery and Daniel Szuc (2012) argued that cultural differences are significantly relevant in many UX projects and that usability is based on differences in the adoption of technology (p. 37). Our habits of hurried citizenships are culturally rather than globally sensitive and therefore limit our understanding of a networked globe and citizenships.

The Algorithmic Limits of the Internet

Beyond our self-limiting habits of clicking, algorithms are everywhere on the Internet and may be influencing our behavior online and offline. Months before the 2016 presidential election, Robert Epstein (2016), senior research psychologist at the *American Institute for Behavioral Research and Technology* and the former editor-in-chief of *Psychology Today*, suggested that elections could be swayed by Google's search engines. Based on an experiment conducted with Ronald E. Robertson, he concluded that Google can sway opinions based on searches when the results are guided by algorithms that the search giant is constantly—and invisibly—manipulating.

In a similar vein, Facebook was vilified for its possible role in the 2016 presidential election. In May before the election, Jon Keegan (2016), former reporter at *The Washington Post* and senior research fellow at the Tow Center for Digital Journalism, posted a story about Facebook, where viewers could track for themselves the news feeds on eight controversial topics by either red or blue, shown side by side. The comparison is still being updated with different stories on the Affordable Care Act, ISIS, etc.

As the debate about Britain exiting the European Union unfolded last summer, Katharine Viner (2016) asked if truth even existed in the age of the Internet. She wrote on the disruptive influence of algorithms:

Algorithms such as the one that powers Facebook's news feed are designed to give us more of what they think we want – which means that the version of the world we encounter every day in our own personal stream has been invisibly curated to reinforce our pre-existing beliefs. When Eli Pariser, the co-founder of Upworthy, coined the term “filter bubble” in 2011, he was talking about how the personalised web – and in particular Google's personalised search function, which means that no two people's Google searches are the same – means that we are less likely to be exposed to information that

challenges us or broadens our worldview, and less likely to encounter facts that disprove false information that others have shared.

After the American election, others faulted Facebook for its lack of responsibility and its claim that it is just a platform for sharing (Isaac, 2016; Perez, 2016). Some went further with their blame. On his blog, Trent Lapinski (2016), who described himself as a technology executive and Bernie Sanders supporter, blamed the election results on “the echo chamber on social media where they [his fellow progressives] were not being exposed to differing opinions or news.” Since Facebook and Google are using algorithms, is it not we ourselves who are limiting our knowledge feed?

The Local Ramifications of Commercial Internet Use

The influence of the digital age may be felt most acutely by local economies. Erik Brynjolfsson and Andrew McAfee (2014) in *The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies*, suggested that a major revolution in the way we work is already ongoing. With the doubling of scientific discoveries every eighteen months, they suggest the loss of the middle class is due to Internet superstars dominating the economy (pp. 150–151, p. 62).

Others predict even more dismal futures. Some even claim that half of current jobs may be gone in three years due to technology (Williams-Grut, 2016). These are limitations that are occurring due to our activity on the Internet—limitations that may come back to haunt us when our own profession may be diminished, as Grabill illustrated in his description of the intrusion of Big Data into the field of composition.

But, we as college graduates are exempt, are we not? Brynjolfsson and McAfee (2014) suggested a college premium that results in less unemployment for those with degrees. However, they also point to risks even for knowledge workers as pointed out by linguist Stephen Pinker as early as 1994. In commenting on artificial intelligence and language, Pinker suggested that those with more cognitively based jobs may actually be at the most risk. In *The Language Instinct*, he predicted that gardeners will keep their jobs while professors may not (p. 193). It may be that we as a teaching profession are at risk too, as Grabill pointed out and as other trends suggest.

The Existential Threats to the Teaching Profession

As Marcia Bost pointed out at the 2015 Computers and Writing, the master class philosophy adopted by some universities at the suggestion of learning platform companies has separated the tasks of teaching. The content expert chooses texts and assignments and designs the class, while others (possibly contingent laborers) interact with the students and grade the papers. The master class philosophy does at least leave intact the class size limitations, which provide numerous jobs to graduate students and contingent faculty. MOOCs call this arrangement into question. Brynjolfsson and McAfee (2014) recounted the story of a MOOC about artificial intelligence. In 2011, this MOOC was offered by Stanford’s Sebastian Thrum, father of Google’s driver-less car and an authority on artificial intelligence. More than 160,000 signed up, with tens of thousands actually completing the course; the top Stanford student ranked 411th among all those (p. 200). Such crowd-sourcing of learning has the potential, using these enrollment numbers as an example and an average class size of 25, of eliminating more than 6,000 instructor jobs.

The reaction of the academy to MOOCs illustrated Dickens’ phrase from *Tale of Two Cities*: “It was the best of times; it was the worst of times.” For instance, Nick Carbone (2014) in “Here a MOOC, There a MOOC,” saw the benefits of these courses. Since he highlighted those who take MOOCs for their own motivations and not college credit, Carbone suggested that “MOOCs will not kill colleges and universities; those entities require and thrive from granting degrees and charging tuition and fees to earn those degrees” (p. 200). In addition, Edward White (2014) in “MOOCs as Threat and Promise” suggested—based solely on his experience in helping design the Duke University MOOC for first year composition as part of the Gates Foundation—that these open courses will have less impact on traditional college courses than the similar College Board College-Level Examination Program (CLEP) or Advanced Placement (AP) programs (p. 151). However, he did add that legislative bodies might use the existence of

MOOCs to cut college budgets for buildings, faculty, and research if traditional colleges do not defend their programs. Because of problems with assessment and certification of quality, White (2014) thought that “MOOCs cannot and should not certify college credit” (p. 153). The growth of MOOCs, at a minimum, bears watching.

Even Worst Trouble, Theoretically Speaking

Meanwhile, technology is nibbling at the edges of what it means to write as a human. The first story on the 2014 California earthquake was written by an application named Quakebot, created by *Los Angeles Times* reporter Ken Schwencke. *Future Tense* blogger Will Oremus (2014) also pointed out that the *Times* uses several bots to compose short news reports on routine events like earthquakes and murders. Oremus recounts how these are reviewed and posted by human editors and then these editors assign human reporters to follow up with information about damage and quotes from officials. However, bots have not only been programmed to write routine journalism but also scientific papers. Multiple news accounts reported that MIT students successfully used their software to write jargon-laden scientific papers with little actual meaning. Subsequently, Springer and IEEE removed more than 120 works that had been generated by this bot and published. This incident is one of several reported by James J. Brown, Jr. (2014) in “The Machine that Therefore I Am.” He also suggested that the process of our becoming machines has been going on for two centuries with rumblings as far back as Erasmus’s *De Copia* exercises. While positing that “rhetoric is a collection of machines (‘whatsits,’ ‘gadgets’) for generating and interpreting arguments” (p. 496), he argued that all rhetorical action should be viewed as “robotic.”

Such views are, of course, accepting the dominance of algorithms without critically engaging them or proposing solutions to the limitations that they impose. Such unthinking dependence on software does not follow Grabill’s suggestion that technology should work *with* teachers and not *for* them. He proposed that software that works with teachers would inform, add value, enhance teacher work, and professionalize.

It’s Better than We Hoped

Even in the midst of their dark economic predictions, Brynjolfsson and McAfee (2014) pointed out innovative web sites and applications, including the following: Innocentive—an online clearing house for scientific problems; Quirky—crowd source and filter innovation; Affinnova—evaluate possible solutions; and online data analysis. They also claimed:

We’ve never seen a truly creative machine, or an entrepreneurial one, or an innovative one. We’ve seen software that could create lines of English text that rhymed, but none that could write a true poem (“the spontaneous overflow of powerful feelings, recollected in tranquility,” as Wordsworth described it). Programs that can write clean prose are amazing achievements, but we’ve not yet seen one that can figure out what to write about next. (p. 191)

Thus, any effort to think outside the algorithms must encourage creativity, which is the purpose of the activities that follow.

Even Zuckerman (2014) in his critique of our comfortable digital habits, saw hope in those who serve as bridges between cultures and languages. He stressed the need of personal connection: “We need to stumble on unexpected influences to make novel connections. This means granting some of our attention to curators—human and mechanical—who can introduce us to unexpected influences” (p. 269). He also suggested that we monitor our digital habits and seek new connections through following our interests to unusual venues. As teachers, we in the academy must begin to theorize and practice contextual ways of being a curator. The activities of this workshop began the conversation about how we can be such curators, bringing new connections to thinking outside the algorithms.

We may also be able to make those connections by and through the creation of chaos. In *Forming, Thinking, Writing*, Ann E. Berthoff (1989) suggested that writing teachers should create and resolve chaos. Her activities include brainstorming on a photo, writing a double entry journal in response to

quotes, looking at multiple photos/ drawings and finding a common descriptor (p. 26ff, p. 78–79). Berthoff (1981) also described this process: “The primary compositional modes of amalgamation and elimination begin to operate.... We see in terms of classes and types; everything we see is seen as an example of a kind of thing. Perception is contingent on the mind’s capacity for analogizing” (p. 75). She (1981) made the following connection between chaos, composing/ writing and learning: “Composing is forming: it is a continuum; it goes on all the time. Composing is what the mind does by nature: composing is the function of the active mind. Composing is the way we make sense of the world: it is our way of learning” (p. 36). Through the embracing of such chaos, we may begin to make connections beyond those comfortable ones we are given. Only when we acquire such broad knowledge from multiple sources/media/ can we think outside those ubiquitous algorithms.

Being the Human Factor

In the interactive portion of our workshop, we led activities for going beyond the virtual and the embodied clichés of techné.

Upsetting the Google Cart: Changing One’s Google Profile

Bost shared her experiences with being stalked by commercial websites (whose ads appeared on any website she visited). For example, after she bought a tuxedo for her son to wear in chorus, that store advertisement for tuxedos appeared everywhere she clicked. She revealed that she now clicks on a fabric web site at least once a week so that she is stalked by beautiful designs. A workshop participant shared that she gets all sorts of baby advertisements, which she resents, because she calls her cats “babies” in Facebook posts. We then invited participants to go to a website of a different political persuasion and then search for an issue to see if the feed was different. We quickly realized that five minutes of different surfing would not change one’s feed. While most participants were using their own laptops, one participant used the University of Findley’s lab computer and pulled up very different results. We theorized that the computer’s IP address might be even more critical to one’s search results than one’s name. We also searched the term “health care” on the Wall Street Journal’s web site that tracks different news feeds and compared the results.

Breaking a Chatbot: Interacting with an Online Robot

Xiaobo Wang shared her experience with a well-known chat-bot on Chinese social media. The Chatbot is female, and her name is Xiao Bing/Little Ice. Wang talked about how she was not aware that she was chatting with a bot at the beginning because Xiao Bing has a profile picture on the Weibo, Chinese Twitter, that looks just like another Chinese girl. According to Wang’s experience, the Chatbot is smart enough to compose poems, sing, and chat with human beings on a regular basis. However, Xiao Bing was not intelligent enough to respond some of Wang’s questions such as “Do you like strawberries?” She answered, “Yes, I like you!”

We suggested that participants interact with the following two chatbots using Pinker’s (1994) questions: “Which is bigger, Chicago or a breadbox? Do zebras wear underwear? Is the floor likely to rise up and bite you? If Susan goes to the store, does her head go with her?” (p. 192). Those in the workshop posted their own questions to the chatbots and did not think the chatbots lived up to human interactions. One rapidly got into name-calling, with the both the human and the chatbot calling each other a “machine.”

Here are links to two Chatbots:
Mitsuku Chatbot
<http://www.mitsuku.com/>
Cleverbot
<http://www.cleverbot.com/>

Exploring Social Media Apps of Other Cultures (Meituxiuxiu and WeChat)

To illustrate how to connect across cultures, Wang demonstrated the steps for creating and using Chinese social media. Firstly, she presented on how the Chinese photo apps such as Meituxiuxiu work. She emphasized the global trend of skin smoothing, whitening, eye enlarging, and other features that may have a negative impact on users/students' behaviors and ways of thinking regarding beauty standards.

To see some of the most popular global social media apps, go to <http://www.smartinsights.com/social-media-marketing/social-media->

Then, participants were invited to download the WeChat app on their cellphones and/or tablets. One of the participants was already using the app to interact with his friends. WeChat is not only a messenger that allows users to chat by sending voice and/or writing messages but also a convenient platform to share moments/posts with images and videos. In addition, it has features such as people nearby, drifting bottle, shaking, and so on to enable real time global communications.

Stamping the Digital Passport

Due to time constraints, we suggested that participants do the follow-up activity on their own: choose a country they have not previously been interested in and scan headlines for major concerns there for the last month/ year.

Opening the Floor

In response to the existential threats to both the economy and the profession, we opened the floor for participants to brainstorm additional ways to think outside the algorithms with our students and give pedagogical examples presenters use in their classrooms and interactions with the audience. The floor was mostly silent.

However, Wang previously used the following principles to help her students break out of their digital boxes:

- a) Teaching the communication/rhetorical design of mobile apps can help students think about algorithms and how they influence our communication, way of life, and daily behaviors.
- b) Exploring photo and video apps help students to use them critically, especially apps that make users' figures slimmer, skin smoother and/or whiter, and other features that would inherently encourage students' unhealthy beauty standards.
- c) Comparing technologies/social media/apps among different cultures help students to learn transnational/intercultural/interpersonal rhetoric and communication and can cultivate a culture that is more tolerant, understanding, and compassionate.

Using transnational and comparative perspectives in these ways to look at technological advances may stimulate students' awareness, reflexivity, and sense of responsibility as human beings in an overwhelmingly post-human world.

Bost has also led her students to think critically about their social media use by showing and discussing Shirley Turkle's (2012) "Connected, But Alone" TED talk which problematized texting. She also assigned students to write digital literacy narratives that explore their relationship with the devices that so occupy their time.

Conclusion

Even though we narrowed our initial focus to the role of algorithms in social media, in our workshop we still found ourselves grappling with a rather unwieldy subject with no easy answers. The first step to solving our own problems is an awareness of the problem, and we think we have achieved that goal. As this workshop illustrated, algorithms do herd us into smaller and smaller boxes, and it is our responsibility

to be aware of their workings and to creatively mitigate their disadvantages. Certainly, we will continue to write and work on the ways that algorithms impact our interactions with other people. We invite others to join this conversation as well.

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