Chapter 2: Becoming Builder: Collaborative Tactical Media

From Makers to Builders

Wrestling with Plato's Fight Club means grappling with media, institutions, and oneself. The transformation of the liberal arts from a literate institution to a digital one has been underway for half a century but still faces many challenges: not only technological and organizational, but also cultural. Digital culture is a maker culture, yet the model of making changes dramatically—from individual Romantic genius to that of collective postmodern bricoleurs, makers who collaboratively create with any medium necessary and any means available. The Romantic genius remains a powerful model of creativity in liberal education, however, one closely tied to the siloed spaces of seminars (the writer), studios (the artist), and labs (the scientist) and the value of originality and exceptional natural ability. Here individual creativity opposes the power of institutions, with power concieved only as repressive and negative, while knowledge poses as the means of liberation. Michel Foucault counters this opposition of power and knowledge with knowledge-power: knowledge presupposes power, and Foucault defines disciplinary

power as positive and productive of modern subjects and objects alike. Modern institutions have generated and shaped our very concept of being human.[1] *Within the transversal space of StudioLab, creativity becomes collaborative and recombinant, mixing not only bodies and media but also pedagogies and infrastructures. The value here is not originality but transformation, even metamorphosis*: *in StudioLab, students first become makers, then become* ***builders****, producers of critical design teams that draw on institutional resources. In doing so, they learn to approach social and technical forms both critically and creatively to produce tactical media.*

Becoming builder entails the self-organization of makers into collective ensembles: critical design teams who research, design, and build both projects and the infrastructure necessary for their collaborative activities, which include organizational structures (production roles, decision-making processes), communication networks (email, Google Docs, websites), and micro-cultures (habits, styles, material artifacts, affective investments). Critical design teams produce transmedia knowledge alongside their own power generators, and we can initially understand them as desiring-machines, a term coined by theater director Antonin Artaud and later reanimated by the schizoanalysts Gilles Deleuze and Felix Guattari. For the latter, desiring-machines are small assemblages of bodies and mechanisms which intervene in larger sociotechnical systems, institutions understood as composed of both people and technologies. "There are no desiring-machines that exist outside the social machines that they form on a large scale; and no social machines without the desiring machines that inhabit them on a small scale."[2] Research teams, art movements, rap groups, theory schools, business start-ups, activist groups—all constitute desiring-machines that draw on and off larger institutions for discourses and practices even if they set out to break away, resist, or transform them. *Within the institution of higher education, StudioLab functions as a desiring-machine for building other desire-machines, critical design teams capable of generating transmedia knowledge and transvalutions of values for diverse audiences, connecting with*

[1] See Foucault, *Discipline and Punish*.
[2] *Anti-Oedipus,* p. 340.

desiring-machines in other institutions, and thereby transforming the place of higher education in contemporary society. Here transmedia knowledge becomes tactical media.

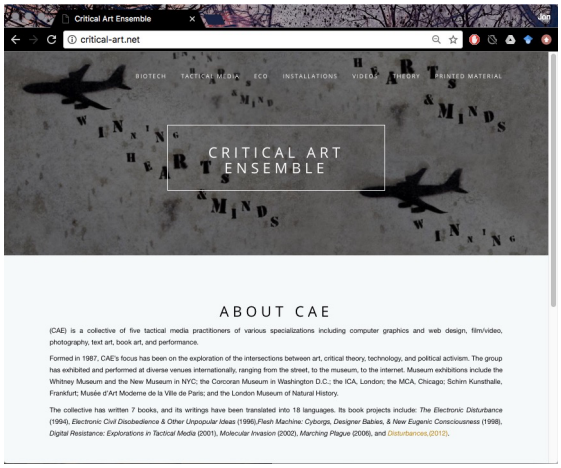
Tactical media is a core component of our approach to critcal design because it supplements the medium of phonetic writing on which traditional critical thinking is based. Tactical media intervenes in social situations and has a long history, even if the term is relatively new: the banners and posters used by 19th-century labor movements, early 20th-century suffragettes, and mid-century civil rights activists can all be seen as tactical media, as can any media used to contest and resist dominant forms of power. StudioLab's critical design process combines traditional critical thinking with tactical media making that relies on collective, recombinant creativity, the mixing of desires and skills, materials and processes. Becoming builder means building collaborative platforms on which to make media while also working on oneself, transforming oneself by creating with others, seeking to enter what psychologist Mihaly Csikszentmihalyi calls flow, an experience of intense creative immersion similar to the mimetic enchantment Plato found in Homeric poetry and the plateaus of intensity cyberneticist Gregory Bateson found in Balinese culture.[3] In critical design teams, however, these collective experiences of flow are intermittenly broken by moments of critical reflection and analysis. These breaks can be especially productive when collaboration sputters due to interpersonal conflicts. Such conflicts often reveal power dynamics found in contemporary culture, dynamics of gender, sexuality, race, ethnicity, class, ableism, and other social differences, and resolving them can generate transformations when they produce interpersonal growth. Importantly, critical breaks also enable teams to respond to feedback from others, such as instructors, other teams, target audiences, and community partners. Such feedback enables critical design teams to finetune and sometimes reorient their collaboration. *This transformational rhythm of creative flows and critical breaks channels the onto-historical power of both oral and literate*

[3] See Csikszentmihalyi, *Flow: The Psychology of Optimal Experience*; Eric Havelock, *Preface to Plato*; and Bateson, *Steps to an Ecology of Mind*.

apparatuses and is essential to the democratrization of digitality and design in higher education and beyond.

Critical Design 102: Building Collaboration

StudioLab's critical design teams are based on experience working in the web industry and teaching in programs of Multimedia, Performance Studies, English, and Game Design, as well as workshops given in such fields as Biomedical Science, Development Sociology, Engineering, Environmental Science, Labor Relations, and Theater. This chapter introduces a cluster of concepts and practices designed to facilitate the shift from maker to builder. As described below, students learn in different modes, those of *teams*, *bands* and *guilds*, which correspond roughly to the spaces of seminar, studio, and lab. In terms of desiring-machines, critical design teams function to transform students from highly individualistic *bachelor machines* into collaborative *intimate bureaucracies*, where they role-play as critical design consultants performing such roles as producers, writers, webmasters, and multimedia makers. Through this role-play, critical design teams develop approaches to transvaluating the performative values of contemporary institutions, those of *cultural efficacy*, *technical effectiveness*, and *organizational efficiency*. The chapter concludes by introducing StudioLab's second design frame, User Experience or UX, and providing a second set of exercises, projects, and syllabi. We begin, however, with another collection of tutor sites, inspirational collaborations for our critical design teams.



Tactical media: Critical Art Ensemble <critical-art.net>

In many ways, Critical Art Ensemble (CAE) offers StudioLab the most provocative of tutor collaborations. Formed in 1987, this artist activist group opened up the realm of electronic civil disobedience with its 1994 manifesto, *The Electronic Disturbance*, published just after the web went public in 1991 and the Mosiac browser began making it popular in 1993. Long before NSA cybersurveillance, criminal ransomware, and WikiLeaks whistleblowers, CAE persuasively argued that power had gone virtual and that new modes of civil disobedience were needed. At the same time, they challenged their peers, contending that artists remained too uninterested in digital media, activists too tied to the streets, and programmers too enscounced in the security state for the necessary collaborations to emerge and develop such modes of resistance. By 2000, however, CAE and groups such as the hacktivists Electronic Disturbance Theater, cyberfeminists subRosa, and the anti-corporatists eToy had developed and deployed a range of electronic civil disobedience practices.[4] Each group functions as a desiring-machine, and Critical Art Ensemble in particular provides the inspiration for StudioLab's critical design teams.

CAE explicitly counters the model of the individual Romantic genuis in their very name and reinscribes the creation of fine art within the production of tactical media, a key component of our critical

4

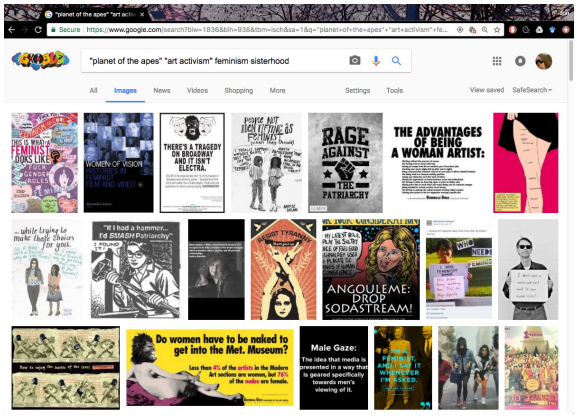
design process. Tactical media entails transmedia knowledge and vice versa: both constitute transformational forms of knowledge-power designed to produce specific effects with specific audiences. Over three decades, CAE has produced community events, interactive installations, public programming, infographic posters, radio bikes, videos, websites, books, essays, and pamphlettes. "The tactical media practitioner uses any media necessary to meet the demands of the situation. While practitioners may have expertise in a given medium, they do not limit their ventures to the exclusive use of one medium. Whatever media provide the best means for communication and participation in a given situation are the ones that they will use. Specialization does not predetermine action. This is partly why tactical media lends itself to collective efforts, as there is always a need for a differentiated skill base that is best developed through collaboration."[5]

Specialization sharpens minds to the dullest of points. Transdisciplinary collaboration—problem solving and interventions far from discipline—opens specialized, ideational thought to hypertextual connections far beyond inductive and deductive logic and produces holistic thought-action figures through Peircean abduction (cognitive leaps) and Ulmerian conduction (associative revelations).[6] In addition to tactical media, CAE provides StudioLab the organizational infrastructure for producing and practicing thought-action in the world. "For sustained cultural or political practice free of bureaucracy or other types of separating factors, CAE recommends a cellular structure. [...] While size and similarity through political/aesthetic perspective has replicated itself in the group, members do not share a similarity based on skill. Each member's set of skills is unique to the cell. Consequently, in terms of production, solidarity is not based on similarity, but on difference. The parts are interrelated and interdependent."[7] CAE's model is the artists' cell, not the terrorists' cell, and StudioLab adds to the artists' cells other

[5] Critical Art Ensemble*, Digital Resistance*, p. 8.
[6] See Pierce and Ulmer.
[7] Critical Art Ensemble*, Digital Resistance*, p. 65.

tutors, including theory schools, rock bands, entrepreneurial start-ups, etc.: small groups of 3-5 people bound by shared conceptual and aesthetic interests and diversified in technical training and skills.

While CAE has sought to intervene in art and activist traditions, StudioLab focuses on transforming institutions of higher education, in particular liberal arts ranging from humanities and social sciences to physical and life sciences. Significantly, CAE has targeted economic and scientific issues, and the group itself was originally formed by graduate students from different fields at Florida State University. Critical Art Ensemble's own self-organization offers StudioLab students a valuable lesson: *the critical design teams through which they collaborate can become independent and sustainable far beyond the particular context in which they form.* While this independent sustainability can arise with graduate students, it is undergraduates, precisely because of their liberal arts requirements, who are radically transdisciplinary, even if few realize that their majors are actually disciplines with their own ontological histories. StudioLab provides the space, means, and opportunity for students to collaboratively integrate their cross-campus learning with real-world action both in and out of school.



Scrambling the Alphabet: Google <google.com>

For StudioLab, Google demonstrates the potential of a collaborative college project not only to exist beyond college but also to help scramble the literate infrastructure of schooling itself. Started in 1996 as a research project by Stanford PhD students Larry Page and Sergey Brin, Google has grown from a small

start-up in a garage into one of the world's largest multinational corporations. Page's dissertation project to graph the World Wide Web's structure and Brin's experience on the Stanford Digital Library Project (which sought to digitize all books) combined to produce a revolutionary search engine that has helped transform the very nature of research: both specialists and non-specialists can use complex algorithms to search innumerable web files and access texts, images, videos, and maps—and do so at any time, from any place with an Internet connection. The model for Google's PageRank was the Science Citation Index, the index being a powerful literate tool for cataloguing textual citations that dates back to Medieval times. Google generated an index of the web in a dynamic, scaleable fashion. In 1998, Brin and Page wrote: "In designing Google, we have considered both the rate of growth of the Web and technological changes. Google is designed to scale well to extremely large data sets."[8] Since its inception, Brin and Page's collaboration has helped to democratize digitality by bringing information and media to people's fingertips at scales and speeds that continue to amaze. Like "Xerox," "FedEx," and "Photoshop," but far more powerfully, "Google" is a trademarked proper name that has also become a transitive verb in common usage: "to google" means to search the web—to research.

Early on, Brin and Page's idealism drove them to disparage search engines funded by advertising, but Google quickly embraced ads, making it hard to live up to its founding ethos, "Don't be evil." Since then, Google has come under numerous attacks—and in some cases generated law suits—for a wide variety of troubling reasons. Criticisms include: its search algorithms are weighted to produce biased results; its ads and digitalization projects contribute to the commercialization of knowledge; its business practices are unfair and monopolistic; its incessant data collection erodes personal privacy and constitutes a profound form of capitalist dataveillance; its collaboration with the National Security Agency demonstrates that it puts state security over individual freedom; and its cultural ethos harbors industry-wide values of sexism and racism. In this light, Google embodies the observation attributed to

[8] Brin and Page, "The Anatomy of a Large-Scale Hypertextual Web Search Engine.'

social commentator Eric Hoffer: "Every great cause begins as a movement, becomes a business, and eventually degenerates into a racket."[9]

In his 2011 book, *The Googlization of Everything: (And Why We Should Worry)*, media scholar Siva Vaidhyanathan shares his own transformation from Google enthusiast to Google skeptic before setting out a comprehensive critique, less of Google itself, than of "how we use Google." He frames the challenge of googlization—the expansion of Google tools and services into ever wider spheres of society—as a "public failure:" "when Google does something adequately or cheaply in the service of the public, public institutions are relieved of pressure to perform their tasks well."[10] Vaidhyanathan's primary interest lies in the impact googlization on books, knowledge, and cultural memory. With googlization, he argues, knowledge is becoming fractured, memory filtered by customized algorithms, and encounters with true difference eliminated. Vaidhyanathan offers his own remedy, a proposal for a Human Knowledge Project, in which libraries function as crucial nodes. He also offers his own recombinant mission statement. The Human Knowledge Project "would identify a series of policy challenges, infrastructure needs, philosophical insights, and technological challenges with a single goal in mind: to organize the world's information and make it universally accessible. I am sure Google won't mind if we copy its mission statement."[11]

It helps to place Google and Vaidhyanathan's arguments against googlization within the nested onto-historical contexts that inform StudioLab. The public failure Vaidhyanathan describes predates Google and also the birth of the web, as public funding for U.S. education begin declining with neoliberal economics in the 1980s and accelerated with the end of the Cold War. The fracturing of knowledge and marginalization of difference he rightly decries predates Google by millennia: disciplinary specialization can be traced back to Descartes' *Discourse on Method* and Aristotle's tree-shaped Categories, and the

---

[9] Hoffer's actual quote is "What starts out here as a mass movement ends up as a racket, a cult, or a corporation." *The Temper of our Time*.
[10] Siva Vaidhyanathan, *The Googlization of Everything: (And Why We Should Worry)*, p. 2, p. 6.
[11] Vaidhyanathan, p. 204-205.

marginalization of difference to Aristotle's Law of Identity (A=A). Google and other search algorithms do filter knowledge, and Vaidhyanathan acknowledges that there are no neutral algorithms, yet literacy itself functions as a massive onto-historical filter: ever since Plato's exclusion of the poets from the Republic, images, music, dance, and other non-written media have been filtered out of the realm of true, epistemic knowledge, i.e. ideation. Conversely, Vaidhyanathan's arguments against googlization resonate with Plato's arguments *against* writing in *Phaedrus*. Here Socrates argues that writing is not "a potion for remembering, but for reminding" and that it offers not true understanding but "discourse [that] roams about everywhere, reaching indiscriminately those with understanding no less than those who have no business with it, and it doesn't know to whom it should speak and to whom it should not."[12] Vaidhyanathan's own filter, in short, is logocentric: he uncritically asserts the positive value of books and libraries without also acknowledging the negative effects of literacy's power, and his critique of the emerging digital "technocracy" fails to recognize that literacy is itself the most powerful technocracy the world has ever known. He asks the right question: "Are we headed down the path toward a more enlightened age and enriching global economy, or are we approaching a dystopia of social control and surveillance?"[13] StudioLab's answer is *yes*: technology is *pharmakon*, both remedy and poison, whether it functions in the digital, literate, or oral apparatus.

As performance scholar Diana Taylor argues, the literate archive helped radically transform—and in many cases erase—the customs of cultures built on oral repertoires (embodied repositories of gestures, songs, music, and rituals), a process that required centuries of colonial conquest.[14] Likewise, the digital database has been helping transform the knowledge production of archive-based cultures over the past half-century, a period also notably marked by rapid decolonization. For better and for worse, by digitizing

---

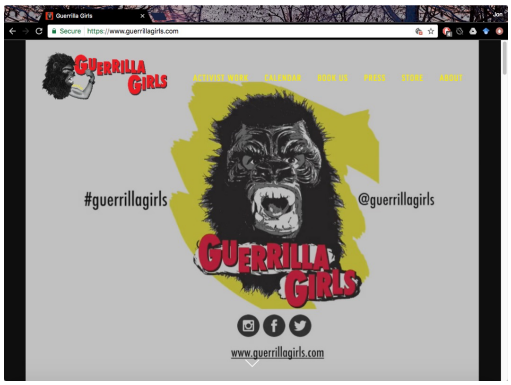
[12] Plato, *Phaedrus*, 275a, 275e. As Derrida reminds us, Plato argues against the Sophists' writing practices while arguing for the logocentric writing of the soul, whereby writing captures the ideal Eidos and translates ideation into dialectical Logos.
[13] Vaidhyanathan, p. 8.
[14] See Diana Taylor, *The Repertoire and the Archive*.

archives and research Google is helping to displace the gatekeepers of modern literacy (scholars, librarians, and publishers) just as the archive helped displace the gatekeepers of traditional orality (elders, healers, and rhapsodists). Vaidhyanathan fears that bloggers, Wikipedia, and Google will become the new experts without considering that the remix of *episteme* and *doxa*, scholars and rappers, logocentric and indigenous media is already producing new forms of transmedia knowledge where experts and amateurs coexist and collaborate through projects such as Citizen Science, Citizen History, and community-based research where inquiry is informed and guided by community concerns and and needs.

As tutor collaboration, Google demonstrates that a desiring-machine can scale into a global sociotechnical system in a relatively short time, producing pharmakological effects both beneficial and malovelent. In this case, a pair of graduate students built a research engine (Google Search), and their collaboration grew to create many other collaborative platforms, including a filing system (Google Drive), library (Google Books), cartographic systems (Google Maps and Google Earth), citation index (Google Scholar), and its own campus (Googleplex). The widespread adoption of the Google Classroom—comprised of its word processor (Google Doc), email system (Gmail), and laptop (ChromeBook)—by half of U.S. elementary and secondary schools is creating a generation of googlized students trained for projects such as the Human Knowledge Project.[15] The question is: does higher education have the flexibility and imagination to retool its logocentric superstructure (faculty, curricula, learning spaces, support services) within its digital infrastructure (databases and systems found in it content management systems, libraries, email and calendaring, admissions, etc.) and thereby empower this generation of highly collaborative young desiring-machines? Faced with the *pharmakons* of digitality and literacy, StudioLab offers the liberal arts a higher-ed, open platform version of Google Classroom where students build critical design teams to deal (with) the pharmakological nature of googlization. In this respect, StudioLab functions as a full-service academic pharm school that offers the liberal arts

15 "How Google Took Over the Classroom," *The New York Times*.

curricula, assignments, learning spaces, emerging scholarly genres, design frames, and rubrics to transmediate the world's knowledge and make it universally mashable.



(Un)masking discrimination: The Guerrilla Girls <guerrillagirls.com>

StudioLab's critical design approach brings the power of critical thinking to new contexts via tactical media and transmedia knowledge, which may be digital, analogue, or embodied. One of the most successful and provocative collaborations in this regard has been the Guerrilla Girls, a feminist art activist group formed in 1985 in New York City. Using performance art, street protests, masks, posters, infographics, billboards, videos, books, and the World Wide Web, the Guerrilla Girls have targeted different social instititions, especially the art world and entertainment industry, for their sexism, racism, and other forms of discrimination. The Guerrilla Girls' work is simple, direct, and effective: for example, in the late 1980s, they plastered New York City's Soho neighborhood with posters presenting the meager number of women artist shown in the galleries found there, forcing a public discussion of sexist exhibition practices that helped introduce more diverse artists into the art world. Their trademark tactical media are gorilla masks, which they wear for very specific reasons: to protect their anonymity, to focus on issues rather individuals, to ward off the stereotypical focus on women's beauty, and to provoke audiences with pointed political and social humor. They often appear as four Guerrilla Girls, but the group has a flexible composition: "Over 55 people have been members over the years, some for weeks,

some for decades. Our anonymity keeps the focus on the issues, and away from who we might be. We wear gorilla masks in public and use facts, humor and outrageous visuals to expose gender and ethnic bias as well as corruption in politics, art, film, and pop culture. We undermine the idea of a mainstream narrative by revealing the understory, the subtext, the overlooked, and the downright unfair. We believe in an intersectional feminism that fights discrimination and supports human rights for all people and all genders."[16]

The Guerrilla Girls' gorilla masks offer a singular example of thought-act figures: they are much more than an idea or symbol as they exist and perform in the world, harboring specific theoretical and practical powers. Rather than static forms, they gather dynamic forces and are animated by the living persons wearing them and interacting in the world and by the intersectionality of different social forces, those of gender, sexuality, race, ethncity, ableism, and class. Ideas don't disappear as much as become elements within thought-action figures that function as a nexus of sometimes disparate knowledges and powers: gorillas, guerrillas, girls, grrls, etc. While ideation strives for emotional distance between clearly defined subjects and objects, thought-action figures embrace what Deleuze and Guattari call the double deterritorialization of human and world, the opening up of modes of becoming-other through the sharing of affective intensities. With the Guerrilla Girls, the power of pointed humor and outrageous visuals is channeled and released through the wearing of gorilla masks which transform recognizable individuals into anonymous warriors, into living thought-action figures who talk the talk and walk the walk in the halls of masculine power—confronting it with what we might call feminine maskulinity. In their book *Bitches, Bimbos and Ballbreakers: The Guerrilla Girls' Illustrated Guide to Female Stereotypes*, the group tackles stereotypes by critically historicizing them and then, reversing and inverting their negative attributes, embracing them: "If the world is going to call you a Bitch for being ambitious, outspoken, and in control of your own sexuality, why not accept it and be proud? 'Bitches of the world unite." Be tough,

[16] The Guerrilla Girls, "Our Story," <https://www.guerrillagirls.com/our-story>. Accessed August 11, 2017, 10:13.

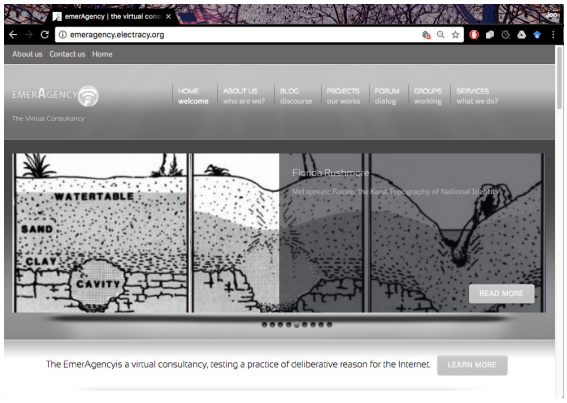
get what you want, be a real Bitch. But don't let anyone call you one!"[17] *In their hands, stereotypes can themselves become thought-action figures.*

In critical design teams, anonymity, collaboration, and critical humor empowers individual students in ways that the lone creative genius simply cannot. By role-playing and wearing the mask of critical design teams, students refunction common organizational processes by creating provocative and often humorous team names, logos, mission statements, and job titles. Becoming builder entails becoming empowered through the parodying and mimikry of established power. In an age of performative inputs and outputs, data must visualized to become intelligible, those data visualizations wrapped in stories to make sense, and those stories performed before the right audiences to create impact. The Guerrilla Girls' tactical media makes ample use of factual information, often visualized in tables and charts and disseminated on postcards, posters, and billboards using high contrast images, bright, eye-catching colors, and bold, startling headlines. One of their most famous posters reads: "Do women have to be naked to get into the Met. Museum? Less than 5% of the artists in the Modern Art sections are women, but 85% of the nudes are female." The image on the poster, which ran on New York City buses, was Ingres' *La Grande Odalisque* wearing a gorilla mask. *In The Guerrilla Girls' hands, iconic high culture artworks also can become thought-action figures.*

Critical design teams study such collective practices in order to generate their own collection of tactical media and embodied thought-action figures. Students also study the organizational dimension of activists and other groups in order to self-organize and build their own critical design teams. Different tutor groups offer different lessons. Most strikingly, the Guerrilla Girls have described their ensemble as open and at times dysfunctional. "Over the past ten years, we've come to resemble a large, crazy but caring dysfunctional family. We argue, shout, whine, complain, change our minds and continually threaten to quit if we don't get our way. We work the phone lines between meetings to understand our

[17] The Guerrilla Girls, *Bitches, Bimbos and Ballbreakers: The Guerrilla Girls' Illustrated Guide to Female Stereotypes*, p. 26.

differing positions. We rarely vote and proceed by consensus most of the time. Some drop out, but eventually most of us come back, after days, months, and sometimes years." Similar to Critical Art Ensemble, the Guerrilla Girls work by a crazy caring consensus, by saying "yes" to collectivist ideas and projects that have been extensively researched and debated. The group thus offers powerful lessons for one of StudioLab's core missions: to inject values of cultural efficacy into systems dominated by technical effectiveness and organizational efficiency. The democratization of digitality and design encounters intense cultural resistance, as seen in the well publicized sexism, racism, and xenophobia found in Silicon Valley. These problems do not originate in tech industries, however, as shown in a recent study of reasons that workers leave the tech industries. "The ongoing debates about whether the lack of diversity is due to a 'pipeline problem' or a 'tech culture problem' has failed to accurately frame the problem: that there are a complex set of biases and barriers that begin in pre-school and persist through the workplace. These cumulative biases and barriers prevent the tech ecosystem from being more diverse, inclusive, and representative of the United States population as a whole."[18] Just as the Guerrilla Girls have targeted the art and entertainment worlds, StudioLab's critical design teams learn ways to target the sexism, racism, and xenophobia found in the emerging digital apparatus.



Virtual consultants: The EmerAgency <emeragency.electracy.org>

[18] Scott, Klein, and Onovakpuri, *Tech Leavers Study*, 2017, n.p.

A fourth tutor for StudioLab's critical design teams is The EmerAgency, a research group that practices a kind of virtual consultancy or Konsultancy. Its twin mottos are "Problems Be Us. And from Basho, this admonition: Not to follow in the footsteps of the masters, but to seek what they sought." The latter provides a good understanding of StudioLab's relation to tutor texts; the former resonates with StudioLab's goal to help students problem-solve far from discipline by mixing expert and common knowledge, although the EmerAgency approaches problem-solving as part of the problem with literate approaches to knowledge: human mastery of the world is limited if not illusionary, and thus a more humble and prudent approach is needed. The EmerAgency's virtual consultations work without portfolio: the group develops and proposes unsolicited projects for established organizations including the National Park Service, the City of Miami, and the State of Florida, projects that reveal the excess or sacrificial dimension (marked with "K") of communities and public infrastructures and services, such as tourism, national parks, and disaster relief. An early project was Florida Rushmore, a proposed attraction to increase state tourism that reveals to travelers the abyssal nature of American national identity formation through a holographic Mount Rushmore-like monument placed inside a Florida sinkhole.[19] A Konsult reconfigures "disasters as epiphanies, revealing the fatal strategy underlying all possible scenarios. Disasters intimate Limit, Measure, functioning as messages from Technics, the Other Ontology of our machines." An important lesson for StudioLab's critical design teams is that digital media can function both as a means for providing consultation services to the academy, community members, and policy-makers *and* as a medium for receiving messages and revelations from the digital apparatus itself. In short, students consult with other humans and are consulted by a Machinic Other—for instance, through random results from Google searches. Learning to prepare for such revelations is key to StudioLab's approach to creativity and innovation through the construction of desiring-machines and thought-action figures.

[19] See Ulmer, "METAPHORIC ROCKS: A Psychogeography of Tourism and Monumentality." <http://users.clas.ufl.edu/glue/Rewired/ulmer.html>. Visited August 10, 2017. 8:09 am.

The EmerAgency is composed of a transdisciplinary team: media theorist Gregory Ulmer, artists Barbara Jo Revelle and John Craig Freeman, and architect William Tilson, who first collaborated together as the Florida Research Ensemble. As with CAE and Google, The EmerAgency collaboration has bootstrapped itself from literate academies to help invent theories and practices for the digital apparatus. Like StudioLab, The EmerAgency explicitly focuses on the displacement of literacy within digitality, which Ulmer has theorized extensively in terms of "electracy." "What are the electrate equivalents of the literate institutional practices and identity formations? Much of the best theorizing of new media and digital technology today neglects the insights of 'apparatus': that the Internet is an emerging institution that is to electracy what school was to literacy; that the categorial, logical, and rhetorical practices needed to function natively in this institution have to be invented, and moreover that the invention of an image metaphysics (the equivalent of what Aristotle accomplished for the written word) has its own invention stream, independent of the features of modern recording equipment."[20] We have seen this neglect of apparatus with Vaidhyanathan's approach to Google. For critical design teams, the challenge lies in intervening in the googlization of world using digital as well as literate approaches, including both electrate image metaphysics and literate ideational metaphysics.

Central to The EmerAgency's image metaphysics is flash reason, which replaces the slow deliberative judgment of the literate world with flashes of deliberative judgment attuned to the instaneous, real-time pace of digitality/electracy. Such flashes or revelations emerge through a logic of conduction (which supplements induction and deduction), thinking composed of associative patterns that emerge by cycling through different audiovisual discourses, in particular those of Discipline/Career, Community/History, Pop Culture, and Family (other possible discourses include Religion and the Street).[21] Superimposing these different discourses produces moire-like patterns of thought: as McLuhan argued, in an age of information overload, all that's left is pattern recognition. Conductive flash reason is one way

[20] The EmerAgency website, <http://emeragency.electracy.org>, accessed Aug. 8, 2017
[21] See Ulmer, Teletheory?

StudioLab's critical design teams produce thought-action figures (which displace ideas in digitality) and embrace the power of branding and collectivist icons (which displace identity and national symbols). From this perspective, we can grasp the Guerrilla Girls' anonymous gorilla masks as a recombinant thought-action figure that flashes forth from the overlaid discourses of art activism, feminism, *Planet of the Apes*, and sisters (indeed, try a Google image search of those four terms). Similarly, through transmedia knowledge StudioLab's critical design teams produce thought-action figures shared with audiences associated with different discourses, including academics and professionals, community members and policy makers, the general public, and even family and friends. Through their collaborations, students usually find that they can easily discuss the most esoteric of topics with different audiences and are eager to share their projects with family and friends, something rarely done with academic papers. Using flash reason, StudioLab critical design teams create the circumstances needed to receive revelatory, machinic Konsults and translate them into the thought-action figures of transmedia knowledge.

By role-playing as critical design teams, students enter a transformational space where the creative flow associated with orality mixes with the critical breaks of literacy and where the cycling between different audiovisual discourses produces the flash of electrate identity formation. Ulmer describes this mode of identity in terms of avatars found in gaming, while drawing extensively on the Sankrit history of this term: "The argument explores the practical consequences of taking seriously the full potential of this Sanskrit name and tradition. 'Avatar' means 'descent,' referring to the incarnation of a god at a time of crisis. [...] The player-avatar relation is associated with the history of practical reason and the virtue of prudence, or good judgment. The proposal is to upgrade prudence from literacy to electracy. Prudence in practice names the ability to use experience of the past to make decisions in present circumstances leading to good outcomes for the collective order in the future: it is a time logic. [...] Apparatus theory shows that this upgrade involves not only the outline of a new mode of inference, but a new mode of identity as well. Avatar is identified as the site of a new experience motivating a shift in behavior and even of being, both individually

and collectively."[22] The EmerAgency's Konsults and flash reason function as incarnations not of gods or spirits but of a Machinic Other, with "machinic" understood not simply as technology but along the lines of what Deleuze and Guattari call "machinic phylum," an inorganic life that runs through humans and technologies to the earth and cosmos themselves. Electrate avatar is environmental, planetary, cosmic. For StudioLab, becoming builder in digitality entails becoming other through the universe/university, while avatars function as thought-action figures for doing so.

Teams, bands, and guilds

Collaborative problem-solving and digital expression have emerged as valuable forms of participatory maker culture.[23] The four tutor groups above offer different insights and thought-action figures for collaboratively combining critical thinking and tactical media at various scales for different ends, including social activism, technological innovation, and transdisciplinary, post-ideational thinking. Becoming builder entails collaborating both to make media and to generate a social and technical platform—a desiring-machine—with which to do so. As we have seen, StudioLab mixes learning activities found in seminar, studio, and lab while mapping on to these spaces the CAT design frame which helps student analyze and create projects with strong conceptual, aesthetic, and technical elements. Students become builders by cycling through these learning spaces and performing as teams, bands, and guilds, respectively.

Teams form the basic unit of StudioLab's collaborative activities, and they function to conceive, develop, and create the core conceptual elements of transmedia projects. Teams contain three to five students, and their formation generally occurs around shared interests, although other factors may play a determining role, such as interpersonal relations, differing technical skills, or even chance. Teams may self-select or be assigned by instructors. When meeting in a media studio, the assembled teams gather around tables arranged to form a single seminar table facing a projection screen and whiteboard or blackboard. As a class, projects are assigned, readings discussed, examples and tutor materials examined, concepts explored, and questions

[22] Ulmer, unpublished proposal for *Avatar Emergency*, n.p.
[23] See Jenkins et al, *Confronting the Challenges of Participatory Culture: Media Education for the 21st Century*, p. 8.

raised. Role-playing constitutes a crucial dimension of critical design teams, as it enables individual students to become something bigger than themselves, both imaginatively and practically. Emulating specific tutor groups, critical design teams give themselves distinctive names, write manifestos and mission statements, create logos and websites, and assign members titles and roles—at times outrageous or parodic, but always functional. As seen with the Guerrilla Girls, these names, logos, and roles have the making of thought-action figures. Teams empower individual students to become builders in mind, body, and technique.

Bands are where teams jam aesthetically: bands perform in studio formation, around their own separate tables, usually covered with books, notes, sketches, and laptops. In bands, roles such as writer, web master, photoshopper, and videographer emerge and converge around the design and production of the different forms their transmedia projects will take: e.g., graphic essay or illustrated proposal, project website, video demo or trailer, and multimedia presentation. Models for bands include rock bands, rap groups, and jazz quartets, with different members making specific contributions to the overall performance. Within bands, students transmediate their team's conceptual content into aesthetic forms, focusing on their desired impact, their composition and structure in time and space, and the look and feel of individual moments. While the conceptual content tends to remain constant across different smart media, the aesthetic shape and appearence may shift depending on the audience, desired experience, and technical medium. Bands focus on making media consistent with their overall project plans and as professional as possible.

While teams and bands have the same composition while performing their respective conceptual and aesthetic activities, guilds enable individuals from differents groups to meet and learn technical skills related to their specific roles. Just as lead guitarists or DJs gather to share and hone specific techniques, students from different bands meet in guilds to focus on technical skills such as Photoshop, WordPress, InDesign, or SketchUp. The classroom enters lab formation, with tables arranged in rows while students learn software from instructors, Lynda.com, YouTube videos, and especially one another. After honing their skills, guild members then bring them back to their bands and collaborate in transmedia production. In StudioLab, not all students need to learn each relevant software, which minimizes the number of lab training sessions. Alternatively, when students do learn all project-specific software, they can lend a hand to the lead guild member, helping out when needed with the production of website, digital images, presentation, etc. The key

aspect of guilds is that they function as a micro learning community, supporting one another's development of media skills.

Critical design teams become builders by cycling through the conceptual, aesthetic, and technical activities of seminar, studio, and lab, spaces that are typically siloed across campus in widely dispersed departments and colleges. This cycling produces transmedia knowledge, and the interweaving of bodies, materials, and skills constitutes a powerful learning experience, enabling students to problem-solve collaboratively by integrating knowledge and know-how from different disciplines into a rich, coherent project embodied across a suite of smart media genres. These smart media forms, in turn, can engage a wide variety of audiences and other potential collaborators: researchers, community members, policy-makers, funders, and the general public. By building projects that engage different groups through diverse media , teams reveal how digital rhetoric extends and strengthens the force of traditional composition and rhetoric. In sum, by becoming builder, students generate a social and technical platform on which to build projects that strategically connect different social groups.

Critical design teams as intimate bureaucracies

By focusing on collaboration and role-playing, StudioLab's critical design teams develop students' cultural, technological, *and* organizational skills. As we have seen, traditional writing classes generate individual critical thinkers, while StudioLab produces both individual makers and collaborative builders. Students learn to collaborate as critical design teams by tackling design problems and exploring solutions beyond those possible for individualized critical thinkers. Thus StudioLab approaches art activist groups — as well as artisan guilds, theory schools, rap groups, and other start-ups — both as objects of study and as heuristic models for democratizing the social practices of digital culture and critical design. Students sometimes extend their tutor groups' direction of action or activism but most often they heed the EmerAgency's motto taken from Japanese poet Matsuo Busho, "Not to follow in the footsteps of the masters, but to seek what they sought," by heading out along new paths, incorporating conceptual, aesthetic, technical, and organizational insights into their own projects and production processes.

Art activist groups such as the Guerrilla Girls, Molle Industria, and the Yes Men can be understood as *intimate bureaucracies*, a term that dj readies has coined for modes of "participatory decentralization."[24] Intimate bureaucracies enable collective action through common infrastructures such as the streets, the Internet, and other public services, and dj readies cites as primary examples Fluxus art and the Occupy Wall Street political movements and their respective use of the postal service and public parks as creative social media. "These forms of organization represent a paradoxical mix of artisanal production, mass-distribution techniques, and a belief in the democratizing potential of electronic and mechanical reproduction techniques. Borrowing from mass-culture image banks, these intimate bureaucracies play on forms of publicity common in societies of spectacles and public relations. Intimate bureaucracies have no demands, no singular ideology, nor righteous path."[25] Significantly, dj readies is a pen name (in our terms, a thought-action figure) for media theorist Craig Saper, who highlights the paradox of intimate bureaucracies: the impersonal institutions and procedures associated with bureaucracies are detoured or recircuited by artists, activists, and other community members for more singular, intimate ends. Within the context of higher education, colleges and universities, especially public institutions, have themselves long served as common infrastructures, providing access to resources and services through libraries, central IT, and physical spaces, and a large part of education involves helping students learn ways to use these and many other infrastructures. However, whereas such learning often remains secondary or tacit in disciplinary training, it becomes central in StudioLab: becoming builder means building the emerging social and technical processes of post-ideational thought-action.

By combining singularity and institutions, intimate bureaucracies also help to formalize the infrastructural dimension of StudioLab's quest to democratize digitality and design. Intimate bureaucracies function as desiring-machines or joyful interactions between people and machines that are morphing from isolated artistic machines toward full-blown collective assemblages of enunciation or socially performative ways of speaking and being. StudioLab's critical design teams thus seek to scale up creations of joy across different social planes by constructing heterotopias and other creative spaces that enable sustainability and

---

[24] dj readies, *Intimate Bureaucracies*(2012: 1)
[25] P. 1

resonance with other social movements. In the terms of design thinking: the creative constraints of human desirability and technical feasibility that define any social innovation find sustenance with those of economic or ecological viability, the ability to survive within a given milieu or environment. If design thinking brings the power of creative processes to large organizations, intimate bureaucracies bring the power of large organizations to creative processes. The student body is the site where these circuits intersect.

Design Frame 2: UX

StudioLab's second critical design frame, UX or user experience, combines the power of digital rhetoric, transmedia knowledge, and collaborative problem-solving. While CAT focuses on conceptual, aesthetic, and technical traits of smart media works, our UX frame shifts the perspective around to focus on the audience of transmedia knowledge, on how texts, videos, websites, etc. produce different experiences for different stakeholders. UX design emerged from the fields of human factors, with its focus on how humans interact with technical systems, and human-centered design, with its stress on putting the experience of end-users at the center—and preferably at the beginning—of any design process. Today, user experience is a core skill set for designing a remarkably wide range of activities, from interfacing with smart phones to shopping in stores to experiencing large-scale environments such as theme parks and even college campuses: there are the Wisconsin Experience, the Berkerley Summer Experience, and innumerable First-Year Experience programs. In many ways, UX has become *the* rhetoric of contemporary life, operating through human-machine interactions and transmedia storytelling, marketing and branding, and patient relations and student affairs—to only mention a few areas of application.

StudioLab's UX design frame contains three areas of focus, which we have defined and refined over many years:[26]

- *Experience design:* the cognitive, emotional, and visceral impact on the audience
- *Information architecture*: the structure of the experience over time and space

[26] See McKenzie, "Towards a Sociopoetics of Interface Design: etoy, eToys, TOYWAR," (2001). Other related areas commonly associated within UX include interaction design, visual design, and user testing.

- *Information design*: the look and feel of the moment-to-moment experience

Before defining these three areas more extensively, let's first describe them experientially through the design of a haunted house, whose overall UX is one of fright and horror. The experience design breaks down the overall UX into different components: designing the experience of a scary haunted house commonly involves building up visitors' expectations, heightening their anticipation either slowly or immediately, suddenly shocking them silly, and then allowing after-shock relief and recovery. The information architecture structures these experiences throughout the house: the headless figure appears here, the creepy passageway unfolds here, the room with brains and eyeballs happens here. The information design focuses in to compose discrete experiential moments: the bloodly headless figure wearing a business suit jumps out of a hidden doorway into a dim vestibule; the pitch-black passageway winds around sharp corners, pulsates with heartbeats and growls, and oozes with sticky goo on walls and floors; the brains and eyeballs float in bloody bowls in a dirty, smelly kitchen equipped with strange instruments, lit by a flickering, buzzing light bulb. Experience design, information architecture, and information design are nested inside one another, each collaboratively contributing to the overall user experience. A critical design team might embed a history of contemporary horror films into the house, with different guild members responsible for the costumes, sets, and lighting/sound, and the band jamming to compose the scariest possible encounter with Jason, Freddy, and Leatherface. As with the CAT frame, UX can potentially be applied to any experience, from bus rides to birthday parties to conference presentations. The UX frame provides a second set of glasses for analyzing, creating, and evaluating transmedia knowledge. Let's now take a closer look at each UX component.

Experience design refers to the *impact* produced on a given audience, impact that could be cognitive, emotional, or visceral—or a combination of all three. Through this experiential impact flows the rhetorical force of transmedia knowledge. Experience design approaches individual and collective experience as raw material that can be gathered, molded and shaped, and then directed toward particular ends: experience thus has plasticity and potentiality. Donald Norman, the cognitive scientist *cum* cognitive engineer who coined the term "user experience," argues that people bring cognitive models to any experience. Rather than impose a designer's model—and especially an engineer's model—upon a system, Norman contends that the interactive

experience must be informed and shaped by the user's expectations. He recommends making elements visible, using natural mapping to leverage familiar relationships, and providing clear feedback when they interact with the system.[27] Brenda Laurel, a feminist-minded interactive media and game designer, has advocated for using theater as a model for designing human-computer interactions. Since theatre has been using multiple media to design audiences' experience for millennia, Laurel argues that the six elements of Aristotle's *Poetics*—plot, character, thought/theme, diction/language, music/sound effects, and spectacle/visual effects—provide the basis of effective experience design of digital media.[28] Norman's and Laurel's respective stress on cognitive models and dramatic elements help us see the value of approaching transmedia knowledge via smart media *genres*: genres are not only families of formal traits but also of sets of audience expectations, experiences that audiences expect and project into the future. Knowing these expectations, experience designers can then work with them, shaping experiences that meet, augment, and sometimes confound or mix expectations. The smart media genre of "Dance your PhD" combines two sets of experienital expectations that many see as contradictory—viewing modern dance and learning science—just as Bertolt Brecht's epic theatre sought both to entertain and instruct.

Information architecture focuses on the *structure* of experiences, the way that multisensory information, materials, and even people are organized and presented over time and space to create specific experiences. Experience is plastic, and information architecture helps to bend and shape the experience at large scale. Richard Saul Wurman, who first introduced the term "information architect" (and founded TED talks), argues that information can be organized in five distinct ways: by Location, Alphabet, Time, Category, and Hierarchy. Using location, information architects shape experience spatially or geographically: for instance, clothing stores often place new items up front, sale items in the back, and the checkout counter in the middle. Travelogues often organize information geographically. Libraries organize books alphabetically, first by call numbers and then by author names; a book's index organizes subject topics the same way. History museums often organize their exhibitions chronologically, structuring visitors' experience by decades, centuries, even millennia; history books do so with events. Universities organize their campuses by categories,

[27] See Norman, *The Design of Everyday Things*.
[28] See Laurel, *Computers as Theatre*.

clustering different disciplines in colleges: Arts and Sciences, Agriculture, Engineering, Business, Medicine, etc.; their websites follow suit. Other organizations typically structure their workers hierarchially, with executive management, directors, team leaders, and team members occupying different spaces; organizational charts depict this hierarchy accordingly. In addition to Wurman's LATCH, experiences can be organized around Analogy (e.g., using a computer's *desktop*), Number (e.g. "remember these 3 things"), and Acronym (e.g., LATCH or ANALATCH). As we saw with Duarte's sparkline in Chapter 1, effective presentations often combine personal narrative (Time) and conceptual logic (Category), which demonstrates a more general point: all of these information architectures can be embedded in one another. A geology book can be organized by chapters on geological periods, subdivided into sections on geographical locations, then into paragraphs using categories, and the entire text wrapped up in a metaphorical title that can appear thematically throughout the book: *Spaceship Earth*, *The Pale Blue Dot*, etc.

The third element of the UX frame, information design, refers to the *look and feel* of specific moments within the overall experience: the images, texts, sounds, colors, textures, and even smells of a particular webpage, chapter, room, scene, etc. There is no UX without information design, as even a blank page, total darkness, silence, or white noise produces an effect on the audience. Given the dominance of visual perception, information design is often understood as visual or graphic design, in part because of the pioneering work of Edward Tufte. Tufte's self-published books, especially *Envisioning Information*, combine exquisite writing and examples to demonstrate powerful techniques of information design. For instance, small multiples of images or graphs enable viewers to compare differences and similiarities quickly. Skillful juxtaposition of scale allows one to grasp micro/macro relations. Fields of muted colors and thin gridlines punctuated with intensely-colored points focus attention on crucial data and allow designers to layer and separate information, best exemplified in well-designed maps. Tufte's goal to escape the flatland of the page comes from his lengthy experience with print, and his focus on telling visual narratives with information embodies his ethos of presenting substantive content simply and elegantly. A provocative counterpoint to Tufte's somber, minimalist style can be found in David McCandless's *Information is Beautiful*. Like Tufte, McCandless prioritizes effective visualization of content but his approach and sensibility produce strikingly different effects. Seeking to contextualize information, he juxtaposes relevant and surprising comparative

data, such as the annual carbon footprints (in tons) of heating the average home (1.49), breathing (.57), and one ton of beef (16), all represented with proportionally sized icons. Such juxtapositions produce revealing patterns of phenomena, dramatized by bright colors and striking uses of font styles. McCandless employs a pop sense of beauty and playful meta-perspectives, such as displaying his book's organization in different ways, depicting different types of visualizations in a table, and charting the year-long process of writing his book in terms of emails, emotional state sequencer, doubt tracker, and the formation of ideas.

Visual design is crucial to information design but sound design, tactical and haptic design, interactive design, even smell and taste can contribute to the overall user experience. A Catholic Mass, for instance, includes such visual elements such as the crucifix and clerical garments; the sounds of the spoken liturgy, prayers, and music; the bodily movements of sitting, kneeling, standing, and approaching the altar; the smells of incents; and of course the eating of consecrated bread and wine delivered by the clergy. The function of the Mass, like the experience design of many rituals in other cultures, entails transporting participants from a profane to a sacred space and back again, and such rituals typically involve a precise set of performances enacted in a particular temporal sequence and spatial structure using a defined set of materials and objects.

Experience design, information architecture, and information design are entangled within one another to create the overall user experience. Students occasionally have trouble untangling them, but we have found that carefully analyzing the impact, structure, and look and feel of the user experience of different but closely related smart media helps them do so.

To this end, let's reanalyze Steel Wagstaff's seminar paper, graphic essay, and video essay discussed in Chapter 1, this time using the UX design frame. As we saw using CAT, the conceptual content remains largely constant across all three transmediations, while the aesthetic and technical aspects vary considerably. The UX frame reveals that the experience design—the intented impact—of the three works differ despite having the same conceptual content. The seminar paper primarily seeks to persuade readers of Cage's innovative approach to music, sound, and silence using argumentative logic and textual description and citiation while establishing a distance between the analysis and its object. This critical distance is a defining power of the literate technology of Plato's Fight Club: stop the music and analyze it. The graphic essay in turn creates a highly demonstrative, visual impact by adding images that both illustrate and supplement Wagstaff's

argument, evoking additional associations, introducing nonlinear reading paths, and bringing the reader closer to both Cage and Wagstaff by visually blurring the boundaries of art and life, theory and practice. The video essay brings the viewer/listener even closer to Cage and Wagstaff through the montage of moving images and narration over a rich sonic landscape, heightening the emotional impact and conceptual complexity. Interestingly, the underlying information architecture of Wagstaff's seminar paper, graphic essay, and video essay are consistent: the user experience is divided into three parts, each with its own section title. However, this structure takes on added dimensions with the addition, first, of an image track added to the written text in the graphic essay, and then a moving image track, narrated and textual script, music and other sonic elements with the video essay. If the original seminar paper provided the specifications of a building, the graphic essay adds full-color, punk-style 2D rendering, and the video essay a pulsating, 3D fly-through. This transformation of experience design and information architecture occurs moment-by-moment at the micro-level of information design. The seminar paper's single-sided, 8.5" x 11" white paper with black 12-point serif font and 1" margins becomes transmediated into double-sided, two-page spreads with full-bleeds (ink printed to the paper's edge), single and double columns of text, headlines and call-outs, multiple fonts in different colors, as well as photographs of Cage, street signs, buildings, people signaling "silence" with a finger over their mouth, and a closing image of Wagstaff. The introduction of the student's body signals the collapse of literate critical distance and the Fluxus breakdown of the art/life divide. Indeed, Wagstaff embodies Cage's neoDada aesthetics with his own aethestic choices, applying Cage's open-ended chance operations to his own cultural context. We see and hear this most strongly in the video essay, where alongside the music and images of Cage, we find both historical and contemporary materials reflective of Wagstaff's own experience and tastes, including music clips from The Big Bopper, The Beatles, Bjork, and many others, all mixed together in an extraordinary sound design that rhythmically rhapsodizes a theory of Cage's music. If Plato's Fight Club stopped the music, StudioLab helps to restart it. Recalling Nietzsche's evocation of a "music-making Socrates," transmedia knowledge entails theory set to music—or theory produced through music.

The UX frame provides critical design teams a robust formal language for analyzing potentially any work of knowledge, cultural expression, or everyday life situtation (e.g., describe the UX of school, a party, or a

work environment). As importantly, UX enables teams to design transmedia knowledge projects that seek to produce specific effects for different audiences—peers, community members, policy-makers, etc. It also empowers them to evaluate the efficacy of their work: does this seminar paper, public presentation, or online video creatie the impact it seeks to produce? Finally, UX provides students with a valuable set of skills crucial to a wide variety of fields, including engineering, computer science, industrial design, marketing, and through design thinking (as we will see in the next chapter), also management, social activism, and community-based research. Indeed, UX design, experience design, information architecture, and information design are now all career tracks. In its mission to democratize digitality by democratizing design, StudioLab seeks to refunction UX within the context of higher education to help transform the liberal arts.

Evaluating Transmedia Collaboration: From CAT to CATO, from IA to XA

StudioLab's design frames address some of the most pressing challenges facing 21st-century higher education: how to grade "born digital" student work, how to translate materials across emerging scholarly genres, how to assess transmedia knowledge, and how to evaluate collaborative academic projects? The different smart media forms and the CAT design frame's conceptual, aesthetic, and technical components provide faculty and students with a first language to describe, analyze, create, and evaluate digital work, emerging scholarly genres, and transmedia knowledge. The academic essay and book seem relatively easy to produce and assess only because instructors and students have spent years and years learning to read, write, and evaluate them, whereas most have spent little to no time learning to design and analyze conceptually-rich media or evaluating them. With the widespread adoption of Google Classroom and the ubiquitous use of smart phones, however, this situation is rapidly changing. Smart media and CAT offer higher education an initial language for making sense of post-literate knowledge forms. Faculty can assign specific smart media assignment and use CAT as one rubric for assessing and providing feedback on students' transmedia knowledge production. We typically ask students to use CAT to evaluate each team's final project presentation: how well each team engages with the tutor group's conceptual materials and uses concepts from the class, how well each team's aesthetic decisions enhance these materials, and how well each team's technical execution enhances the conceptual materials and aesthetic decisions.

The CAT frame, however, can also be extended to enable both faculty and students to describe and assess the collaborative dimension of projects. By adding an "O" for organization, CAT becomes CATO, and collaboration emerges as part of the extended design frame. Self-organizing as critical design teams and role-playing within them, students perform specific roles and undertake assigned tasks, typically as writers, graphic designers, website designers, and producers. Students generally enjoy giving themselves playful titles and serious roles, as the formation of teams, bands, and guilds is explicitly framed as a collaborative RPG, a role-playing game. Part of the game's equipment is the CATO frame, which both the instructor and students use to oversee and evaluate the conceptual, aesthetic, technical, and organizational performance of team members. In many ways, the "O" helps everyone take care of the CAT—the organizational integration of conceptual, aesthetic, and technical dimensions; the relation between seminar, studio, and lab activities, and the accompanying circulation between team, band, and guild.

The "O" encompasses the organization, communication, and evaluation of collaborative and individual work. The Guerrilla Girls' self-description as a dysfunctional family points to both the joyful and painful potential of any collaborative project. When groups enter into flow, collaborators' individual creative and critical energies converge seamlessly, and participants experience communal joy while undertaking even the most taxing of work—indeed, work becomes play. Yet as most everyone has experienced, collaboration can also become difficult, painful, sometimes even hellish. Tensions can arise over the group or project's very definition and desired impact, over aesthetic decisions or technical execution, over contributions of individual team members. In addition to time management and workflow problems, we have seen issues of gender come to the fore: male team members can display sexist attitudes toward female collaborators, and we have likewise witnessed female members gang up on male collaborators. Cultural differences can also arise, as well as issues of ableism. And sometimes, interpersonal chemistries can become corrosive and even explosive. In all of these cases, individuals' creative and critical energies begin to diverge, and the desiring machine can enter a black hole. Such tensions, significantly, mirror those found in other collaborative contexts and in social situations at large. Rather than viewing these challenging, divergent energies as reasons to avoid collaboration, StudioLab approaches them as opportunities for critical discussion and creative syntheses.

Unless these tensions are addressed, students can harbor frustrations around fairness and accountability that negatively effect their overall learning experience.

Organizational performance entails decision-making about group and project priorities, defining individual responsibilities, respecting different perspectives and skill levels, communicating work progress in a timely fashion, meeting project deadlines, and attending class and out-of-class meetings, and fulfulling group expectations and individual responsibilities. Instructors can get some sense of a group's organizational performance through observation and discussion, although sometimes groups prefer not to share emergent frustrations openly, often out of concern about grades or simply because they believe it is inappropriate due to the academic context. At other times, however, a student or two will approach us with issues about the group's overall workflow or a particular member not meeting their responsibilities. Here instructors must role-play as project managers, meeting with the group to encourage better communication of expectations and responsibilities and, when appropriate, discussing the situation with relevant individuals.

But the most important—and often the most difficult—aspect of CATO involves students assessing their own group members' organizational performances: how well each individual contributes to the project, meets the group's self-defined expectations, and fulfills individual responsibilities. Thus, in addition to requiring students to evaluate all groups' project presentations using CAT, we also ask each student to describe and assess their own group members' individual organizational performance using CATO: what were the individual responsibilities and how well did each group member contribute to the conceptual, aesthetic, technical, and organizational success of the project? Once a major project is completed and turned in, students send their CAT and CATO evaluations via email to instructors, and the evaluations help inform the grading process, along with the group's smart media (e.g., graphic essay, presentation media, website) and instructor observation.