

Becoming Cosmographer: Co-designing Worlds



Fig. 4.1 Screen grab from Art of Transformation demo, created in MapTu by researchers in UMBC's Imaging Research Center to visualize interview content and project feedback of Baltimore community members. The University of Maryland–Baltimore County. (Image by IRC)

FROM BUILDERS TO COSMOGRAPHERS

In many ways, the challenge facing the liberal arts may come down to a spatial one, as over the centuries Plato's Fight Club has built itself some very high walls, both inside and out. Lately, it has been losing battles in the public sphere at an alarming rate. Redesigning the academy's relationship with the outside requires reworking the inside, the spaces and activities we use to produce, communicate, and use knowledge. StudioLab generates transmedia knowledge by integrating activities and learning spaces traditionally siloed inside different parts of campus: the seminar activities found in humanities and social sciences, the studio activities found in art and design, and the lab activities found in science and engineering.

Within the StudioLab pedagogy, *becoming maker supplements critical thinking with critical design*, conducting writing through a wider nexus of transmedia while mixing argument and story, idea and image, and *episteme* and *doxa*. The CAT or Conceptual/Aesthetic/Technical design frame provides faculty and students with a formal language for creating and analyzing transmedia knowledge across different scholarly genres. *Becoming builder, in turn, transforms the model of making from Romantic genius to recombinant bricoleur, creator of shared experiences, and collaborative platforms*. Through the formation of critical design teams modeled on activist groups, rock bands, and start-ups, students' role-playing ensemble work interweaves and intensifies their conceptual, aesthetic, and technical skills and enables teams to produce more nuanced and scalable forms of transmedia knowledge. The UX or user experience design frame of experience design, information architecture, and information design helps teams create tactical media campaigns that produce different experiences for different stakeholders while also allowing them to reflect on their own learning experience.

StudioLab's full potential as a critical design practice unfolds in the third transformation it offers: *becoming cosmographer or co-designer of worlds*. Here making and building unfold in a fourth space, that of the field. The field smooths away many of the differences between seminar, studio and lab spaces, for it is their common outside, the space outside discipline and the university, the field of community engagement, of *doxa*. This field ranges from local to distant communities, natural habitats to

contested borders, and policy boards and businesses to NGOs and other nonprofit organizations. Within the field, *transmedia knowledge takes on the role of civic discourse*, as communities have long used reports, posters, murals, and media events to advocate for recognition and action within their larger community. Becoming cosmographer thus reveals another dimension of critical design, one that extends both media-making and collaborative building into the public sphere: critical design here entails human-centered design focused on social and organizational problems, opening up the critico-creative process to different audiences and other stakeholders—for what is being created in the field are precisely worlds and spheres of complex social life where the stakes are very real, very constraining, and usually themselves in play.

In becoming cosmographer we find the deeper stakes of mixing *episteme* and *doxa*: problem-solving (and/or trouble making) may occur far from one's discipline, for the solution (and/or trouble) emerges not from expert knowledge or interdisciplinary skills per se, but from the field itself in all its complexity. Indeed, the challenges many communities face are structural and may extend over generations and geographies; they may be both graphically concrete and subtly ideological. With respect to civic discourse, specialized knowledge is but one desired outcome and may be less important for partners than common knowledge and other impacts, such as social recognition, resources, and sensitive policymaking. As cosmographers, students perform as critical design consultants who collaborate with communities and other stakeholders to help effect change in their shared worlds. To help students co-design such worlds, we introduce StudioLab's third critical design frame: *design thinking, a method of human-centered design developed to tackle complex problems found in social and organizational contexts*.

Within our critical design approach, design thinking or DT empowers students to advocate for values of cultural efficacy within systems used to focusing on effectiveness and efficiency, as it explicitly prioritizes human desirability in relation to technical feasibility and financial viability. Moving out into the field, critical design teams can use design thinking to evolve from role-playing to actual consultancy as they engage with communities and other stakeholders. Significantly, design thinking also involves an iterative process of ideation, guided by both *doxa* and *episteme*, and supported by ethnographic research and engineering methods of rapid prototyping

guided by user feedback. Design thinking has been used by both educators and community organizations around the world, and it thus offers StudioLab a robust method of post-Platonic ideation that complements our own production of thought-action figures.

Becoming cosmographer, like becoming maker and becoming builder, can unfold in any field of study, and it may especially attract scholars and students working in public arts and humanities, science communication, public scholarship, participatory research, broader impacts of funded research, translational research, service learning, and university extension programs. Traditionally, research, teaching, and service activities have been separated. StudioLab can help integrate them within the context of community-engaged scholarship in order to address the crisis of the liberal arts. For communities and scholars alike, transmedia knowledge offers a collaborative, design-oriented approach for articulating shared cultural values, advocating within the larger community and developing skills and infrastructures for twenty-first-century civic discourse.

CRITICAL DESIGN 103: HOW TO DO THINGS WITH WORLDS

This chapter introduces concepts and practices of transmedia knowledge as civic discourse, including models for extending critical design not only across campus but also across communities in the field. In 1955, philosopher J. L. Austin published *How to Do Things with Words*, a book on the power of performative speech acts (e.g., vows and proclamations) to produce actual effects in the world rather than merely describe it.¹ In 2006, conceptual artist Ralo Mayer created *How to Do Things with Worlds*, a collection of texts and images exploring the performative power of models to create the worlds they project.² As if to confirm Mayer's insight, in 2008 historian of science Donald MacKenzie published *An Engine, Not a Camera: How Financial Models Shape Markets*.³ As we will see, researchers of the design thinking process contend that innovation within design

¹J.L. Austin, *How to Do Things With Words* (Cambridge: Harvard University Press, 1962).

²Ralo Mayer, *How to Do Things With Worlds 1* (Innsbruck, Austria: Künstlerhaus Büchsenhausen, 2006).

³Donald A. MacKenzie, *An Engine Not a Camera: How Financial Models Shape Markets*. (Cambridge, MA: MIT Press, 2006).

teams arises through the active generation of counterfactual statements and the shaping of corresponding alternate worlds—paracosms—with the capacity to become actual. In StudioLab, students use transmedia knowledge to compose cosmograms for integrating different perspectives, discourses, and values. Such cosmograms provide concrete guides for doing things with worlds.

Design Thinking at the d.school

Our first tutor site is the Mecca of contemporary design thinking: Stanford’s d.school, whose official name is the Hasso Plattner Institute of Design. Its founder, David Kelley, also founded IDEO, a global design firm that extends design thinking’s reach around the world. We will describe the d.school’s design thinking method in detail below and contextualize it here within the history of design by introducing some relevant cases. We can gauge design thinking’s relevance in the title of Peter N. Miller’s 2015 *Chronicle of Higher Education* essay, ‘Is “Design Thinking” the New Liberal Arts?’ Miller cites Harry Elam, Stanford’s Vice Provost of Undergraduate Education: ‘The d.school is not unlike a center for teaching and learning on steroids: Pedagogy and design thinking inform how to portray content and learning goals.’⁴ The d.school’s model of design thinking, however, is one of several, even if its embrace across different disciplines and organizations has overshadowed other models. Lucy Kimbell’s ‘Rethinking Design Thinking’ offers a history and typology of design thinking that distinguishes the d.school model as one that approaches design thinking as an *organizational resource*, in contrast to models that approach it as either a *cognitive style of individual designers* or as a *general theory of design*.⁵ Kimbell argues that rethinking design thinking involves overcoming the thinking/acting dualism, abandoning the drive for a general definition of design, and displacing the central role of the designer or expert. StudioLab’s focus on thought-

⁴Peter N. Miller, ‘Is Design Thinking the New Liberal Arts?’ (The Chronicle of Higher Education, March 26, 2015) Accessed February 15, 2016. <https://www.chronicle.com/article/Is-Design-Thinking-the-New/228779>.

⁵Lucy Kimbell, ‘Rethinking Design Thinking, Part 1’ (*Design and Culture*, November 2011), DOI: <https://doi.org/10.2752/175470811X13071166525216>.

action figures explicitly counters the thinking-acting dualism, and we are drawn to the d.school's model precisely because it does articulate a cognitive style—though one grounded not in individual designers but rather collaborative design teams and their end users. And while it may not be a general theory of design, DT is certainly generalizable or transportable across different domains.

As we will see, the d.school's cognitive style explicitly involves ideation. However, its generation of ideas flows out of *doxa* rather than *episteme*—or rather, *doxa* and *episteme* combine in new ways that lead us to describe this cognitive style as post-Platonic. In modern rhetoric, after the devastation of World War II and the Holocaust, Chaim Perelman and Lucie Olbrechts-Tyteca helped Hannah Arendt launch the *vita activa* by calling for a 'regressive' philosophy based precisely on the *doxa* of audiences rather than the *episteme* of experts.⁶ Within higher education, this grounding in common, rather than expert knowledge, has helped to drive design thinking's use by other colleges and universities. As we saw in the Introduction, Smith College's design thinking initiative helps faculty and students with creative problem-solving.⁷ Other schools using design thinking include the University of Alabama at Birmingham (student-led creation of a maker space), the University of Maryland at College Park (administrative decision-making), Williams College (curriculum development and research design), and the University of Wisconsin–Madison (engineering courses and research design).⁸ Significantly, in July 2018, the Council of Writing Program Administrators (WPA), whose members oversee first-year writing classes nationwide, sponsored a full-day workshop called Design Thinking as WPA Tool: Innovating Curricula, Teaching Practices, and Program Outreach. These initiatives and others indicate that students, faculty, and administrators are already using design thinking to grapple with Plato's Fight Club. For StudioLab, both the d.school's

⁶See David Frank and Michelle Bolduc, 'From *vita contemplativa* to *vita activa*: Chaim Perelman and Lucie Olbrechts-Tyteca's Rhetorical Turn' (*Advances in the History of Rhetoric* Vol. 7), 65–86.

⁷The Design Thinking Initiative. 'The Design Thinking Initiative.' Smith College, Retrieved May 15, 2016. <http://smith.edu/design-thinking/>

⁸See Lee Gardner, 'How Design Thinking Can Be Applied Across the Campus' (*The Chronicle of Higher Education*, September 10, 2017) www.chronicle.com/article/How-Design-Thinking-Can-Be/241127 and 'Can Design Thinking Redesign Higher Ed?' (*The Chronicle of Higher Education*, September 10, 2017) <https://www.chronicle.com/article/Can-Design-Thinking-Redesign/241126>.

focus on human-centered design and its embrace by different institutions contribute to one of our core missions, to democratize design, while its harmonizing of human desirability, technical feasibility, and financial viability provides a method for another mission, to remix performative values. As we will see, transmedia knowledge as media cascade provides a driving force for the design thinking process.

Community-Based Media at Indigenous Story Studio

A second tutor site is Indigenous Story Studio (ISS), a Canadian organization that collaborates with indigenous communities and public health agencies to produce information comics, videos, and other transmedia knowledge focusing on health, literacy, and wellness issues facing Canadian Aboriginal youth. These issues range from drug addiction and suicide to teenage pregnancy and gang violence. ISS's founder, Sean Muir (Cree, from Peguis First Nation), originally trained in English and film studies before entering the workplace and eventually creating the Healthy Aboriginal Network (HAN) in 2005 to assist indigenous teenagers in British Columbia and across Canada. Weary from reading negative news stories about First Nation families, and realizing that 'no one reads government White Papers,' Muir established HAN as a nonprofit organization and applied for funding from the Vancouver Coastal Health Authority to 'create literacy on health and social issues using comic books.'⁹ HAN soon won both provincial and federal funding to produce information comics for youths dealing with suicide prevention, diabetes prevention, maternal child health, and other issues. In 2019, HAN became Indigenous Story Studio (ISS).

From StudioLab's perspective, Indigenous Story Studio is an intimate bureaucracy that has scaled up to a veritable collective assemblage of enunciation: community media-making for Canada's First Nation people. Over the past 15 years, Muir's organization has created over 20 different comics and sold over half a million books, as well as posters and videos. We see here how making media generates the building of collaborative environments, and how both making and building support designing worlds—in this case, a healthier aboriginal world. Muir drew

⁹ Sean Muir, interview with the author. See "Indigenous Story Studio." Website. Accessed February 22, 2019. <https://istorystudio.com/>

on his training and business experience to build a network of First Nation authors and illustrators, healthcare and social justice researchers, using funding gleaned from a variety of provincial and federal health organizations. Crucial here is that ISS has not only produced individual works but also *a method and infrastructure for mixing specialized and common knowledge*, bringing together research and everyday situations through a network of people, organizations, and media.

Moreover, ISS's works show the ability of transmedia knowledge to combine Western and indigenous worldviews, often with profound effect. In *Culturally Competent Care: A Case for Culturally Competent Care for Aboriginal Women Giving Birth in Hospital Settings*, researchers Birch, Ruttan, Muth, and Baydala argue that maternal and child healthcare can improve by developing practices better attuned to an aboriginals' own experience of childbirth and health in general.

In this context, health does not stop at the individual; it includes the relational aspects of life in community. Good or poor health occurs within the experience of family and community health and relationships.... [Whereas] Western health care systems and service providers have traditionally seen the health care provider as the expert and decision maker.¹⁰

What the authors describe here is a clash of worldviews or ontologies that shape what maternal child care 'is': the West treats childbirth as a trauma or illness, while many aboriginal communities view it as showing health and well-being; hospitals traditionally approach childbirth as a private event, whereas for First Nation peoples it can be a much more social event. Information comics—and transmedia knowledge more generally—offer powerful ways to juxtapose these worlds, stage their differences and commonalities, and empower people to enhance their lives through them.

One of ISS's most popular comics, *It Takes a Village*, addresses aboriginal teenage pregnancy by focusing on basic prenatal care and the role family and community can play in supporting young mothers and their babies.¹¹ Combining story and argument, author Zoe Hopkins and illus-

¹⁰June Birch, Lia Ruttan, Tracy Muth, and Lola Baydala, 'Culturally Competent Care for Aboriginal Women' (*International Journal of Indigenous Health*, Vol 4, No 2, December 2009): 28, 29.

¹¹Zoe Hopkins and Amancay Nahuelpan, Ed. Sean Muir, *It Takes a Village* (n.p: The Healthy Aboriginal Network. 2012).

trator Amancay Hahuelpan create a world composed of common challenges facing pregnant aboriginal teenagers, situating their readers within both realistic and imaginary scenarios. Lively dialogue, supported by shot/reverse shot framing of characters, establishes distinct perspectives that invoke feelings of both distance and empathy, feelings associated, respectively, with expert and common knowledge. Like many information comics, *It Takes a Village* carefully embeds specialized knowledge within narrative exchanges. Lara, the pregnant text-savvy protagonist, ignores her mother's pleas to stay home and rest and instead heads to a party, where she meets Danis, a mysterious young woman with a baby on her back. After Lara considers drinking a beer, for instance, Danis tells her, 'If you drink, you could hurt the way your baby learns and behaves, and she could have physical disabilities, too. For the rest of her life. It's called FASD—fetal alcohol spectrum disorder.'¹² Overcoming Lara's suspicions about her appearance with a child, Danis guides her away from the party and through a series of visions and dreams in which Lara sees her grandmother as a superhero medicine woman, meets her own infant baby playing with its father on a playground, and eventually listens as her mother—represented here as a dog taking care of puppies and a fawn—tells her that babies must be held in order to bond and feel love. In these revelatory scenes, the differences between modern and traditional cultures play out within Lara herself, as she, and the readers who empathize with her, learn that each world offers valuable knowledge and resources. The entire narrative world folds back on itself as Lara learns that Danis is her own daughter and the baby on her back her own granddaughter, thus positioning Lara herself as a superwoman grandmother.

Transmedia knowledge and collaborative creativity can create small worlds where different knowledges and different ontologies co-exist, similar to the liminal and liminoid spaces Victor Turner described, where cultural symbols may be questioned and rearranged.¹³ In this light, Lara's vision of her grandmother, a gray-haired woman wearing a red bathrobe and blue Superman shirt, can be seen here to become a cosmographic thought-action figure: 'Super Gran.' Lara's Super Gran gathers together elements from the four quadrants of Ulmer's cosmogram: family (grandmother), community (First Nation), discipline (public health), and pop

¹² Ibid.

¹³ Victor Turner, 'Liminal to Liminoid, in Play, Flow, and Ritual: An Essay in Comparative Symbolology' (Rice Institute Pamphlet—Rice University Studies, 60, no. 3m 1974).

culture (Superman). Here we find one lesson of *It Takes a Village*. ‘Lara: “What—that my Gran’s a little old superhero?” Danis: “Exactly. She has so much knowledge and power. You could learn so much from her.”’ Incarnated in a First Nation superwoman, this lesson of knowledge and power, of course, resonates with the comic’s broader lesson: precisely, *it takes a village to care for a mother and child*. Significantly, it also took a village to make *It Takes a Village*. As it often does, the Indigenous Story Studio designed community input into its production process, sharing with community youths a motion comic draft, a narrated video made with storyboard drawings, to get feedback and fine-tune the work in process. Muir says that community feedback has really improved the impact of ISS’s comics. For StudioLab, Super Gran thus figures a wide collaborative creativity, that of the First Nations people. As we will see, human-centered design thinking begins its process with fieldwork and feedback.

Participatory Research with the Ella Baker Center for Human Rights

The next tutor site demonstrates the central role that transmedia knowledge and collaborative design can play in community-based participatory research, research where *episteme* and *doxa* mix for strategic purposes. In 2015, the Ella Baker Center for Human Rights in Los Angeles, California, in collaboration with Forward Together, Research Action Design, and over 20 other US community organizations, launched the research project *Who Pays? The True Cost of Incarceration on Families*. Focused on the direct and indirect costs of incarceration on individuals, families, and communities, this participatory research project unfolded across 14 states and consisted of interviews and surveys with 712 formerly incarcerated people, 368 family members, and 27 employers, as well as 34 focus groups with family members and individuals.¹⁴ While incarceration is a widely recognized and researched topic, the *Who Pays?* project brings a Research Justice approach that privileges engaging the many people affected by the criminal justice system. ‘Grounded in a transformative research agenda, this research also seeks to center community knowledge and leadership in movements for social change.’¹⁵ Coordinated by trained

¹⁴Saneta deVuono-powell, et al, *Who Pays? The True Cost of Incarceration on Families* (Oakland, CA: Ella Baker Center, Forward Together, Research Action Design, 2015): 7.

¹⁵Saneta deVuono-powell, et al., *Who Pays?*, 51.

researchers through the different community organizations, *Who Pays?* is research conducted on communities, by communities, and for communities. The informants of social science fieldwork here can become the local researchers' own community members of family, friends, neighbors, and co-workers.

Significantly, the project's research sought to 'address the lack of representation and the misrepresentation of low-income communities of color in the design of smart solutions that can break the cycles of violence and poverty exacerbated by the criminal justice system at the local, state, and national levels.'¹⁶ In short, *Who Pays?* situates itself in relation to a larger design project, the design of smart solutions—not a universal blueprint implemented from above but responsive solutions that emerge through local actors, thus, depending on the situation, enabling different forms to take shape. Traditionally, disciplinary expertise—whether it be in social policy, philosophy, or design—orients itself by establishing its superiority over other knowledges, often misrepresenting them: *episteme* over *doxa*. Justice Research and other participatory research approaches seek not to overthrow expertise but transform its function by bringing common knowledge, *doxa*, on to the stage and, giving it a leading role. Thus, the research of *Who Pays?* reflects the experiences of families across the US and seeks community alternatives to existing social policies. Here we see how Justice Research and human-centered design intersect in the design of smart solutions: both remix *episteme* and *doxa* and displace expert knowledge with a more general knowledge.

The research design of *Who Pays?* also outlined the publication and dissemination of research findings and recommendations to different stakeholders, including community members, policymakers, other researchers, and the general public. Here we find exemplary uses of transmedia knowledge as civic discourse. At the center is a 60-page report on the ways that incarceration affects individuals and their families and communities. Tellingly, the report takes the form not of a standard white paper (single-sided 8.5 × 11-inch paper, double-spaced 12-point font, with few, if any, images), but instead a sharply designed, full-color report with photographs, diagrams, infographics, and text printed double-sided, thus creating two-page spreads like those found in magazines. The report is available in PDF format for free download. In addition, the Ella Baker website features photographs of a community event that functioned as a research installa-

¹⁶ *Ibid.*, 50.

tion and launch party, showing how large prints of graphs and quotes from the report cover the walls and community members stand before them discussing the research while others listen to speakers as they consume food and drink. For StudioLab, this social form of research symposium (from the Greek *sun* ‘together’ + *potēs* ‘drinker’) offers the simplest and most direct way of enmeshing epistemic knowledge within common knowledge, for unfolding argument and evidence alongside intimate stories and reflections with a collaboratively designed alternative world. Together, the *Who Pays?* report, website, and community events demonstrate the power of transmedia knowledge to function as civic discourse across a wide range of audiences and stakeholders. When teamed with participatory research, transmedia knowledge can become self-generative and transformative in sustainable, scalable ways.

Digital Engagements at Imagining America

Our final tutor site is *Public*, the blog of Imagining America (IA), a national organization of scholars, artists, designers, humanists, and community organizers dedicated to ‘public scholarship, cultural organizing, and campus change that inspires collective imagination, knowledge-making, and civic action on pressing public issues. By dreaming and building together in public, IA creates the conditions to shift culture and transform inequitable institutional and societal structures.’¹⁷ ‘Building and dreaming together’ captures the process of becoming cosmographer or co-designer of possible worlds, while cultural organizing refers to the use of art-making and other cultural activities as forms of social organizing and community engagement. StudioLab connects practices of cultural organizing to analogous practices developed for community engagement in the sciences, social sciences, and professions.

The IA blog functions as an online journal with articles, reviews, and case studies composed of text, images, and videos. Significantly, *Public* Volume 4, Issue 2 explores ‘Digital Engagements; Or, the Virtual Gets Real’ and directly addresses the challenges and opportunities of scholars engaging communities through cultural organizing featuring digital

¹⁷ Imagining America, Mission statement (<https://imaginingamerica.org/about/>). Accessed January 28, 2019.

media.¹⁸ ‘Digital Engagements’ thus constitutes a tutor site packed with tutor cases dealing with issues of racism, climate change, HIV stigmatization, and basic questions of representation and civic participation through the use of media forms ranging from oral narratives to visual and social media to alternative reality games and online courses. Cultural organizing refers to such uses of art and other cultural activities as forms activism and social engagement. Several crucial insights run through ‘Digital Engagements.’ First, the products of cultural organizing—videos, images, stories—are usually as important as the process of their production—the actual making and sharing of media. Second, the value of both products and process depends on the underlying relationship between campus and community collaborators. Creating, building, and maintaining the community relationship takes precedence over any particular engagement project. The relationship forms the basic platform of community engagement and is often shaped by sharp economic, technological, cultural, and educational differences between campus and community partners. Finally, digital media and cultural organizing have the potential to build and enhance these relationships—and to weaken and destroy them. In short, ‘Digital Engagements: The Virtual Gets Real’ reveals the pharmacological dimension of transmedia knowledge as civic discourse.

In the *Public* article ‘The Art of Transformation: Cultural Organizing by Reinventing Media,’ collaborators from the University of Maryland–Baltimore County (UMBC) and Baltimore community organizations report on a multi-year project exploring which ‘media—as tools for collective thinking—has the capacity we need to create positive social change?’¹⁹ At the core of the Art of Transformation (AoT) project is the MapTu software platform for gathering, deliberating, and sharing diverse knowledges in a virtual 3D environment that combines archiving of community media, geomapping of resources, data visualization, and predictive modeling (See Fig. 4.1). Long term, the project seeks to enable community members to engage in collaborative data analytics and thus better inform decision-making and policy formation.

¹⁸ See Teresa Mangum, ‘Welcome to Digital Engagements; Or, the Virtual Gets Real’ (*Public* 4 (2) <http://public.imagingamerica.org/blog/issues/digital-engagements-when-the-virtual-gets-real/>).

¹⁹ Frank Anderson, et al. ‘The Art of Transformation: Cultural Organizing by Reinventing Media.’ (*Public* 4:2 <http://public.imagingamerica.org/blog/article/the-art-of-transformation-cultural-organizing-by-reinventing-media/> Accessed 2/10/2019).

Cities are rapidly moving toward data analytics to see their challenges more clearly, to draw connections between disparate data, and to engineer solutions. If such solutions fail to take into account the human stories and socio-cultural factors made tangible through the arts, and if everyday residents of the city are not involved in cocreating such knowledge, efforts will fail.²⁰

Here we find a compelling vision for the ways transmedia knowledge can function as civic discourse, enabling local communities to represent themselves and participate in wider discussions, deliberations, and decision-making. The proposed vision of a virtual public square offers something akin to Google Earth meets community centers, meets Greek agora. However, vision is one thing, delivery another, and in between lies the design process.

The AoT project resonates with StudioLab's third mission, to mix performative values. By combining cultural organizing with collaborative analytics, AoT hopes to bridge the gap between qualitative stories and images, on the one hand, and quantitative information and data, on the other. In our terms, AoT seeks to inject values of cultural efficacy into data-driven decision-making where values of effectiveness and efficiency predominate. Under development at UMBC, the MapTu platform's research design includes community input generated by the AoT team of researchers and community organizations. However, as its *Public* article frankly admits, the AoT's initial digital engagement efforts, videotaping and sharing back interviews of local residents, wound up threatening the underlying community relationship rather than building on it. The collaborators write: 'Those living in communities ignored or maligned by media feel the impact of the perceptions media has created. People's strongest critiques were about representation in our editing room and in communities. [...] Community members did not make the media.'²¹ In short, AoT's collaborative platform did not reach out far enough to connect campus and community. The AoT's article offers a frank evaluation of its own missteps and articulates ways to include the community in making media by creating or finding spaces and practices for doing so. They acknowledge that the 'the software and cultural organizing practices must attend to creating sacred, safe, and brave spaces, clarifying values and principles, and developing practices to support multiple perspectives and deliberation.'²²

²⁰ Frank Anderson, et al, 'The Art of Transformation: Cultural Organizing by Reinventing Media.'

²¹ Ibid.

²² Ibid.

For StudioLab, the Art of Transformation and Imagining America's other cases of digital engagement illustrate ways that scholars and communities are already collaborating through media and by cultural organizing. Digital engagement is not a panacea but brings both promise and risk, as does any community engagement initiative. The creation and sharing of individual media forms are themselves connected to underlying material issues of representation and resources, form and content, knowledge and power. To connect the experiences of campus and community partners, we approach each as desiring-machines with shared experiences and collaborative platforms of discourses and practices. As AoT suggests, community members may themselves become makers of media and builders of platforms—or already be makers and builders. Collaborative shared experiences form the building blocks of productive community relationships, as they build experiential architectures connecting campus and communities.

COMMUNITY ENGAGEMENT AND TRANSMEDIA KNOWLEDGE

The emergence of transmedia knowledge comes at a propitious time, as higher education seeks to renew its relations with local communities and society at large. As the tutor sites demonstrate, transmedia knowledge and human-centered design can connect seminar, studio, and lab spaces—the spaces of epistemic knowledge—with a fourth space, the doxic field of community engagement. In countries around the world, recent political and economic crises have sharpened stark divisions between urban and rural populations, between those with college degrees and those without, between those with digital access and those lacking it, and between social groups vying for recognition and justice in the name of different nations, religions, ethnicities, races, genders, sexualities, abilities, ages, and other identities. While campuses worldwide seek to engage new realities off-campus, they also grapple on-campus with debates and protests on issues ranging from free speech, immigration, labor, discrimination, access, sexual harassment, diversity, education funding, the corporatization of research, and curriculum design. As divided as the epistemic fields and disciplines may be, they share *logos* and *eidos* and the medium of alphabetic writing, and thus all argue and debate in scholarly journals. Connecting the ideas and logic of *episteme* with the images and stories of *doxa*, transmedia knowledge and human-centered design offer ways to help transform the academy inside and out.

StudioLab has developed workshops, courses, and assignments designed to help instructors and students use transmedia knowledge to extend or enhance research and learning in the public field. In most cases, faculty and institutions have standing relationships with community partners and seek to explore ways that transmedia knowledge can serve community needs and strengthen collaboration. At national workshops conducted for the NARRTC (formerly the National Association of Rehabilitation Research and Training Centers) and for the Cornell Translational Research Summer Institute, participants were encouraged to approach transmedia knowledge as a way to reframe the broader impact of their work by envisioning new audiences and/or affordances for it. As we have seen, the forms, functions, and audiences of transmedia knowledge vary widely: info comics, PechaKuchas, posters, videos, and so on can serve as a means of self-representation and storytelling, translating knowledge, advocating policy, and conducting research while targeting a diverse set of stakeholders, including community members, policymakers, and the general public.

We have already described how transformational the building of collaborative platforms can be for those making transmedia knowledge and sharing experiences, ideas, and media while role-playing as critical design teams. Co-designing worlds can have a similar effect on knowledge itself. Our analogy for this transformation: transmediating knowledge for the field is like placing it in a magic lantern that projects outward new audiences, new perspectives, and new uses for this same knowledge. A 2017 transmedia workshop conducted at Siena College, a small liberal arts school near Albany, NY, demonstrates this generative potential. Hosted by Ruth Kassel, Assistant Director Academic Community Engagement at Siena, this StudioLab workshop teamed up faculty, students, and members of the Underground Railroad History Project (URHP) to explore ways to support the Stephen and Harriet Myers Residence, a home that had once been part of the nineteenth-century Underground Railroad activity. The Myers were an African American abolitionist couple, and the URHP is committed to sharing their story and the relevance of black abolitionists today. Restoring the Myers' home as a historic site entails connecting its forgotten history to different sets of stakeholders, including historians, contemporary neighbors, potential donors, and the wider general public.

In our workshop, teams first learned different transmedia forms along with the CAT and UX design frames; they then selected different historical artifacts—public flyers about the Underground Railroad, photographs of key local figures, and bottles of hair tonic found on the site—and

used the frames to explore resonances between these artifacts and different stakeholders, around which they sketched transmedia campaigns designed to appeal to each group. Teams later presented their campaign ideas to one another, with one team proposing posters for local beauty salons that would publicize the Stephen and Harriet Myers Residence by featuring the beauty products unearthed on the site, thus connecting past and present neighborhood residents through shared experiences of personal care.

Here we find imaginative problem-solving far from discipline, unfolding in the field of community engagement as historical artifacts become reanimated as they pass through different media genres for a range of different possible audiences. Transmedia knowledge's magic lantern effects—its array of media forms and design frames operating like a planetary projector—can help researchers and community partners alike identify different constellations of Whys, Whats, and Hows for engaging different audiences, each constellation composed of specific calls to adventure and calls to action in the world. Through transmedia, the transformational potential of specialized and common knowledge emerges in the lives of students and community members. In the field, *episteme* experiences a renaissance in the *doxa* of everyday life.

CRITICAL DESIGN TEAMS IN THE FIELD

On campus, StudioLab's critical design teams move students transversally through activities traditionally siloed far away from one other. Working as teams, students perform conceptual activities associated with seminar spaces common in the humanities and social sciences; working as bands, teams hone aesthetic skills found in studio spaces of art and design departments; and working in guilds, students focus on technical skills found in the lab spaces of science and engineering. Moving out into the field, critical design teams take on the role of consultants, sharing their conceptual, aesthetic, and technical skills as well as their intimate bureaucratic or organizational sensibilities within the context of community engagement and co-designing worlds.

As consultants in the field, critical design teams can draw on practices of critical performativity described by Critical Management Studies scholars. Recall that the power circuits of efficiency-effectiveness that define Lyotardian performativity govern not just the production of contemporary knowledge but also social bonds, and this governance takes the form

of performance-driven outcomes and assessment in institutions ranging from universities and businesses to community and nonprofit organizations. Critical performativity seeks to supplement the pervasive drive for efficiency-effectiveness with resignifying practices associated with Butlerian performativity, practices that include refunctioning both discursive and nondiscursive forms. It is here that values of cultural efficacy—of doing the right thing for people—can enter into processes of discussion, evaluation, and decision-making. In the case of Indigenous Story Studio, this means framing important health, financial, and social information in characters and narratives reflective of the culture of indigenous communities; in the case of *What Cost? The True Cost of Incarceration on Families*, it means countering the stereotypes associated with affected community members with accurate representation of their lives and values and ensuring that these inform relevant social policy; in the case of the Art of Transformation, it means ensuring that campus and community members build shared experiences and collaborative platforms that empower people to improve their everyday lives through cultural organizing and collaborative analytics.

Critical design teams can foreground the importance of different performative values in both their own project work and the lives of community members. The micro-emancipations of critical performativity involve a transvaluation of performative values that introduces or enhances values of cultural efficacy, while revalorizing those of organizational efficiency and technical effectiveness. Without attention to efficacy, collaborations quickly become misguided as they fail to serve participants' underlying needs and aspirations; without attention to effectiveness and efficiency, collaborations tend to lack consistency, scalability, and sustainability. The goal for consultants is thus to encourage and support the remix or retuning of performative values.

Not surprisingly, transmedia knowledge can play a crucial role here, as revealed in a workshop conducted with the Patient Care Advocacy Team (PCAT), a volunteer program in Ithaca, New York, run by the Cayuga Medical Center, Cornell Public Service Center, and Ithaca College's Center for Civic Engagement. PCAT connects students with patient care teams in the medical center's in-patient and emergency departments, where they support patient comfort and advocacy. As part of their community engagement, students reflect on their experience in a written text and digital story, and our workshop focused on shaping stories through

posters, comics, and PechaKuchas that would be shared with hospital administrators. In the course of the workshop, we learned that the medical center had noted an improvement in patient care as measured by their patient surveys. This information helped students reframe the transmedia project before them: their reflective stories could become part of a larger story, the success of patient-centered practices in a large, community hospital as told by its own measures of performance assessment. Transmedia knowledge that arises from concrete, lived experiences can provide salient qualitative evidence (and thus a potential measure) of cultural efficacy, and thereby help students and community partners better articulate their own needs and desires within formal assessment and decision-making processes. This qualitative dimension pervades data analysis: to be comprehensible and persuasive, data must be visualized, those visualizations wrapped in arguments and stories, and those arguments and stories shared with appropriate stakeholders. Critical design teams and their partners can use transmedia knowledge to visualize data, tell stories, make arguments, and advocate for particular goals with a wide variety of audiences. In such ways, transmedia knowledge becomes civic discourse.

DESIGN FRAME 3: DESIGN THINKING

StudioLab's final design frame, design thinking or DT, also provides the third element of our critical design pedagogy, alongside critical thinking's tradition of argumentative writing and tactical media's subversive activism. Design thinking offers a comprehensive design process that directly addresses StudioLab's mission to inject values of cultural efficacy into systems dominated by technical effectiveness and organizational efficiency. Tim Brown, the CEO of IDEO, defines design thinking as balancing three related constraints: technical feasibility, financial viability, and human desirability.

Constraints can best be visualized in terms of three overlapping criteria for successful ideas: feasibility (what is functionally possible within the foreseeable future); viability (what is likely to become part of a sustainable business model); and desirability (what makes sense to people and for people). A competent designer will resolve each of these constraints, but a *design thinker* will bring them into a harmonious balance.²³

²³Tim Brown, *Change by Design* (New York: HarperCollins, 2009), 18.

Desirability, feasibility, and viability closely align with the performative values of cultural efficacy, technical effectiveness, and organizational efficiency. As a method of human-centered design applied to organizational and social problems, design thinking begins with human desirability, and for this reason, it offers StudioLab a powerful, ready-made approach for helping teams and their partners use transmedia knowledge to balance highly quantitative measures of effectiveness and efficiency with more qualitative assessments of efficacy.

Like many design methods, DT takes an iterative approach which encourages participants to ‘fail fast’ in order to succeed faster, repeating steps and altering designs by adjusting to feedback at any stage along the way. Projects may last days, weeks, months, or years; so iterative loops can be short or long. Keeping this iterability in mind, design thinking’s process, which critical design teams practice first in class and then in the field, unfolds across five phases: *empathize*, *define*, *ideate*, *prototype*, and *test*.

1. *Empathize*. Throughout its process, design thinking uses a transdisciplinary approach, employing different methods at different moments, beginning first by empathizing with others using fieldwork methods drawn from ethnography and sociology. Human-centered design begins with humans, with learning about their needs and desires concerning a particular problem at a deep level. Through interviews and observations, design teams learn people’s behaviors as well as their cognitive understanding of the situation. The teams then dig down to elicit the underlying feelings, beliefs, and values of those involved. According to Brown, in order to gain empathy with people ‘we need to begin by recognizing that their seemingly inexplicable behaviors represent different strategies for coping with the confusing, complex, and contradictory world they live in.’²⁴ The goal of this phase is to get into the shoes of people, overcome one’s own preconceptions about the situation, and understand it from their perspective at a deep, systemic level.

One way StudioLab trains students in design thinking uses a customized version of the d.school exercise redesigning the backpack which teaches the DT process to novice designers in 60–90 minutes. Created by Dee Warmath at the University of Wisconsin–Madison, the Redesigning the Process of Carrying Stuff workshop enhances a widely used exercise developed by the d.school, reframing the problem and opens the design

²⁴Tim Brown, *Change by Design*, 49.

challenge beyond backpacks.²⁵ Working in pairs, one student role-plays as designer, interviewing their partner and writing down: how they carry their personal belongings, the ways they feel about doing so, and any issues they have with the process. After taking a moment to review their notes, interviewers dig deeper, asking follow-up questions that probe into the underlying feelings and values at stake for their partners, again recording their responses in writing. The students then reverse roles and repeat this first phase, with the interviewer becoming the interviewee and vice versa.

In practice out in the field, design teams may spend hours, days, or weeks in the empathize phase, observing and interviewing community partners and collecting stories and images. At the end of this phase, teams should gather and unpack all their research with a single visualization, using such ‘shared media’ as notes, photos, Post-its, and diagrams to spatialize what they have learned. In StudioLab terms: critical design teams transmediate the situation into small comprehensive installations that spatialize ideas through artifacts and thus translate the field into studio space. In design thinking terms, such shared media is crucial to the overall design process, helping to record, nourish, and generate design solutions. As we will see, shared media is transmedia knowledge that takes different forms and serves different functions in the design thinking process. Here the spatialization of research both documents the first phase research and helps transition to the second phase.

2. *Define.* Design thinking’s second ‘define’ phase synthesizes the insights generated through the empathy phase and seeks to describe the underlying situation in a clear and concise definition or problem statement. Defining is sense-making, clearly articulating the design challenge at hand. Teams make sense of the field research spatialized in the installation of artifacts by using them to focus the design challenge as narrowly as possible. All the research, all the artifacts now become transmediated into a single statement that describes the partner and their needs and articulates the problem space, an open space that emerges from insights about the design challenge.

In the Redesigning the Process of Carrying Stuff exercise, the students’ observations and discussions from the first phase often begin to reveal basic desires and underlying values that had not yet been fully articulated, and that only begin to crystalize after phase one. Patterns emerge: ‘fashionable’ and ‘attractive’; ‘well-made,’ ‘long-lasting,’ and ‘high-quality’;

²⁵ Dee Warmath, “Redesigning the Process of Carrying Stuff.” Unpublished worksheet.

‘lots of stuff,’ ‘baggy,’ and ‘over-sized’; and ‘back pain’ and ‘posture’. In the define phase, students synthesize their insights—for example, beneath aesthetic and economic needs lie functional and health needs—into a clear problem statement, one that opens up an imaginative space that frames and limits the problem and gives specific criteria to drive creativity. *To carry her stuff, Charlie needs something large and durable that looks good and takes care of her back.* Note that this problem statement leaves ‘what’s needed’ undefined while providing discrete attributes that synthesize many desires and values into a nexus of potential solutions. ‘It may seem counterintuitive but crafting a more narrowly focused problem statement tends to yield both greater quantity and higher quality solutions when you are generating ideas.’²⁶

In practice, the shift between the first two design phases reveals the shift between *divergent and convergent thinking*, a rhythm important to design thinking. In the empathize phase, design teams generate many observations and stories and may go off in many directions, while in the define phase, teams narrow their thinking and converge toward a single point of view. This rhythm between divergence and convergence resonates with the flow and break, as well as the dispersion and return, of thought and action. Problem statements are actionable statements: produced by convergent thinking, they trigger divergent thinking in the third phase of critical design thinking. Narrowing produces a sudden opening of unforeseen possibilities: the written statement now becomes transmediated into multiple forms.

3. *Ideate.* Design thinking is creative, and its signature creation occurs in its third phase, ideation. Using the potentiality of the design space its constraints, and the criteria of the problem statement, teams generate ideas by any means necessary: brainstorming, bodystorming, chance operations, displacements, reframings, and so on. Divergent thinking takes over, everyone suspends judgment and makes up as many different solutions as possible. Problems may be divided up, their parts rearranged and solved in various ways, and solutions then recombined in surreal form. The goal is to generate not four or five ideas but scores, even hundreds of ideas, whether written, drawn, or otherwise configured. Teams move

²⁶‘An Introduction to Design Thinking: Process Guide,’ n.p. Hasso Plattner Institute of Design, Stanford University. Accessed January 12, 2019 <https://dschool-old.stanford.edu/sandbox/groups/designresources/wiki/36873/attachments/74b3d/ModeGuideBOOTCAMP2010L.pdf>

beyond initial, obvious solutions to truly unexpected and novel figures of thought-action. This creativity is collective and shared rather than individual and private. It is infectious rather than neurotic.

When teaching students design thinking's ideation phase, by using *Redesigning the Process of Carrying Stuff*, we call attention to how Warmath's enhanced workshop redefines and reframes the original d.school's exercise: the design challenge shifts from redesigning an object to reconfiguring an entire activity. In StudioLab workshops, students have generated ideas for extraordinary backpacks—but also a wide array of other ways to carry stuff. When performing this exercise, students ideate on their own; in the field, they collaborate, and the number and variety of ideas dramatically increase.

Although this phase of design thinking is called 'ideation,' for StudioLab these ideas are at post-Platonic: they emerge from *doxa*, not as *episteme* opposed to it but as a regressive mix of common and expert knowledge. Further, they emerge as much from abductive leaps and conductive flashes as from inductive and deductive steps. The goal is not The Idea but ideas, and lots of them. Within teams, these para-eidetic forms emerge collectively rather than from an individual thinker or psyche. Indeed, they are less ideas than thought-action figures. Ideas are frozen, static; figures are shimmering, dynamic. Ideas, figures, and thought-actions—all emerge from, as, and into shared media, different forms of transmedia knowledge unfolding here in a design process whose end is not ideation but something else: the production of prototypes. Transitioning into the next design phase, convergent thinking returns as teams focus in and select three distinct ideas to make into working artifacts using criteria from the design challenge, emergent frameworks, or even stock categories, such as 'most sensible,' 'most extreme,' and 'most surprising' to guide the design of functional prototypes.

4. *Prototype*. The d.school defines prototyping as the 'iterative generation of artifacts.'²⁷ In the prototyping phase, designers' narrowing of attention into the making of things—drawings, models, objects, storyboards, role-playing scenarios—transmediates ideas into actual stuff in the world. Prototypes are low res, low cost ways to try out different ideas with partners, fail fast, and iterate. Form follows failure. Sharing a series of prototypes with partners allows teams to explore and develop the experience design of emerging ideas and processes. Rough prototypes become

²⁷ 'An Introduction to Design Thinking' n.p.

successively refined, evolving from low res, abstract renderings to high res, concrete forms through the iterative feedback of human-centered design. Thinking emerges from making media and building experiences.

In its DT training exercise's prototyping phase, StudioLab offers students an array of arts and crafts materials for generating artifacts, including construction paper, string, buttons, paper clips, markers, glue, Play-Doh, pipe cleaners, and plastic figures. Given a time constraint of about 15–20 minutes, each student mock-ups a single prototype, often a small-scale model of some creative way for their partners to carry their stuff—from backpacks to pouches, purses, briefcases, belts, lockers, and wagons—all carefully designed and crafted by hand. Students often comment on the transformative force of this prototyping phase, for they both witness and carry out the incarnation of ideas and desires in material form.

In the field, the design process further narrows, as thinking continues to converge. Prototyping helps clarify and refine the problem statement, the challenge driving the entire process, and comparison between different prototypes enables further distinctions and choices. While at any time an idea may be scratched and the design process restarted, the process typically narrows efforts around selecting and developing one idea for testing in the final phase. The selection criteria are always context specific and emergent, although values of human desirability inform the prototyping, whose processes themselves demonstrate levels of technical feasibility, and perhaps even financial viability. Indeed, over the arc of the design process, the performative values themselves evolve through effectiveness and efficiency, guided by the primacy of efficacy.

5. *Test.* In the fifth phase, design teams solicit formal feedback about their prototypes, again working closely with partners to observe and discuss their interactions. The goal is to once again dig deeper, but while the empathy phase was broad and divergent, testing further narrows and focuses the convergent thinking of the prototyping phase. Testing slightly different versions of the prototype, whether these be objects or experiences, generates more and more refined understandings of the design challenge. If possible, testing should occur in real-life context or scenarios that match them closely. Role-playing can also be used. Teams test their solutions and also their basic understanding of the problem.

With redesigning the process of carrying your stuff, students present their rough prototypes to their partners in the testing phase. As with formal testing, the general rule is to show rather than tell: set the design before the

partner and let them interact with it on their own. Their explorations, comments, and questions provide crucial feedback and direction for designers, who should seek answers about specific aspects of their design while also being open to new and expected insights. What designers test here, is the experience design as much as the actual object or process—or rather, the entwining of experience and artifact reveals how well human desirability incarnates itself within the limits of the prototype’s technical feasibility.

This DT exercise’s short time-frame precludes research into the design’s financial viability, but out in the field, solving problems entails addressing issues of scalability and sustainability—and the value of efficiency. Rapid prototyping facilities enable designers to test a series of increasingly high-resolution designs, narrowing and refining the nexus of desirability, feasibility, and viability through iterations of trial and error. Indeed, the entire design thinking process may repeat several times before details of manufacturing and delivery come to the fore. The iterative process, however, ensures that human desirability informs even the final phases of design. The resulting design is thus not so much an isolated artifact or stand-alone process but rather a thing or process arising out of a larger, ongoing situation—a small life-world or tiny cosmos. Through the design thinking process, this world emerges.

CO-CONSULTING AND TRANSMEDIA CULTURAL ORGANIZING

How one uses the design thinking frame in the field will depend on the community relationship and academic context in question. The following approach is based on two community-engaged courses at Cornell University with graduate students and upper-class students collaborating with teenagers in different after-school programs run by two community partners, the Ithaca Urban 4H Program and the George Junior Republic School (GJR) in Freeville, New York. Unique among Ivy League schools, Cornell is half private and half public, as it is also a land-grant research university. The Cornell Cooperative Extension oversees 4H organizations throughout New York, including the Ithaca Urban 4H Program. GJR and Urban 4H and their members have different backgrounds and needs, and Cornell’s Public Service Center maintains long-term relationships with them and other community partners. Both after-school programs have ongoing media projects: at GJR, teens involved in the juvenile court system participate in two Poetic Justice poetry clubs focusing on issues of

identity, expression, and literacy; while at Urban 4H, teens from the Karen immigrant community are creating a mural depicting their harrowing trek from Myanmar to Thailand to America. Through the Public Service Center, the two programs reached out, and ongoing collaborations emerged over two semesters: one focused on transmediating the GJR teens' poems into digital media, the other on 4H teens creating comics based on personal experience of the trek or any other interest. The courses were designed to mesh with these existing shared experiences and collaborative platforms (Fig. 4.2).

In class, StudioLab's approach begins by preparing students for cultural organizing by first learning about the partners' communities and their specific projects: the project goals, their processes, and the partner's underlying missions. Between student and community member, there may be campus offices, community organizations, and liaisons, each layer having its own story and evaluative framework that informs the collaboration. As much as possible, we take these frames into account, for each function as a



Fig. 4.2 Cornell students Rachel Whalen and Catherine Giese consult with George Junior Republic students on transmediating their poetry. (Photo by author)

transmediation of knowledge. Students then begin learning StudioLab's three design frames, including the Redesign the Process of Carrying Stuff workshop and its focus on listening and empathy. Students first learn the frames' components conceptually, see them immediately demonstrated with examples, and then learn them 'by hand' through exercises, before taking the learning process out into the field. In a class engaged with both community partners, students role-played as a community-based design firm composed of two teams, one working with GJR and the other Urban 4H. By learning the background stories of their partners, studying and practicing the design frames, and role-playing as critical design teams, students become media makers and platform builders before attempting to become cosmographers.

To fine-tune the learning experiences and transformative potential in the field for both students and community members, StudioLab has developed a co-consultancy process, in which students and community members alternate and role-play as design consultants for one another. Alongside the partners' projects, students develop a transmedia project connecting their own studies with teenage audiences, which they present to partners for feedback. In this way, both students and partners play expert and novice, designer and consultant. Overall, the co-consultancy process takes everyone outside themselves, not just physically through an exchange of visits, but also experientially as they role-play in real collaboration with others. This is precisely the power of shared experiences and collaborative platforms: to generate experiential architectures that connect and transform people through transmedia knowledge and cultural organizing. At the same time, the co-consultancy process ensures that students and community partners clarify their interests and pursue them in ways beneficial to the underlying relationship.

HCD AND PERFORMATIVE TRANSVALUATION

Design thinking provides a robust method for critical design teams to address StudioLab's third mission: the transvaluation or remixing of values of culturally efficacious performance, technologically effectiveness performance, and organizationally efficient performance—what we can call the 3Ps of Mission 3. In describing desirability, feasibility, and viability as constraints, Brown also situates them in relation to three spaces of innovation:

The continuum of innovation is best thought of as a system of overlapping spaces rather than a sequence of orderly steps. We can think of them as *inspiration*, the problem or opportunity that motivates the search for solutions; *ideation*, the process of generating, developing, and testing ideas; and *implementation*, the path that leads from the project room to the market. Projects may loopback through these spaces more than once as the teams refine its ideas and explore new directions.²⁸

These three spaces can help us clarify the design thinking process and the roles played by different forms of shared, transmedia knowledge used by teams working collaboratively in the field.

The design thinking process has been simplified in the context of international aid and development. IDEO, working with the Bill and Melinda Gates Foundation, International Development Enterprise, Heifer International, and the International Center for Research on Women, developed the *Human-Centered Design Toolkit* to document and support uses of design thinking for people living under \$2 per day. Here financial viability forcibly informs human desirability and technical feasibility. Significantly, this toolkit offers a leaner version of the design thinking process, articulating it in just three phases: Hear, Create, and Deliver, which the toolkit's authors and graphic designers map into the same initials—HCD—as those of Human-Centered Design. Hear, Create, and Deliver also maps on to the three spaces of innovation and the three constraints of desirability, feasibility, and viability.²⁹ These mappings and configurations concretize the role of design thinking in StudioLab's critical design approach and its third mission of performative transvaluation.

The toolkit's Hear phase corresponds to Brown's spaces of inspiration and human desirability, and it includes the process of empathizing—listening to community members and learning their perspectives, feelings, and values. The Create phase synthesizes field research into a defining problem statement and then uses it to generate and select from new concrete possibilities. It corresponds to the spaces of ideation and technical feasibility and includes the processes of defining, ideating, and initial prototyping. The Deliver phase further refines and concretizes ideas, testing them with partners in real-life situations, and then making final adjustments before deploying them in the

²⁸ Tim Brown, *Change by Design*, 16.

²⁹ IDEO. *Human-Centered Design Toolkit*. 2009. <https://www.ideo.com/work/human-centered-design-toolkit/>. 6–9.

field. It corresponds to the spaces of implementation and financial viability, and it includes the processes of prototyping and testing. (Hear, Create, and Deliver, we will note, also resonates strongly with Duarte's three-part narrative sparkline and LeFever's Why, What, and How, and thereby reveals the experience design of design thinking itself.)

HCD provides critical design teams with a three-letter thought-action figure for overlaying design thinking with StudioLab's mission of remixing the 3Ps of efficacy, effectiveness, and efficiency. The Hear, Create, Deliver of human-centered design orchestrates a space-time of different performances: *hearing* community members brings efficacious performance to the fore and guides the *creation* of effective performances and the *delivery* of efficient performances, which each in their turn also come to the fore. For community partners, this focus on performative values, sharpened and shared by transmedia knowledge and deployed in different social and organizational contexts, can help community members better represent their experiences, advocate for rights and resources, and inform decision- and policymaking. In taking up Mission 3, it is here that critical design teams can best assist partners with transmedia knowledge and performative transvaluation.

SHARED MEDIA AND THE ORCHESTRATION OF PERFORMANCES

HCD and the orchestration of efficacious, effective, and efficient performances can also help us clarify further the roles played by different forms of shared, transmedia knowledge in the design thinking process. Design thinking has generated its own body of formal research: design thinking research studies such topics as collaboration, creativity, innovation, and problem-solving. Of particular interest to StudioLab is its research into the specific roles different shared media perform within design teams. Studying software design teams at Stanford, Grosskopf, Edelman, Steinert, and Leifer write:

Design Thinking research suggests that each instantiation of media affords particular types of interactions and changes to a designed solution. This happens because the media-model dimensions (abstraction, resolution, ease of change) define the interaction space in which people can define their solution.³⁰

³⁰Alexander Grosskopf, Edelman, Steinert and Leifer. 'Design Thinking implemented in Software Engineering Tools,' 2010, n.p. https://bpt.hpi.uni-potsdam.de/pub/Public/AlexanderGrosskopf/DTRS8_DTinSE.pdf

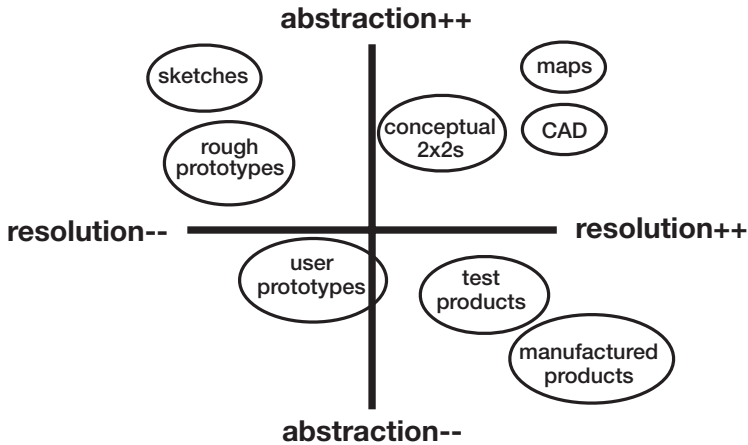


Fig. 4.3 Media models framework, based on Grosskopf et al. (2010)

The authors visualize and correlate these dimensions of different media forms using a conceptual 2×2 framework, one composed of two intersecting axes indicating higher and lower levels of resolution (horizontal axis) and abstraction (vertical axis) and arrayed with different media used by software development teams. Low resolution, highly abstract media in the top left quadrant include notes and sketches; high resolution, low abstraction media in the lower right include manufactured products; user prototypes fall near the middle range of both resolution and abstraction (Fig. 4.3).

Significantly, different shared media afford different design changes and different creative moves, ranging from incremental and parametric changes to comprehensive and global ones.

We call media which affords parametric change analytic media, and media, which affords a multiplicity of potential global solutions generative media. In lab experiments with designers we have observed that analytic media leads people to discuss adjustments of parameters within the design, while generative media affords discussions of the general concept of the design.³¹

³¹Alexander Grosskopf et al., 'Design Thinking implemented in Software Engineering Tools,' 2010, n.p. https://bpt.hpi.uni-potsdam.de/pub/Public/AlexanderGrosskopf/DTRS8_DTinSE.pdf

Low res, highly abstract media models (e.g., a small plastic car) are generative media as they open possibilities of global change; high res, very concrete media models (e.g., a fully functional car) are analytic media as they afford narrow parametric change. Big changes happen through generative media, small changes through analytic media.

We can extend these insights about the role of different media in design far beyond software design and connect them to the generation of thought-action figures across different domains: architects, choreographers, engineers, lawyers, urban planners, writers, teachers, students, administrators, all regularly generate projects—each with distinct sets of media forms—that move from fuzzy low res, highly abstract schematics scribbled, typed, or drawn on a surface, toward the iterative creation of sharp, high res, fully concretized things, events, or processes. StudioLab’s thought-action figures emerge across these transmedia iterations, with evolving edges of abstraction/concreteness and sharpness/fuzziness. Perhaps all processes, all art, science, education, and even nature and culture can be seen as dynamic events of transmedia figuration, with or without ideation.

Design thinking enables StudioLab’s critical design teams to work with community partners to identify and enhance the transmedia knowledge at work in processes important to them, while at the same time addressing Mission 3, the transvaluation of performative values. What challenges, dreams, and projects are potential partners grappling with as a community? Where might transvaluations of cultural, technological, and organizational performance occur, and through what media forms are community desires best articulated?

We can map the 3Ps into the interactive dimensions of shared media using the HCD staging of design thinking. *The movement from generative media to analytic media traces the general movement of design thinking as well as performative transvaluation*: low res, abstract media enable teams to *hear* and respond to human desirability and cultural efficacy; rough and ready prototypes probing technical feasibility and technological effectiveness enable them to *create* possibilities; and high res, concrete media models test financial viability and organizational efficiency in order to *deliver* a teams’ critical design solutions. Thinking moves from divergent to convergent, as generative abductive leaps and conductive flashes give way to analytical inductive and deductive steps as the DT process unfolds.

Actions, too, transform: through iterative cycles, the 3Ps move across the media-models framework from upper left to center to lower right: from efficacious performance to effective performance to efficient performance—though once again orchestration best figures just how, when, and why each performance comes to the fore or recedes to the background in the iterative, collaborative, and multivalent process. It is through the combination of transformative thought and action, figures and their performance, that performative transvaluation occurs. Combined with critical thinking and tactical media, design thinking enables critical design teams to produce collective, transformative thought-action. In the field, critical design teams can help partners orchestrate when and where different performances are called for, what patterns of thinking are needed, and what forms of transmedia knowledge can best enable the co-design of shared, emergent worlds.

WHAT COULD BE: PLATO COSMOGRAM

In grappling with Plato's Fight Club, we have generated StudioLab as one such emergent world, and early on we posed it as a heterotopia for creating other heterotopias. We can now figure StudioLab as a cosmogram for generating other cosmograms. Becoming cosmographer means co-designing worlds through community engagement, articulating What Is and imagining What Could Be—and then collaboratively designing and creating worlds through transmedia knowledge and performative transvaluation at whatever scale and duration is appropriate.

Design thinking research provides two final concepts for helping critical design teams co-design these worlds. In his dissertation, *Understanding Radical Breaks: Media and Behavior in Small Teams Engaged in Redesign Scenarios*, Jonathan Edelman analyzes radical breaks that occur "in the course of a redesign when designers make a major departure from the provided artifact."³² Radical breaks introduce global, comprehensive change tied to generative media: in our terms, they constitute radical transmediations. Edelman focuses on the role of objects and worlds in radical breaks, and underneath each are revealing concepts borrowed from child psychologist Alison Gopnik: *counterfactuals* and *paracosms*. Edelman writes:

³² Jonathan Edelman, 'Understanding Radical Breaks: Media and Behavior in Small Teams Engaged in Redesign Scenarios' (Dissertation. Stanford University), <http://purl.stanford.edu/ps394dy6131>, p. 59.

New solutions are, needless to say, ‘counterfactuals’; they stand in contrast to what exists, as exemplified by the object to be redesigned. The ‘world’ in which they arise can be seen as a ‘paracosmos’; generated by design engineers to justify, support, and develop new ideas. The extent to which the paracosmos is unpacked or developed often determines the refinement of the idea.³³

In play, children create imaginary friends and worlds; in design, teams create counterfactuals and paracosms. Gopnik defines the term ‘paracosm’ in her book, *The Philosophical Baby: What Children’s Minds Tell Us About Truth, Love, and the Meaning of Life*, to discuss the made-up worlds of children and their relation to other life worlds. “‘Paracosms’ are imaginary societies, rather than imaginary people. They are invented universes with distinctive languages, geography, and history. The Brontës invented several paracosms when they were children.”³⁴ For Gopnik, paracosms help us think about possible worlds, ‘what we call dreams and plans, fictions and hypotheses. They are products of hope and imagination. Philosophers, more drily, call them “counterfactuals.”’³⁵ Paracosms are possible worlds, as are theory and theater. As cosmographers, critical design teams help communities concretize their dreams and plans through the design of counterfactual paracosms with the potential of actualization via transmedia knowledge production.

As cosmogram, StudioLab offers the liberal arts an evolving pedagogic prototype, one transmediated at different sites with different students, faculty, and community partners. Decades old, its design frames tried and tested, the pedagogy remains emergent and offers different possible worlds for others interested in co-designing still other possible worlds through transmedia knowledge and performative transvaluation. In this latest iteration, StudioLab becomes a paracosm for generating paracosms. Its invented multiverse can be mapped by replaying and rearticulating the three missions that issue its call to adventure and guide its call to action.

Mission 1: *Democratize digitality.* The call to adventure here involves a different image of knowledge, a transmedia knowledge composed of thought-action figures that mix ideas and images, logic and stories,

³³ Ibid.

³⁴ Alison Gopnik, *The Philosophical Baby: What Children’s Minds Tell Us About Truth, Love, and the Meaning of Life* (New York: Farrar, Straus and Giroux, 2009) 53–54.

³⁵ Ibid., 19.

episteme and *doxa*. At a deeper level, transmedia knowledge incarnates digitality, an emerging onto-historical apparatus whose modes of subject formation, social organization, and technical infrastructure mixes the apparatuses of Platonic literacy and Homeric orality. StudioLab seeks to democratize digitality just as nineteenth-century educators sought to democratize literacy. The call to action here: *become maker* of transmedia knowledge, use the CAT frame to explore the conceptual, aesthetic, and technical dimensions of thought-action figures by combining learning activities found in seminar, studio, and lab spaces.

Mission 2: *Democratize design*. This call for adventure seeks a different mode of thinking and acting, shifting both critical and creative processes from the model of the lone original genius to that of recombinant collaborators. Connecting critical thinking to tactical media-making, the subversive energies of all-too-Romantic bachelor machines become reorganized into critical design teams, small desiring-machines or intimate bureaucracies modeled on activist cells, garage bands, and start-ups. The call to action here: *become builder* of shared experiences and collaborative platforms, use the UX frame to enable scalability and sustainability of transmedia knowledge production for different stakeholders by connecting with their experiential architectures, their ways of designing worlds.

Mission 3: *Remix performative values*. This call for adventure entails entering the fourth space of thinking and acting, the community field where transmedia knowledge becomes civic discourse and expert knowledge finds new grounds in common knowledge and participatory research. Collaborating with community partners, critical design teams use transmedia knowledge to address local needs and desires and explore how values of cultural efficacy, technical effectiveness, and organizational efficiency shape partners' experiences of the world. The call to action here: *become cosmographer* or co-designer of worlds, use the design-thinking frame to collaboratively attune human desirability, technical feasibility, and financial viability by orchestrating performances and actualizing imagined worlds.

If Plato's Fight Club has understood the world through literacy and ideas, StudioLab seeks to help co-design it through digitality and collective thought-action figures. Plato constitutes one such figure and his Academy forms an experiential architecture reborn over the last two centuries as a global network of modern universities. On this plateau of a



Fig. 4.4 Still from “Plato in Play-Dough,” YouTube video, 2012, Sophie Klomprens, Caleb Klomprens, and Calvin Klomprens

thousand dancing Platos, we now find a philosophical child, one playing with factual and counterfactual family and friends as they transform a Google School project into a 3D paracosm. With her hands she models small colorful forms of Plato, Socrates, Meletos, Menon, Criton, and Antyos, figures they will use in a thought-action animation depicting the trial and death of Socrates. It is a primal scene of community engagement. Via transmedia knowledge, other worlds emerge (Fig. 4.4).

REFERENCES

- An Introduction to Design Thinking: Process Guide. 2019. Hasso Plattner Institute of Design, Stanford University. <https://dschool-old.stanford.edu/sandbox/groups/designresources/wiki/36873/attachments/74b3d/ModeGuideBOOTCAMP2010L.pdf>. Accessed 12 Jan 2019.
- Anderson, Frank, Beverly Bickel, Lee Boot, Sherella Cupid, Denise Griffin Johnson, and Christopher Kojzar. n.d. The Art of Transformation: Cultural Organizing by Reinventing Media. *Public* 4: 2. <http://public.imagingamerica.org/blog/article/the-art-of-transformation-cultural-organizing-by-reinventing-media/>. Accessed 10 Feb 2019.
- Austin, J.L. 1962. *How to Do Things With Words: The William James Lectures*. London: Oxford University Press. SBN-13: 978-0674411524.

- Birch, June, Lia Ruttan, Tracy Muth, and Lola Baydala. 2009. Culturally Competent Care for Aboriginal Women: A Case for Culturally Competent Care for Aboriginal Women Giving Birth in Hospital Settings. *International Journal of Indigenous Health* 4 (2): 24–34.
- Brown, Tim. 2009. *Change by Design: How Design Thinking Transforms Organizations and Inspires Innovation*. New York: Harper Collins.
- De Vuono-powell, Saneta, Chris Schweidler, Alicia Walters, and Azadeh Zohrabi. 2015. *Who Pays? The True Cost of Incarceration on Families*. Oakland: Ella Baker Center, Forward Together, Research Action Design.
- Edelman, Jonathan. 2011. *Understanding Radical Breaks: Media and Behavior in Small Teams Engaged in Redesign Scenarios*. Dissertation, Stanford University. <http://purl.stanford.edu/ps394dy6131>
- Frank, David, and Michelle Bolduc. 2004. From *vita contemplativa* to *vita activa*: Chaim Perelman and Lucie Olbrechts-Tyteca's Rhetorical Turn. In *Advances in the History of Rhetoric*, ed. Robert N. Gaines, vol. 7, 65–86.
- Gardner, Lee. 2017a. Can Design Thinking Redesign Higher Ed? *The Chronicle of Higher Education*, September 10. www.chronicle.com/article/Can-Design-Thinking-Redesign/241126. Accessed 7 July 2018.
- . 2017b. How Design Thinking Can Be Applied Across the Campus. *The Chronicle of Higher Education*, September 10. www.chronicle.com/article/How-Design-Thinking-Can-Be/241127. Accessed 7 July 2018.
- Gopnik, Alison. 2009. *The Philosophical Baby: What Children's Minds Tell Us About Truth, Love, and the Meaning of Life*. New York: Farrar, Straus and Giroux.
- Grosskopf, Alexander, Jonathan Edelman, Martin Steinert, and Larry Leifer. 2010. Design Thinking Implemented in Software Engineering Tools: Proposing and Applying the Design Thinking Transformation Framework. https://bpt.hpi.uni-potsdam.de/pub/Public/AlexanderGrosskopf/DTRS8_DTinSE.pdf
- Hopkins, Zoe, and Amancay Nahuelpan. 2012. *It Takes a Village*, ed. Sean Muir. The Healthy Aboriginal Network.
- IDEO. 2009. *Human-Centered Design Toolkit*. <https://www.ideo.com/work/human-centered-design-toolkit/>
- Kimbell, Lucy. 2011. Rethinking Design Thinking, Part 1. *Design and Culture* 3 (3): 285–306. <https://doi.org/10.2752/175470811X13071166525216>.
- Klomprens, Sophie, Caleb Klomprens, and Calvin Klomprens. 2012. Plato with Play-Dough. YouTube video, May 28. https://www.youtube.com/watch?v=_GH3CRMLskQ. Accessed 11 Feb 2019.
- MacKenzie, Donald A. 2006. *An Engine Not a Camera: How Financial Models Shape Markets*. Cambridge, MA: MIT Press.
- Mangum, Teresa. 2017. Welcome to Digital Engagements; Or, the Virtual Gets Real. *Public* 4 (2). <http://public.imaginingamerica.org/blog/issues/digital-engagements-when-the-virtual-gets-real/>. Accessed 10 Feb 2019.

- Mayer, Ralo. 2006. *How to Do Things With Worlds 1*. Innsbruck: Künstlerhaus Büchsenhausen.
- Miller, Peter N. 2015. Is Design Thinking the New Liberal Arts? *The Chronicle of Higher Education*, March 26. <https://www.chronicle.com/article/Is-Design-Thinking-the-New/228779>. Accessed 15 Feb 2016.
- The Design Thinking Initiative. n.d. The Design Thinking Initiative. Smith College. Retrieved May 15, 2016, from <http://smith.edu/design-thinking/>
- Turner, Victor. 1974. Liminal to Liminoid, in Play, Flow, and Ritual: An Essay in Comparative Symbolology. *Rice Institute Pamphlet – Rice University Studies* 60 (3). Rice University.
- Warmath, Dee. Redesigning the Process of Carrying Stuff. Unpublished Worksheet.