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CONTEMPORARY AND FUTURE SPACES FOR MEDIA STUDIES AND DIGITAL HUMANITIES

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I walk into the University of Toronto's Critical Making Lab, which is a large, open space with one or two offices and a meeting room at the far end, a set of cubicles occupying the remote left side of the space, and a glassed fabrication room with at least ten different 3-D printing systems and workbenches on the immediate right. The door to the fabrication room is at the far end of the room, which means that one does not walk into the fabrication work-shop when entering the lab, but rather into a mixed space with couches, cubicles, tables with materials, and separate functions, including the fabrication workshop. The lab is an attrac-tive space with not only a great deal of visible work but also people who seem very keen to engage in dialogue. In another context, the cubicles may have reminded me of a Dilbert-inspired office landscape, yet here they come across as creative workspaces with a connection to the rest of the space. I talk to one of the cubicle inhabitants. He is an experienced industrial designer who does much of his work from the lab, drawing on the separateness of the cubicle and the openness of the large space at the same time. He talks about how he benefited from exchange with scholars, bouncing around ideas and doing projects he probably would not have otherwise done. One of the postdocs points to printed prosthetics and manufacturing devices around the room while discussing the interpretations embedded in different types of medical representations. Someone walks around the space and ushers people to participate in an event in another part of the building. It is obvious to me that the space enables the institutional operations closely connected to the basic idea of the lab—exploring how critical thinking and material making come together. Could this be a joint space for media studies and digital humanities? If not, why?

Space and infrastructure condition knowledge production, manifest conceptual under-pinnings, and activate certain expectations. For example, the teacher owns a third of the space of an "agrarian" or "industrial" classroom" (Scott-Webber 2004) and is not fettered to a single position. Students are normally aligned in rows and are expected to be seated rather than moving around in the space. The presentation infrastructure in such and other knowledge

environments typically consists of a centrally placed, single screen and slide software used to show a single slide at a time, thus enacting a singular, central perspective with little material support for collaborative making, retention (only one slide at a time), and alternative narrative strategies, such as scale and juxtaposition (Robles-Anderson & Svensson 2016). The classroom door, normally closed when a class is in session, reinforces the sense of a closed and self-contained environment. Similarly, hospital corridors, seminar rooms, and design studios manifest and enable certain ideas about knowledge work through their architecture and infrastructure (Iedema et al. 2006; Fällman 2007; Svensson 2015). Space and infrastructure do not determine academic work, but rather suggest and enable (sometimes strongly) certain interactional modalities that are in turn embedded in an institutional, epistemic, and social context.

Nevertheless, space is often disregarded as a central factor in higher education, supporting a view of scholarship and education as independent from their spatial and geographic contexts (Livingstone 2010). Interior architecture is templated and typically not allowed or meant to be expressive and experimental, although there is an increasing interest in alternative types of knowledge spaces (Boys 2011). We are often not aware of the conditioning set by a traditional classroom or department architecture and normally unable to influence it on a structural level, even if the use of specific spaces is always negotiated by people. Space is also precious and notoriously scarce in most university and other settings. Whatever the case, academic spaces carry both implicit and explicit values. Space manifests status and power, and it conceals power relations (Soja 1989; Lefebvre 1991). It also enacts and often reifies categories of difference, including gender, race, sexuality, and ability (Risam 2015).

This chapter explores space as an enabler for the fields of media studies and digital humanities. I suggest that the material, cultural, and conceptual elements of space make it difficult to imagine and construct institutional spaces, such as labs, without attending to the infrastructural and intellectual trajectories of the fields under discussion. A somewhat provocative question posed in this chapter is—given overlapping ideas and shared visions between media studies and digital humanities—whether we might consider manifesting such visions through shared space.

Reflections on Institutional Space and Space as a Critical Category

A major challenge when analyzing and building institutional space is the considerable gap between conceptual foundations (e.g., goals and directions of an operation that are also associated with a space) and material levels of implementation (including details such as color schemes and the exact placement of outlets). Although conceptual and material foundations are deeply intertwined and co-dependent on context as well as people, it can be useful to describe them as separate layers or endpoints. What lies between the two asserted levels is a set of conditions or mechanisms for making concepts and materials meet or entangle. Such conditions or mechanisms can be understood as design principles (Svensson 2011) and "intellectual middleware" (Drucker & Svensson 2016). *Intellectual middleware describes the systemic assumptions and conditions built into digital and physical architectures.* When applied to technological platforms, it calls for precise attention to the way tools either structure arguments or express thinking, often through protocols programmed into a platform (Svensson 2016). For example, PowerPoint is constructed around the slide as a building block, meaning it is difficult to expand content over several slides in the software. This one-slide-at-a-time logic also affects physical

infrastructure (Robles-Anderson & Svensson 2016). There is little reason to have two screens in a presentation room if the pervasive presentation software only requires (and can manage) one screen.

Intellectual middleware can similarly be used to understand how physical spaces, particularly institutional spaces, embody intellectual programs that organize experience and knowledge production—not deterministically, but opportunistically. A traditional classroom setup does not determine experience and the learning that can take place, but suggests and privileges certain ways of carrying out learning activities (just like online learning environments do). Alternative ways of structuring space can suggest other opportunities for learning, especially if they are part of an organized process of evaluating and reimagining both learning situations and goals where teachers as well as students are involved. Through focusing on the entanglement of the conceptual and material, intellectual middleware as a framework helps us avoid materially based installations with limited conceptual grounding (e.g., throwing in beanbags and using bright colors without anchoring such elements in operational goals) and conceptually based thinking with little material grounding (e.g., having an idea for creating a vibrant place for exchange with limited attention paid to the intellectual role of space and infrastructure).

Design principles operate in between conceptual and material infrastructure and can be seen as a means of implementing middleware. Designing and building spaces is always an iterative process and does not start out wholly from either the conceptual or the material level. Anyone who has designed an institutional space will know that such processes are dependent on operational and conceptual ideas, stakeholders and users, available resources, existing physical structures, institutional protocols, and many different types of professional expertise. Much of the work is about negotiation, but without a basic idea and concept (that is likely to develop through the process) a very crucial part is missing.

Given a basic idea centered around, for instance, "a creative meeting place for media, humanities, and technologies," there are a number of design principles that can be suggested. For example, in such an environment it will be important to facilitate meetings and connection making across disciplines as well as projects and to accommodate different work practices. It will also be vital to make the space speak to the potential users and their knowledge practices as well as suggest other practices and perspectives. Three possible design principles for this scenario would be translucence (to stimulate easy connection making; seeing what other people are working on and allowing semi-privacy), variation and flexibility (to support different working styles and knowledge traditions), and intensity (to support many simultaneous activities and a sense of energy). Translucence provides a structured way of thinking about the layout of physical and digital spaces by supporting "see-through" and striking a balance between public and private space (Dourish & Bly 1992; Erickson & Kellogg 2000; Svensson 2011). In practice, translucence as a design principle can be manifested by glass materials, nooks for individual work, half-height furniture for some parts of the space, and ways of supporting contact between ideas, people, and threads in an online platform. Here, as always, people must be part of the solution. There is no point in providing glassed doors or compartments if most of the users cover the glass in order to get more privacy and feel more comfortable. Translucence is not the same thing as transparency, and there are ways of using glass as a material that afford privacy as well as see-through.

Generally speaking, the systematic entanglement of ideas and space/infrastructure is not given enough consideration in building and reconstruction processes. Based on accumulated experience from a large number of construction projects, international collaborations, and many conversations, I suggest that there are several reasons for this predicament. First, the

operation in question often does not have an articulated set of ideas about what they want to be and become (conceptual foundation). This requires articulating an operational vision (whether it is new or the same as earlier) and a willingness to discuss what could be improved and changed. To be sure, this is challenging work. Second, architectural and constructional work relies on templates to a large degree. There are longstanding specifications for different types of spaces and functions, and, while useful, these also constrain innovation. There are also often standard ways of managing ventilation, wireless networks, and other infrastructure, although there may in fact be other possible solutions that are more appropriate for the project at hand. Resistance to alternative solutions from facilities and construction teams is rarely about die-hard opposition, but rather not understanding why that alternative solution makes sense. Communication is essential at every stage of the process. There is also a cost factor here, but costs can sometimes be shifted within a budget. Third, it is very easy to get caught up in material details instead of discussions of what needs to be changed and developed in terms of the core operation. Designing institutional space can never be about asking people what furniture or colors they like and trying to distill a common denominator from such information. Fourth, design and construction projects frequently suffer from outsourcing too much of the "middleware work." Going from large-scale ideas to construction work requires the operation to be involved and work closely together with architects, interior architects, facility managers, and contractors. Often, the operation ends up having limited say and involvement in such processes. Given the lack of articulated visions, there is simply not enough there to empower architects and others to create something that is conceptual and material in a truly meaningful way, as well as grounded in the operation and operational goals.

Any academic space will be affected by many constraints, expectations, and layers of conditioning. However, as Shannon Mattern (2007) points out, reconfiguring space is an important institutional and intellectual opportunity, and it is an opportunity that needs to be taken, requiring leadership and negotiation power. Even if space is never the only factor in academic work, it plays a key role in the articulation of ideas with practices. For instance, a change in space can remind people how important space is to a given institution. Think of the pressure that MOOCs are putting on traditional campus operations, the shift from individual offices to collaborative open-plan workspaces, or the increased interest in maker-spaces and other alternative knowledge making spaces. Possible implementations can vary from small reconfigured rooms and flexible classrooms to open lab environments, display studios, and popup spaces.

For examples of innovative spaces relevant to media studies and digital humanities, con-sider the following: the Critical Making Lab described at the beginning of this chapter; the fairly small but materially and intellectually grounded Transcriptions Center at the University of California, Santa Barbara (Transcriptions Center 2015); or the inflatable and mobile structure, Space Buster, used for a series of artistic and scholarly events in New York City in 2012 (Raumlabor 2015). These are mostly physical examples, which necessarily embed technologies, but there are also digital platforms—such as GitHub, the CUNY Academic Commons, and the HASTAC web platform—that can be central to academic operations. Physical and digital platforms increasingly come together in different ways, including when remote participants are integrated in physical spaces and events through Skype, or when live streamed media and Twitter open up traditional events (Svensson 2016).

Such integration of physical and digital manifestations calls our attention to space and the spatial, just like mapping platforms and locational sensory technologies. Much interest will be practically oriented, but there is also a longstanding critical interest in space and infrastructure that has been renewed under rubrics such as the spatial turn (Warf & Arias

2009), spatial humanities (Bodenhamer, Corrigan, & Harris 2010), and infrastructure studies (Parks & Starosielski 2015). Edward W. Soja describes the spatial turn as a way to creatively and critically balance the temporal and historical imaginations with spatial and geographical imaginations (2009: 12). Michael Dear (2011) points to how geospatial technologies and environmentalism have been important to leverage work at the intersection of geography and the humanities. In digital humanities, geographic technologies such as ArcGIS, Neatline, and HyperCities have played a central role in emphasizing space as a way to structure and interpret digital materials. Some of this work has been critiqued because of its heavy investment in a Cartesian model of space as well as for its focus on (standard) tools rather than critical approaches to space (Hayles 2012; Drucker 2014). Meanwhile, in media studies, there is a renewed interest in infrastructure as an object of study, including work on underwater cables and networks (Starosielski 2015). This line of work is rarely connected to actively making infrastructures or envisioning new ones. However, I suggest that media studies and digital humanities are in a good position to collectively embrace space as a critical and creative category, a position that includes engaging one's own infrastructure and intellectual middleware by critiquing *and* making.

A Fictional Experiment

Imagine that a university decides to merge and co-locate a media studies department with a digital humanities initiative. First, there is a time of turmoil, discussions, and negotiations. An organized protest among media studies departments draws nationwide attention. The main argument is that media studies is being forced to succumb to digital instrumentalism and neoliberalism and that the core of the media studies discipline is being threatened. Contributors to the digital humanities initiative state they are worried they will disappear within the much larger media studies department; they fear media studies will try to turn digital humanities into digital media studies. "They have never built a thing," one leading digital humanist reportedly says.

One of the many subcommittees formed to deal with the merger has been assigned to consider work organization and space, and it soon becomes clear that space is an important matter of negotiation. The professors from media studies emphasize the importance of individual spaces for writing as well as for supervising students. One professor tells the committee that the windowless, shelf-rich office with reading chairs and hundreds of carefully arranged books is necessary to produce rigorous intellectual arguments. While the representatives of the digital humanities initiative—which are housed in an open plan office—also argue that they need individual offices, they strongly point to the need for infrastructure to support technological work and collaboration. At one point, the administrator suggests that new, distributed (and supposedly cheap) technologies make space less important. Although she does not say it, she is thinking of locating the merger in an abandoned basement below a healthcare building slightly off campus.

As it turns out, the university allocates a studio space as well as a set of adjacent offices to the merger. Two faculty members in media studies indicate that they want their primary working space inside the actual studio space, and some digital humanists prefer more closed-off offices. While the top-down administration process make things difficult, the two groups—now merged into one—eventually decide to make the best of the situation, and there are more personal connections than were apparent at first. Furthermore, in an environment more accepting of making and experimenting, some junior media studies faculty start to develop

aspects of their work that were not promoted in their previous setting. One PhD student finds a place to put the wooden models he had been building at home for a research project on the architectural manifestation of the media industry. In a *Minecraft*-like universe, the digital versions of these wooden models become source material for various enactments and algorithmically driven comparisons between types of architecture.

Several digital humanists feel that their work is becoming more integrated in the school and that there is an increased interest in their knowledge domain. "We have always shaped ideas and the scholarship," one digital humanist says, "but now the whole process makes much more sense." A key result is that a new contact zone emerges (Pratt 1991), where members of both communities come together and inflect each other's work and practices. Not everyone is happy about the situation, however, and some people continue to aggressively dismiss it. "I hate the day Silicon Valley came to the department," one senior media scholar exclaims. A few of these detractors leave or retire eventually, and over the long haul a new media studies-digital humanities configuration emerges.

The above fiction is a rather optimistic caricature with limited context, but I use it as a lead-in to discuss space, infrastructure, and intellectual middleware for media studies and digital humanities. One important perspective is that space cannot be interpreted by itself, divorced from institutional politics, epistemic traditions, individual preferences, and intellectual directions. It manifests all of these perspectives at the same time, although it does not determine our work and intellectual directions. A low-performing research team or a dysfunctional teachers' group will not necessarily improve because it gets a new center. New spatial configurations cannot by themselves solve deep organizational or intellectual problems, or guarantee Nobel Prizes. However, if a large number of researchers, students, and teachers have access to a space they like, and if it matches the present and future needs of the operation, then the likelihood of high-quality work, everyday happiness, and new developments increases. There is a growing literature that supports such reasoning and that can be helpful in analyzing, designing, and constructing space (e.g., see Ellsworth 2005; Kirkbride & Mattern 2009; Boys 2011). Another perspective is that space can be used to channel change and ideas. Given a specific institutional, epistemic, and intellectual situation, changing spatial configurations can embody new sets of ideas and possibilities. Such work includes considering the current middleware and how it connects concepts with materials, as well as suggesting new middleware with adapted conceptual and material entanglements. This is a complex process, which has to be locally grounded and simultaneously sensitive to conceptual, material, institutional, and cultural elements.

Implementing Middleware for Digital Humanities and Media Studies

As suggested in the beginning of this chapter, institutional space cannot be disassociated from the fabric of the institutional operation. Imagining such spaces requires conceptual and material thinking in the same process. This is difficult work for a good reason, as the interplay between ideas and material manifestations is complex. It gets even more complex if we consider clustering several epistemic traditions in the same space, although space is likely to play an even more central role in such cases.

Digital humanities is not a stable institutional formation, and the spatial configuration depends on the type of digital humanities envisioned. A more disciplinary model of digital humanities might be housed in a department corridor (fairly rare) or be dispersed across

institutions, while many center-like operations occupy a more communal, open space. There is also a model based on heavy-duty computational work with servers, workstations, and the occasional physical archive located in the space. Yet few digital humanities operations actually manifest themselves strongly through the space and infrastructure. The same is true of media studies, but here the field is more stable, and the academic template—institutional hallways with offices—applies to most media studies operations. There is a type of media studies that is more closely aligned with production and artistic practice; however, this is fairly uncommon and often involves "outsourcing" or compartmentalizing practice (see Kirkbride & Mattern 2009 for an analysis of a terminated building project at the New School).

I suggest that both fields would benefit from a stronger, combined intellectual-material engagement. Media studies has an established intellectual agenda, but arguably needs to be more engaged with the production of technological systems and the analysis of new media platforms. On the topic of media studies, Tara McPherson writes that, "[w]ith a few exceptions, we remain content to comment *about* technology and media, rather than to participate more actively in constructing knowledge in and through our objects of study" (2009: 120). Digital humanities, on the other hand, does not have a strong tradition in extensively commenting and critiquing technology and media, but it has had a much more pronounced interest in making projects and building archives. Andrew Prescott (2012) argues that digital humanities has been driven by a conservative tradition and needs to adopt an intellectual agenda. Meanwhile, digital humanities is frequently associated with lively dialogue, reaching out to communities and providing a space for seriously discussing the humanities, while media studies is often framed as a traditional discipline with limited visible engagement.

When designing space and infrastructure, questions vary from initiative to initiative; but, for the design of institutional spaces for digital humanities and media studies, the following questions are relevant: What is the goal and vision of the initiative, associated research groups, and educational programs? What academic infrastructure can be imagined? What modes of work and collaboration are envisioned? What are the spatial conditions, and how can the articulated vision be enacted given such conditions? How can this vision be described using a language that is neither too abstract nor too material, to connect concepts with materials? What are the financial constraints? What institutional bodies and protocols are relevant to the building process?

Let us assume that a given initiative—after extensive discussion about its direction and vision—concludes there is a common interest in not only challenging and expanding the assumptions built into technology-rich platforms such as 3-D printing, maker labs, THAT Camps, and TED talks, but also doing so through a combination of critical and experimental practice (e.g., redesigning and reimagining platforms). Critical concerns include the valorization of making, the lack of attention to gendered perspectives on making, investments in a realist or positivist epistemology (3-D printing), the ways in which platforms are flat ways of thinking about systems, the presumed (but not actual) lack of hierarchies at events such as THATCamps and unconferences, and the problems with TED talks as a mode of curatorship. At the same time, there is a belief in the potential of these platforms, and the initiative expresses a clear interest in engaging them, contributing to their development, and suggesting alternative modalities.

What would the middleware look like? It could be an apparatus to critique, enact, explore, and imagine platforms. Associated design principles might include the capacity to enact and simulate different types of events and processes (e.g., a TED talk), supporting multiperspective views on platforms, enacting counter platforms (alternative conceptions of what platforms

could be), and reading critically the discourse surrounding platforms in relation to current, past, or imagined examples.

The actual implementation of space will always depend on a long and complex process constrained and enabled by all kinds of factors. It is important not to let constraints and standards control the conceptually grounded vision, while also being sensitive to the institutional, financial, and spatial factors at play. With these constraints, standards, and sensitivities in mind, what kinds of space and infrastructure could respond to the critical platform apparatus described above? For example, it might be useful to analyze a large number of TED talks simultaneously, using displays and tools in a space supporting the visual juxtaposition of talks, live discourse analysis, and thematic clustering algorithms. Furthermore, TED talks could be carried out in the space through a typical TED setup, manifested next to an implementation of an alternative conception (what a TED talk *could* be). At one point, a TED event could be organized around critiquing TED. Similar and different setups could be implemented around other platforms. For instance, one part of the space could be devoted to tracing inflections in different types of platforms, including power hierarchies in THAT Camps, race in maker labs, and environmental thinking in 3-D printing and maker culture. Through a given system of technologies (screens, simulation systems, and visualization engines), any platform can be seen from multiple points of view at the same time and actually tested in a space toward newly adapted or imagined platforms. Other methodologies could include interviews (e.g., structured interviews of THATCamp participants after an event) and mechanisms to foreground platforms or infrastructures that usually "run in the background" (e.g., the web). At the center of the space, a seminar table could serve as a reminder of how our own knowledge traditions and infrastructures are also platforms with their own inflections, structures, and associated practices.

There would seem to be a considerable degree of complementarity between digital humanities and media studies and, perhaps more important, a common direction. There is already overlap; however, it has had limited institutional repercussions and could be much more far-reaching intellectually, materially, and epistemologically. The current volume testifies to the potential of such work. And if representatives for the fields agree that an intellectual-material engagement is important, then there is undoubtedly a conceptual foundation that can be developed. This foundation would not have to include all the work in both fields; rather, it could be a future-oriented inflection. Intriguingly, such an inflection would also directly relate to the complexities operating across the conceptual and material levels discussed. Concepts such as intellectual middleware and related design principles can be used to think about the mapping of institutional visions and space, but they are also central to the subject matter of digital humanities and media studies. This overlap creates interesting opportunities. Could the space enact its own middleware and provide an interpretative knowledge environment? Instead of backgrounding the conditioning and choices made, such choices could be emphasized and made apparent. By including infrastructure that challenges traditional forms of digital representation, the space itself could ask questions about the standardization, history, and embedding of digital and nondigital systems and thinking.

Acknowledgments

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