# **An Art of Orientation: The Possibilities** of Learning Spaces

#### Sean Sturm

If I were to wish for something, I would wish not for wealth or power but for the passion of possibility, for the eye [...] that sees possibility ever.

Kierkegaard 1987, p. 41

Abstract Most research on learning spaces in universities considers the influence that spaces have on learners (Boys 2010; Markus 1993; Temple 2008). As such, it can contribute to the pervasive 'probabilism' of strategic planning in universities that is dominated by 'learning management'. But what about the influence that learners can have on spaces: how spaces can learn from them and they can shape spaces? In this chapter, I traverse a range of concepts of learning spaces in universities, all of which construct different 'solutions' to the 'problem' of how best to construct learning spaces, given the way in which learners relate to the spaces in which they learn. Ultimately, I aim to map critical-creative practices that generate new intensities in, and relations between, bodies, that is to say, new possibilities for learning. From these practices can emerge the contours of a participatory pedagogy that enables teachers and learners to see the university as a place given over to the free play of possibilities, a place of 'possibilism' (Hirschman 2003).

## **Prologue**

To enter a learning space, find our place and go to work as a teacher or learner is to orient ourselves in a network of invisible ties more often than not taken in at once and as a whole, although that network might reconfigure itself more or less subtly in the course of the class. When I imagine myself stepping into a class, it is Deleuze's (1992)

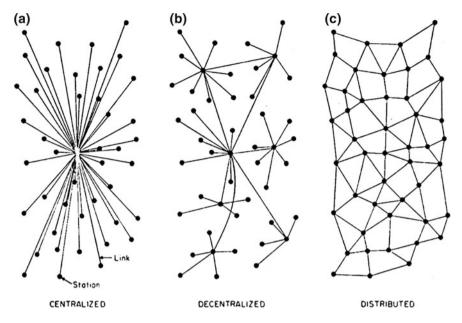


Fig. 1 Networks (Baran 1962, p. 4)

'lines of force' and 'flight' that I see, *Matrix*-like about me. <sup>1</sup> I see the classroom as a *dispositif* (French, 'apparatus'), a matrix in which the learners and I as teacher are nodes, disposed to learn in various ways. <sup>2</sup> (I can also imagine the classroom as a node in the network of spaces that is the university, or myself as a node in a network of learners that extends beyond the classroom.) Paul Baran's (1962) epoch-making diagram of cybernetic networks springs to mind (see Fig. 1).

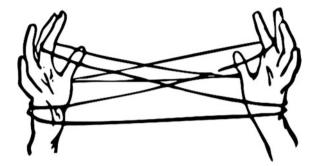
So, is the classroom a centralised network: a string puzzle (see Fig. 2) with us as teachers (or, indeed, our puppeteers) in control?<sup>3</sup> And not fixed, but working towards an end, towards a 'solution' to the puzzle—with the potential, of course, for us to get tangled (or for our hands to be tied)? With the aim, perhaps, to create a

<sup>&</sup>lt;sup>1</sup>In 'What Is a Dispositif?', Deleuze (1992) describes two types of 'line'. The first is the line of 'force', of which there are four kinds: lines of 'visibility' (or 'light'), 'enunciation', 'force' and 'subjectification' (p. 160); they tend to 'stratification or sedimentation', that is, to stability or (re) territorialisation (p. 165). The second is the line of 'flight', of which there are two kinds: lines of 'flight' (or 'escape') and 'fracture' (p. 161); they 'lead ... to the present day or creativity', that is, to change or deterritorialisation (p. 165).

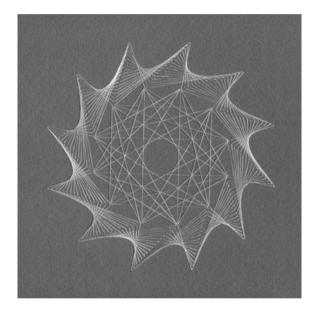
<sup>&</sup>lt;sup>2</sup>Compare Rancière (2006) on the 'distribution [partage] of the sensible'.

<sup>&</sup>lt;sup>3</sup>More formally speaking, as Lim et al. (2012) put it, by default we occupy the 'authoritative space' of the classroom (p. 237), which centres on 'classroom front centre' (CFC). The secondary 'centres' we can occupy include the 'supervision space' ('classroom side' and 'classroom back'), which includes the 'surveillance space' ('classroom back centre'), and, less commonly, the 'interactional space' (what I would call the heart of the classroom, beside and between the students' desks).

Fig. 2 Cat's cradle (Squareman 1916, p. 82)



**Fig. 3** String art (Agota 2007)



symmetrical piece of string art, in other words, a perfectly 'aligned' class (see Fig. 3)?

Or, rather, is the classroom a decentralised network: a harp with us teachers as players? (see Fig. 4). With the aim perhaps to have the harp play itself—or be played by our breath, our words—alone (see Fig. 5)? Or, third, is the classroom a distributed network? If so, it is more like a labyrinth (see Fig. 6). (Who the Minotaur might be, I dare not think.)

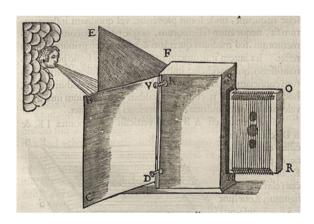
If so, what is the Ariadne's thread that can lead us through this labyrinth? In short, it is the concept of education as *orientation*. I trace this concept to Plato's (1993) vision of education (Greek *paideia*) as 'the art of orientation' (p. 245, 518d).<sup>4</sup>

<sup>&</sup>lt;sup>4</sup>Plato describes education as a spatial transformation, 'the art [of] turning minds around' (*tekhne ... periagoge holes tes psyches*) (see Heidegger 1998, p. 166).

**Fig. 4** Playing the harp (Guillié 1817/1894, pl. 7, opp. p. 121)



**Fig. 5** Aeolian harp (Kircher 1673)



Education is 'orientation': orienting ourselves (as learners)—and/or enabling others to orient themselves (as teachers). To enable learners to orient themselves is to enable them to locate and position themselves in a learning space: to locate themselves relative to the place in which and peoples among whom they find themselves, and to position themselves relative to the discourse of the tradition, and their teachers and fellow learners. (Teachers, of course, have to orient themselves likewise.)

How, then, can we orient ourselves to the landscape of learning spaces?

**Fig. 6** Labyrinth (Maffei 1709, pl. 3)



## **Learning Spaces: Probabilism**

Field theory (Lewin 1936) offers some landmarks that can orient us. It argues that behaviour can be understood as a function of the interaction of the person (the learner) and their environment (the learning space): B = f(P, E). The comma between the two variables suggests that there are multiple ways in which they can interact, in which learners relate to the spaces in which they learn. Here are three, for example, that assume that the learning space conditions learning (Tiesdell and Oc 1993): the space might determine learning (determinism), make it probable (probabilism), or make it possible (possibilism). Taking for granted that learners have at least a degree of agency, if only to allow their learning to be shaped in certain ways, I am most interested in probabilism and possibilism. In what follows, I traverse a range of concepts of learning spaces in universities, all of which construct different solutions to the problem of how learners relate to the spaces in which they learn:

- I. disciplinary space,
- II. creative space,
- III. cybernetic space,
- IV. critical space, and
- V. playful space.

The first two probabilise the university space; the other three possibilise it.

What is probabilism, then? When we think of the university today, it can often seem like anything but a place of possibilities. Instead, it seems like a place where

<sup>&</sup>lt;sup>5</sup>More accurately, in field theory, behaviour can be understood as a function of the life space (LS): B = f(LS), the life space being produced by the interaction of the person (P) and their environment (E): B = f(LS) = f(P, E).

what is probable, or 'prove-able', rules. This is because the probabilism of strategic programming in universities projects demonstrable and measureable objectives and outcomes in the service of outputs'—or rather, of an efficient, and thus manageable, relationship between inputs and outputs. What results from such 'closing the loop' is a teleology of teaching and learning, according to which everything must be seen as if in hindsight, as is the case with strategic planning (strategic objectives and KPIs), constructive alignment (learning outcomes and graduate profiles), and even research management and academic writing ('tell me what you're going to do/say; do/say it; tell me what you have done/said'). The probabilistic university thus turns out to be a 'future anterior' world, a world of "(always already) will have been" (Derrida 1997, p. 5).

The first two concepts of learning spaces, the disciplinary and the creative, are probabilist. They assume that learning spaces shape—and thus probabilise—teaching and learning ... and, in turn, learners.

## I. Disciplinary space

The disciplinary concept of learning spaces, as the name suggests, principally draws on Michel Foucault's *Discipline and Punish* (1977), best known for its analysis of Bentham's Panopticon as a model of power acting through visibility, of "a certain concerted distribution of bodies, surfaces, lights, gazes, in an arrangement whose internal mechanisms produce the relation in which individuals are caught up" (p. 202).

The concept is taken up by Thomas Markus, the leading exponent of this school of thinking, in *Buildings and Power* (1993).<sup>6</sup> Elsewhere, he defines disciplinary space as serving explicit and implicit classificatory functions:

There is no building type in which a division of people, objects, and machines, and their spaces, into classes and categories, as the first step towards their organised and purposeful interface, is not of primary importance. (Markus 1987, p. 468)

Buildings thus function through their form, function and space to classify: "to define and reproduce social structures, and to elaborate the meanings of relationships" (p. 468). In *Buildings and Power*, Markus gives as an example of a learning space the modern lecture theatre, which he sees as an outgrowth of the anatomy theatre (see Fig. 7), with its design based on the classical amphitheatre. He defines lecture spaces by their relationship to other spaces (they are set apart); their means of access for 'performers' and audience (they offer a separate entrance for each); and their layout, which defines the relationships between performers and audience (they separate the two, centring the space on the performers) (1993, p. 240). He argues that they are designed to reveal "a small fragment of a corpus [!] of knowledge at a time, a corpus to which the performer has access. And the fragment is presented as a dramatic spectacle" (p. 229). The lecture space *as space* thus dramatises, and thereby bodies forth, the invisible power/knowledge relationships

<sup>&</sup>lt;sup>6</sup>For a more recent example of the disciplinary concept of learning spaces, see Spencer (2016, pp. 128–137) on neoliberal architecture in education.

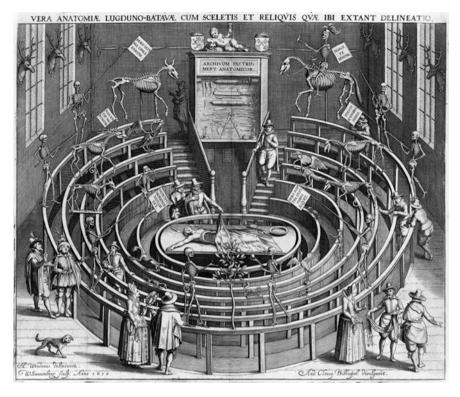


Fig. 7 Anatomy theatre at Leiden University, early seventeenth century (Swanenburgh c. 1610)

that define the discipline. Whereas the teacher talks and demonstrates their learning from the stage, the learner listens—and ideally learns.

The disciplinary concept of learning spaces dominates their design in universities, whatever the default learning space in a particular university might be (in mine, for example, it is still the raked lecture theatre). It encourages university planners like architects and administrators to solve the problem of how best to construct learning spaces by designing them to engineer certain learning experiences, for example, by setting up flexible informal spaces to allow for social or personalised learning (Boys [2009] calls this 'beanbag' design.) But although the design of spaces can constrain teaching and learning (teachers at my university, for example, tend to assume that groupwork is difficult in our raked lecture theatres because of the fixed, tiered seating), the empirical research on learning spaces would suggest that *where* we learn has only minimal impact on *what* we learn (Temple 2008). All that matters is that the temperature, humidity, noise level and lighting of a space are such that learning is not impeded (Temple 2007).

<sup>&</sup>lt;sup>7</sup>The empirical research on learning spaces mostly focusses on the compulsory education sector; for example, see Tanner (2000) and Higgins et al. (2005).

## II. Creative space

Nonetheless, the creative concept of learning spaces aims to change how we conceive of spaces by alerting us to a different way to understand space. It is taken up by Jos Boys in *Towards Creative Learning Spaces* (2010; see Boddington and Boys 2011; Boys 2014). She uses "art, design and media education ... as the paradigm for new"—or, rather, *better*—'types of learning" (Boys 2010, p. 8) because these disciplines explore creativity, learning by doing, and a range of non-traditional learning spaces, including "vocational, academic, community-oriented, practice-based and professional spaces" (p. 9). She thus focusses on the spatial practices of these disciplines, not on the spaces in which they are practised:

this means shifting from viewing (physical or virtual) space as a container or setting for learning activities where the hope is that 'changing the scenery' will affect behaviour. Instead, in line with much contemporary architectural thinking, space and its occupation are interrogated through their dynamic intersection as social and spatial practices. Space is not a thing but a process. (Boys 2009, p. 18)

Thinking about space as a process, or 'spacing' (Beyes and Steyeart 2011, after Derrida 1981), moves beyond the concept of disciplinary space ('changing the scenery') to expand what counts as a learning space to include all the aspects of Lefebvre's (1991, p. 39) triad of conceived, perceived and lived spaces ('representational spaces' like the idea of a city, 'representations of space' like maps, and 'spatial practices' like walking a route, respectively). To this end, Boys wants us to focus on the non-verbal and embodied aspects of teaching and learning encounters, especially those that signal 'stuck places' (Ellsworth 1997, p. 71) in learning. However, the creative concept of learning spaces is still probabilist because it assumes that we need to re-design the learning space—or the spacing of learning—to make certain learning experiences more probable. This brings me to the question: What would a *possibilistic* understanding of learning spaces look like?

## **Learning Spaces: Possibilism**

One version of possibilism was developed by Albert Hirschman to analyse and realise social change. Possibilism is

an approach to the social world that would stress the unique rather than the general, the unexpected rather than the expected, and the possible rather than the probable ... to widen the limits of what is or is perceived to be possible, be it at the cost of lowering our ability, real or imaginary, to discern the probable. (2003, p. 22)

<sup>&</sup>lt;sup>8</sup>For 'stuck places' in education, see Lather (1998), and Meyer and Land (2005).

In other words, it furthers "the discovery of paths, however narrow, leading to an outcome that appears to be foreclosed on the basis of probabilistic reasoning alone" (Hirschman 1992, p. 173). It works through three main 'devices', or heuristics:

- seeing obstacles or constraints as productive;
- changing beliefs, attitudes and values through actions (rather than vice versa); or
- exploiting the unintended consequences of actions (Hirschman 2003, pp. 23–25).

Such heuristics can help us to resist probabilism in universities from within—and open up learning spaces to possibilities. In line with Hirschman's three heuristics, we might

- use the open space at the front of the lecture theatre for participatory activities (for example, sociograms, where students role-play social or environmental phenomena or vote with their feet on issues, or carousels, where students move around a range of learning stations brainstorming topics);
- have students sit down in university thoroughfares and draw the patterns of movement through them to explore their sense of what is appropriate behaviour in a certain space (which kind of psychogeography<sup>10</sup> can elicit the 'lines of force' and 'flight' in a space [Deleuze 1992, pp. 160–161]); or
- explore the response of university security personnel and other administrators to
  the drawing activity, for example, as indicative of the role not only of spatial
  design, but also of surveillance and risk management, in the administration of
  universities (which occupation reveals for real how the disciplinary concept of
  learning spaces dominates spatial design in universities).

All three examples come from my teaching; I will return to their conceptual possibilities.

The other three concepts of learning spaces, the cybernetic, the critical and the playful, are possibilist. They assume that learners can influence learning spaces: that spaces can learn from them and they can shape spaces. (Interestingly, field theory moved in this direction, arguing that the environment, or learning space, should be understood as a function of the behaviour of the persons, or learners, in it: E = f(P, B) [Schneider 1987]).

<sup>&</sup>lt;sup>9</sup>Hirschman's possibilism has much in common with Deleuze's 'counteractualization' (see Deleuze 1990, pp. 150–152), sometimes translated as 'vice-diction' (see Deleuze 1994, pp. 189–191). Counteractualization is 'the process whereby one identifies and engages the virtual events immanent within one's present world, whereby one "counter-actualizes" the virtual' (Bogue 2007, p. 9), the virtual consisting in possibilities that continue to exist even once actualised.

<sup>&</sup>lt;sup>10</sup>Psychogeography was defined by the founder of the Situationist International, Guy Debord, as 'the study of the precise laws and specific effects of the geographical environment, consciously organized or not, on the emotions and behavior of individuals' (Debord 2006, p. 5). The classic psychogeographical procedure was the *dérive* (French, 'drift'), a more or less random walk through an urban space, by means of which an individual 'drop[s] their usual motives for movement and action, their relations, their work and leisure activities, and let[s] themselves be drawn by the attractions of the terrain and the encounters they find there' (p. 50).

## III. Cybernetic space

The cybernetic concept of learning spaces assumes that learning spaces respond to learners such that spaces can 'learn'. The concept of buildings learning was popularised by Stewart Brand in *How Buildings Learn* (1994). He argues that

The word 'building' contains [a] double reality. It means both 'the action of the verb BUILD' and 'that which is built'—both verb and noun, both the action and the result. Whereas 'architecture' may strive to be permanent, a 'building' is always building and rebuilding. (p. 2)

In short, "[f]irst we shape our buildings, then they shape us, then we shape them again—ad infinitum" (p. 3). The same is true of learning spaces. They continually make themselves over in a process of un-making and remaking, or 'deterritorialization' and 'reterritorialisation' (Deleuze and Guattari 1977). As "[a] building 'learns' only through people learning" (Brand 1994, p. 189), so too does a learning space: occupancy, or better, 'occupation' (Colebrook 2015), is the key. Recall the drawing in thoroughfares exercise from above: as the students will learn by occupying a space about what is appropriate behaviour in certain spaces and why, so the space will 'learn' through the security response about what behaviour is probable and not probable in the space (because some places will prove themselves to be for walking, others for sitting; some for learning, others for socialising). As a result, it will no doubt become more 'efficient' in its security response.

The critical and playful concepts of learning spaces offer us a glimpse of a further possibility: that learners can and do shape learning spaces. It is to them that I now turn.

#### IV. Critical space

The critical concept of learning spaces aims to change learners' relationship with the learning space in two ways: to put it plainly, learners must free their mind and their body will follow (critical pedagogy), or they must free their body and their mind will follow (critical theory). Thus far, neither way has turned out as well as it might have.

Critical pedagogy, as Morgan (2000, p. 273) argues, "has been rich in spatial references and metaphors" like borders, margins; in- and outsider knowledge; dominance and subalternity; and, latterly, intersectionality (Collins 1990) and the undercommons (Harney and Moten 2013). But little has been written about how critical pedagogy plays out 'in' space, including learning spaces, in part because the pedagogy of critical pedagogy is nearly always conceptual and dialogic in nature (see Hooks 2014)—which can be problematic for those without access to such a conversation by dint of their positionality (Ellsworth 1989). Ellsworth does advocate classroom practices that facilitate 'moving about', a critical mobility that entails "multiplying and making more complex the subject positions possible, visible, and legitimate at any given historical moment" (p. 322, after Minh-ha 1986, p. 9). But this mobility is of the mind, not the body—except, it might be said,

insofar as positionality is bodily determined. (In Lefebvre's [1991, p. 39] terms, critical mobility mainly occupies a 'representational space', although it might have effects in 'lived space'.)

Critical theory in the Deleuzoguattarian tradition has brought us back to the body, however, back to the learning space as space—though not always without missteps. For example, a naïve Deleuzoguattarian pedagogy would have us simply affirm deterritorialization in the name of desire, of the 'Body without Organs' (Deleuze and Guattari 1977), that takes the form of experimentation and intensification that works against the status quo of the organisation—the flipside of the kind of corporatising 'disruptive' practices that fixate higher educationalists today (Christensen and Eyring 2011). But to what end—simply to disrupt learning spaces? A more circumspect Deleuzian 'pedagogy of affect' (Albrecht-Crane and Slack 2003) that maps bodily 'intra-action' (Barad 2007, p. 33) in space offers a way forward and points us towards a fifth concept of space: playful space.

## V. Playful space

A pedagogy of affect could play with the generation of new intensities in, and relations between, bodies, that is, the generation of new modes of intra-action. Such intra-action orients us in space, virtual and actual; it serves as the basis of education (Greek paideia) as "the art of orientation" (Plato 1993, p. 245). In such a pedagogy, our role as teachers is to enable learners to orient themselves in a learning space: to locate themselves relative to the place in which and peoples among whom they find themselves, and to position themselves relative to the discourse of the tradition, and their teachers and fellow learners. 11 To understand how learners orient themselves in a learning space, I draw on Deleuze on Spinoza (1988). He suggests that we can map bodies of any sort, like learners, in terms of their 'longitude' (E-W) and 'latitude' (N-S): "the set of relations of speed and slowness, of motion and rest, between particles that compose [a body]" and "the set of affects that occupy a body at each moment" (Deleuze 1988, p. 127), respectively. 12 Teachers can enable learners to orient themselves in a learning space by cultivating new relations and intensities, or new possibilities, for example, by valuing 'just talking'—in seminar rooms, corridors or cafés—in the learning space of a university that is dominated by probabilistic discourse like research and learning management (in this case, the novelty lies not in innovation but in renovation, but it is no less 'new' for that).

More broadly speaking, the playful concept of learning spaces is oriented to critical-creative practices. To this end, we can explore a range of 'playful' tactics already in play in the university like invention, idleness and sharing ... and just talking and walking, as Harney and Moten rightly say (Shukaitis 2012). But such tactics also echo the techniques of "ontological reframing (to produce the ground of possibility), rereading (to uncover or excavate the possible), and creativity (to

<sup>&</sup>lt;sup>11</sup>Compare Kant (1991) and Deleuze (1995, pp. 147-149) on learning as orientation in thought.

<sup>&</sup>lt;sup>12</sup>For the semiotics of the mapping of bodies, see Deleuze (1997).

generate actual possibilities where none formerly existed)" (Gibson-Graham 2006, p. xxx) that inform J. K. Gibson-Graham's 'politics of possibility' (p. xiv). For ontological reframing, we might embrace psychogeography; for rereading, mapping; for creativity, games. Through such serious play (*spoudaiôs paidia*), we can attend to practices in the university as models for worlds and ways of being other than 'probable' ones; we can generate 'possibility spaces' (Delanda 2014) that we can collectively explore as teachers and learners. In this way, the university can become a place that allows for the free play of possibilities, a place where it is possible to "see possibility ever" (Kierkegaard 1987, p. 41).

## References

- Agota, L. (2007). Stringart: Geometrical pattern embroidered on cardboard. *Wikimedia commons*. http://upload.wikimedia.org/wikipedia/commons/4/4f/Fonalgrafika\_pap%C3%ADrkartonra\_h %C3%ADmzett\_grafikai\_minta\_2.jpg. Accessed May 12, 2017.
- Albrecht-Crane, C., & Slack, J. D. (2003). Towards a pedagogy of affect. In J. D. Slack (Ed.), *Animations (of Deleuze and Guattari)* (pp. 191–216). New York: Peter Lang.
- Barad, K. (2007). Meeting the universe halfway: Quantum physics and the entanglement of meaning. Durham: Duke University Press.
- Baran, P. (1962). *On distributed communications networks*. Santa Monica: RAND Corporation. http://www.rand.org/pubs/papers/P2626.html. Accessed May 12, 2017.
- Beyes, T., & Steyeart, C. (2011). Spacing organization: Non-representational theory and performing organizational space. *Organization*, 19(1), 45–61.
- Boddington, A., & Boys, J. (2011). Reshaping learning: An introduction. *Reshaping learning:* A critical reader. Rotterdam: Sense.
- Bogue, R. (2007). *Deleuze's way: Essays in transverse ethics and aesthetics*. London: Ashgate. Boys, J. (2009). Beyond the beanbag? Towards new ways of thinking about learning spaces.
- Networks, 8, 16–19. http://www.adm.heacademy.ac.uk/resources/features/beyond-the-beanbag-towards-new-ways-of-thinking-about-learning-spaces. Accessed May 12, 2017.
- Boys, J. (2010). Towards creative learning spaces: Re-thinking the architecture of post-compulsory education. London: Routledge.
- Boys, J. (2014). Building better universities: Strategies, spaces, technologies. London: Routledge. Brand, S. (1994). How buildings learn: What happens after they're built. New York, NY: Viking. Christensen, C. M., & Eyring, H. J. (2011). The innovative university: Changing the DNA of higher education from the inside out. San Francisco: Jossey-Bass.
- Colebrook, C. (2015). Resistance to occupy [sic]. In A. Conio (Ed.), *Occupy: A people yet to come* (pp. 125–157). London: Open Humanities Press.
- Collins, P. H. (1990). Black feminist thought: Knowledge, consciousness, and the politics of empowerment. Boston: Unwin Hyman.
- Debord, G. (2006). Introduction to a critique of urban geography. In K. Knabb (Ed. & Trans.), *Situationist international anthology* (pp. 8–12). Berkeley: Bureau of Public Secrets.
- Delanda, M. (2014). Possibility spaces: Manual Delanda in conversation with Christoph Cox. In C. Cox, J. Joskey, & S. Malik (Eds.), *Realism, materialism, art* (pp. 87–96). Berlin: Sternberg Press.
- Deleuze, G. (1988). Spinoza: Practical philosophy (R. Hurley, Trans.). San Francisco: City Lights. Deleuze, G. (1990). In C. V. Boundas (Ed.), The logic of sense (M. Lester & C. Stivale, Trans.). New York: Continuum Press.
- Deleuze, G. (1992). What is a dispositif? In T. J. Armstrong (Ed.), *Michel Foucault: Philosopher* (pp. 159–168). Hemel Hempstead: Harvester Wheatsheaf.

- Deleuze, G. (1994). *Difference and repetition* (P. Patton, Trans.). New York: Columbia University Press.
- Deleuze, G. (1995). *Negotiations*, 1972–1990 (M. Joughin, Trans.). New York: Columbia University Press.
- Deleuze, G. (1997). Spinoza and the three 'Ethics'. *Gilles Deleuze: Essays, critical and clinical* (pp. 138–151). Minneapolis: University of Minnesota Press.
- Deleuze, G., & Guattari, F. (1977). Anti-Oedipus: Capitalism and schizophrenia (M. Seem et al., Trans.). New York: Viking.
- Derrida, J. (1981). Positions (A. Bass, Trans.). London: Athlone Press.
- Derrida, J. (1997). Of grammatology (G. C. Spivak, Trans.). Baltimore: Johns Hopkins University Press.
- Ellsworth, E. (1989). Why doesn't this feel empowering? Working through the repressive myths of critical pedagogy. *Harvard Educational Review*, 59(3), 297–325.
- Ellsworth, E. (1997). Teaching positions: Difference, pedagogy, and the power of address. New York: Teachers College Press.
- Foucault, M. (1977). Discipline & punish: The birth of the prison (A. Sheridan, Trans.). New York: Vintage Books.
- Gibson-Graham, J. K. (2006). A postcapitalist politics. Minneapolis: University of Minnesota Press.
- Guillié, S. (1894). Essay on the instruction and amusements of the blind. London: Sampson Low, Marston and Co. http://openlibrary.org/books/OL20618937M/An\_Essay\_on\_the\_Instruction\_ and\_Amusements\_of\_the\_Blind. Accessed May 12, 2017.
- Harney, S., & Moten, F. (2013). The undercommons: Fugitive planning and black study. Brooklyn: Autonomedia.
- Heidegger, M. (1998). In W. McNeill (Ed.), *Pathmarks*. Cambridge: Cambridge University Press.
   Higgins, S., Hall, E., Wall, K., Woolner, P., & McCaughey, C. (2005). *The impact of school environments: A literature review*. London: Design Council.
- Hirschman, A. O. (1992). In defense of possibilism. *Rival views of market society and other recent essays* (pp. 171–175). New York: Viking.
- Hirschman, A. O. (2003). Political economics and possibilism. In J. Edelman (Ed.), *The essential Hirschman* (pp. 1–34). Princeton: Princeton University Press.
- Hooks, B. (2014). Teaching to transgress. New York: Routledge.
- Kant, I. (1991). What is orientation in thinking? In H. Reiss (Ed.), *Kant's political writings* (2nd ed., pp. 237–249). Cambridge: Cambridge University Press.
- Kierkegaard, S. (1987). In H. V. Hong & E. H. Hong (Eds.), *Either/or* (Vol. 1). Princeton: Princeton University Press.
- Kircher, A. (1673). *Phonurgia nova*. Kempten: Rudolph Dreherr. *Wikimedia commons*. http://commons.wikimedia.org/wiki/File%3AFotothek\_df\_tg\_0008349\_Akustik\_%5E\_Schall\_%5E\_Harfe\_%5E\_Aeolsharfe\_%5E\_Windharfe\_%5E\_Musikinstrument\_%5E\_Saiteninst.jpg. Accessed May 12, 2017.
- Lather, P. (1998). Critical pedagogy and its complicities: A praxis of stuck places. *Educational Theory*, 48(4), 487–497.
- Lefebvre, H. (1991). *The production of space* (D. Nicholson-Smith, Trans.). Oxford: Blackwell. Lewin, K. (1936). *Principles of topological psychology*. New York: McGraw-Hill.
- Lim, F. V., O'Halloran, K. L., & Podlasov, A. (2012). Spatial pedagogy: Mapping meanings in the use of classroom space. *Cambridge Journal of Education*, 42(2), 235–251.
- Maffei, P. A. (1707–1709). The Minotaur. *Le Gemme Antiche Figurate* (Vols. 1–4). Rome: Domenico de' Rossi. *Wikimedia commons*. http://commons.wikimedia.org/wiki/File: Minotaurus.gif. Accessed May 12, 2017.
- Markus, T. (1987). Buildings as classifying devices. Environment and Planning B: Planning and Design, 14(4), 467–484.
- Markus, T. (1993). Buildings and power: Freedom and control in the origin of modern building types. London: Routledge.

Meyer, J. H., & Land, R. (2005). Threshold concepts and troublesome knowledge (2): Epistemological considerations and a conceptual framework for teaching and learning. *Higher Education*, 49(3), 373–388.

- Minh-ha, T. (1986). Introduction. Discourse, 8, 3-10.
- Morgan, J. (2000). Critical pedagogy: The spaces that make the difference. *Pedagogy, Culture and Society*, 8(3), 273–289.
- Plato. (1993). Republic (R. Waterfield, Trans.). Oxford: Oxford University Press.
- Rancière, J. (2006). The politics of aesthetics: The distribution of the sensible (G. Rockhill, Trans.). New York: Continuum.
- Schneider, B. (1987). The people make the place. Personnel Psychology, 40(3), 437–453.
- Shukaitis, S. (2012). Studying through the undercommons: Stefano Harney and Fred Moten interviewed by Stevphen Shukaitis. Class War University [blog]. http://classwaru.org/2012/11/ 12/studying-through-the-undercommons-stefano-harney-fred-moten-interviewed-by-stevphen-shukaitis/ Accessed May 12, 2017.
- Spencer, D. (2016). The architecture of neoliberalism: How contemporary architecture became an instrument of control and compliance. London: Bloomsbury Academic.
- Squareman, C. (1916). Cat's cradle. Wikimedia commons. http://upload.wikimedia.org/wikipedia/commons/d/de/Cats-cradle.svg. Accessed May 12, 2017.
- Swanenburgh, W. (c. 1610). The anatomical theatre in Leiden. Wikimedia commons. https://commons.wikimedia.org/wiki/File:Anatomical\_theatre\_Leiden.jpg. Accessed May 12, 2017.
- Tanner, C. K. (2000). The influence of school architecture on academic achievement. *Journal of Educational Administration*, 38(4), 309–330.
- Temple, P. (2007). Learning spaces for the 21st century. The Higher Education Academy. http://www.heacademy.ac.uk/projects/detail/litreview/lr\_2007\_temple. Accessed May 12, 2017.
- Temple, P. (2008). Learning spaces in higher education: An under-researched topic. *London Review of Education*, 6(3), 229–241.
- Tiesdell, S., & Oc, T. (1993). Architecture and people. In B. Farmer & H. Louw (Eds.), *Companion to contemporary architectural thought* (pp. 44–50). London: Routledge.