

# Education, Design and Practice – Understanding skills in a Complex World

AMPS, Architecture MPS; Stevens Institute of Technology  
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## THE MEANING IN SEEING: VISUAL SUSTAINABILITY IN THE BUILT ENVIRONMENT

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### INTRODUCTION

This paper is the meaning in seeing and is based on the concept of visual sustainability. It is divided into three parts. Firstly, the key concept; followed by uncertainties and ambiguities around urban visual meaning; and lastly, a declaration of visual meaning. This paper is therefore an assemblage of ideas around those three main themes and will make the argument about the significance of a concept such as visual sustainability; not only in a pedagogical sense but also in what the underlying philosophy means for our understanding of the skills needed in educating future generations. Throughout this paper, the concept of visual meaning in our urban is considered an extension of the argument for meaning in education, because we reflect a basic human condition: that we all intuitively understand the creativity involved in thinking to make and making to think. We are all epistemically grounded through shared knowledge, exchange of ideas, and participation in a crossover embracing theoretical, philosophical, empirical and practical or heuristic knowledge.

### The key concept

In introducing the key concept of this paper, we can start with a question. And it's based on Searle's theory <sup>1</sup> that a piece of paper is transformed into money by a simple status function declaration. The question is: how do we compare the transaction of an intangible service or product, with how we experience our urban? If one thinks about it, that piece of paper with some ink on it represents something intangible; it is transacted for something intangible; and the construct which has been exchanged, is instantly consumed in an intangible process. So, in our urban, isn't there something similar to be said for how we transact and consume surrounding visual elements? Because, isn't one transaction every bit as real as the other? The transactions where we consume visual elements are, as far as one can tell, every bit as real as the transactions where we consume intangible services. And is this not equally true for education? Education consists of transactions and is, it can be argued, in the first instance deeply rooted in the visual world.

# Education, Design and Practice – Understanding skills in a Complex World

AMPS, Architecture MPS; Stevens Institute of Technology  
New Jersey / New York: 17-19 June 2019

The main idea in this paper then is that, whether we like it or not, just like money our visual world is made up of transactions. It can be argued that the sooner we realise the practicality of this, the sooner our designs will align better, not only with the construction industry and the business world, but with underlying theory too. And being made up of transactions, in a way of course that's exactly what we do; through linkage, orienting, and more. And the currency we use is meaning. Meaning affects education and practice in different ways. What is of particular interest to this study is the idea of locating these transactions of meaning and wrapping them up in a concept called visual sustainability. From this vantage point it can thus be argued that education and practice can coexist unambiguously.

## VISUAL UNCERTAINTIES

As is the nature of life, there are always obstacles to the way we see things. In a world of visual ambiguity, we are often caught up in the unfamiliar or unrecognisable or alienating (Salingaros et al.). There is thus a need for visual meaning to play a more influential role in education and modern-day sustainability. We need to discover more about how and why we latch on to the visual elements around us, what exactly we latch on to, and for how long. Some people think we use memory. In 'The Art of Seeing', an interview with artist David Hockney, he describes how we always see with memory. And because each person's memory is a bit different, we can't be looking at the same things, he notes.<sup>2</sup> What's striking about one artist's intuition, is this idea then of how these days especially, life seems to be more about the things that we don't see. We don't or can't see uncertainty; linkage; orienting; or memory. What we see is the result of an interaction, explained through Kelley's analysis of perception of causality.<sup>3</sup>

But for the main message of this presentation we're going to hook in with Lefebvre's concept of the invisible needs<sup>4</sup> around us. And the argument will be that these are contained in structures of networks, assemblage, and conditions of satisfaction. In thinking about how important these structures are for seeing, we can think also of how much of the urban we're really absent from. And not just because architects are only involved in about 10% of all construction according to Cuthbert,<sup>5</sup> but isn't it also because we've stopped knowing how to see things; that we're missing out on the opportunities that may be available to us in education as well as practice?

## Conceptual relationships

In this first section we'll look at a number of conceptual relationships, at crossroads of uncertainty. For Wittgenstein, perception contains thought. And thought contains perception. We also follow the logic of De Landa, where we see how it's possible for condition states to exist. That when analysed by a concept of dials or levers can produce qualitatively different phases in urban phenomenon.<sup>6</sup> So, using this technique, we can understand more of the things and events that we can't see. By gradations of evidence. For example, between perception and thought. Or visual elements and meaning. Or in the durability of visual meaning over time. This holds equally true for education. In the difference between learning in different condition states, for example, in a state of increased awareness.

In this regard we can turn to the mechanics of sight and the prefrontal cortex. That non-autopoietic or non-self-regulating 10% devoted to attentiveness that Stafford talks about,<sup>7</sup> and which operates within the larger orbit of perception's five senses. Visuals and non-visuals are a mixed bag. Creatively different. But aren't we all equally capable of extracting information from the surrounding invisible urban interactions? So right at the beginning, before we even put our design cap on, we should be thinking of these invisible interactions because there is arguably already plenty of design out there - working

# Education, Design and Practice – Understanding skills in a Complex World

AMPS, Architecture MPS; Stevens Institute of Technology  
New Jersey / New York: 17-19 June 2019

away behind the scene. And it can be argued that sometimes what we don't need is more design, especially contrived, but only to use what exists. And in doing so we create what is arguably a far richer meaning; one that is deeply embedded within the surrounding context. Is this not ultimately the point of education?

Barbara Stafford talks about a pedagogy of voluntary attentiveness.<sup>8</sup> The long conscious look. Of slowness, that is so important in education. Stafford's thought process can be reconciled with Wittgenstein, in understanding how slow looking contains slow thinking. Which helps us pay attention to the surrounding invisible interactions in the classroom and outside it. Because in many ways our urban is the most influential teacher of us all.

Conceptual relationships that exist as mental roadblocks or states of ambiguity prevent us from paying attention to and seeing more of our urban. This is also true of another uncertainty we encounter in the urban which is in how visual difference contrasts with visual indifference. And compounding the problem is rapid urbanisation and rapid isolation. Salingaros points out how if the information we seek in our urban is not there, it drives us to leave.<sup>9</sup> But it is not only the physical rejection, but also the toll of psychological and health effects. Think here of the worldwide phenomenon of mass relocation; 'cutting-and-pasting' memory and meaning at the scale of entire city populations.

The difficulties we face are compounded by predictions, not only that by 2050 over 75% of the world's population will be urbanised,<sup>10</sup> but by 2033 in England some 20 percent will be living alone.<sup>11</sup> And if the trend of alienation remains largely unchecked it will compromise social integrity, by biasing the correlation that arguably exists between visual meaning and conditions of alienation. Which of course is unsustainable.

Then there is fractal-like assemblage in our urban. In Figure 1 we can get a sense of sustainability of networks, assemblage, conditions of satisfaction, and collective intentionality. As well as of power law behaviour through fractal-like self-similarity, that we so admire in nature.



*Figure 1. Fractal-like assemblage*

*(Top LHS: Image © by C. R. Parsons, Parsons & Atwater, New York, No known restrictions on publication;<sup>12</sup> Top RHS: Image © Fleming Woelfell 3D Imaging).<sup>13</sup>*

But at another crossroad of uncertainty, where abstraction meets distraction (a concept used by Stafford) here, seductive architecture aside, it is difficult to see in what sense invisible needs are being met (Figure 2). This too is unsustainable. Because have we not ourselves become a little more invisible? The pedagogical relevance of invisibility is a discussion that can be held beyond the remit of this short paper.

# Education, Design and Practice – Understanding skills in a Complex World

AMPS, Architecture MPS; Stevens Institute of Technology  
New Jersey / New York: 17-19 June 2019



673 Broad Street  
Newark, N.J. 2016

673 Broad Street  
Newark, N.J. 1993

*Figure 2. Have we not ourselves become a little more invisible?  
Images © Camilo J Vergara).<sup>14</sup>*

Turning now to modern-day sustainability (which in itself is a form of ongoing education) we can see how sustainability is measured in ambiguous ways.<sup>15</sup> Not only are Sustainability Indicators (SIs) are difficult to understand but modern-day sustainability has been unable to stop social destruction through the isolating effects of large-scale modern developments. If one looks at the related Sustainable Development Goals (SDGs)<sup>16</sup> it becomes clear how difficult it is to extract out any sense of visual meaning. Or of the existence of a concept of visual sustainability. What then is driving this absence, and our ability to change?

Technology certainly helps us change. But it's not driving the absence. An iPad helps Hockney explore, but tech is not the glue. That instead we need to reset the conversation. From sustainability driven by itself to sustainability driven by pedagogy. At a crossroad where process meets place one can ask, what is the primary container of meaning? The environment, or the object in the environment? The most popular street on Instagram gives us a clue.<sup>17</sup> Where objects in an environment celebrate relational difference. A timely reminder again of Salinger's: that we should be looking forward to a society that abandons architecture as a cult and replaces it with architecture as a field based on logical reflection.<sup>18</sup>

## **DECLARATION OF MEANING**

Having looked at a number of conceptual relationships around uncertainty let's turn now to a declaration of meaning and some transactions that may be pedagogically important. The idea that our visual world is made up of transactions is a useful one. That there is a sense of some form of social contract implied; creating a visually sustainable environment in return for an investment that only people can make. Visual sustainability then meant simply. Which we can describe as the process by which people are sustained and enriched in daily life through the visual relationship they hold dear to their surroundings. And it's all about context.

The context then of a declaration of meaning in this study, is in how visuals and non-visuals evaluate and structure our cities. But here's an important distinction. Farmers don't grow wheat; they create the conditions for wheat to grow.<sup>19</sup> It is the same for education, which provides the conditions for minds to grow.<sup>20</sup> This should be no different for professionals. That is the way we should be oriented in our urban. The importance of this cannot be overstated; in that we don't create cities, we create the conditions for people to thrive. The conditions to thrive create great cities. And these conditions, evident in great cities, can be found, it is argued, in visual sustainability. Satisfy the process by which people

# Education, Design and Practice – Understanding skills in a Complex World

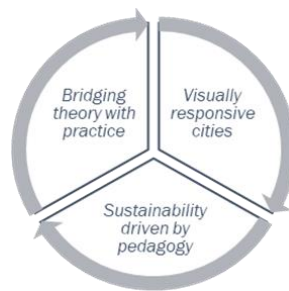
AMPS, Architecture MPS; Stevens Institute of Technology  
New Jersey / New York: 17-19 June 2019

are sustained and enriched in daily life through the visual relationship held dear, and we satisfy these conditions. So, what are these conditions?

## A spectrum of meaning

The argument is that these conditions, while themselves the result of non-linear and unpredictable interactions, are revealed in urban phenomenon that appear to us to exist as a linear process; along a spectrum of meaning. This spectrum enables visuals and non-visuals to adopt a strategy of relational meaning, by creatively, according to Gibson, finding opportunity in objects and processes that were not part of the original intention.<sup>21</sup> So that people can locate concepts and understand where they are in a particular process. The 'how' is important to enable young professionals to embrace the building industry in a network of meaning.

The how it is argued, can ironically be found in philosophy, not technology. In the glue advocated by Searle,<sup>22</sup> which holds both visible and invisible together; bypassing ambiguity in both education and professional practice. So then just as with the science of money, we can look forward towards a science of the urban, where we transact with visual meaning. And that meaning is fundamental to pedagogical relevance.



*Figure 3. An iterative process of continuous improvement in visual sustainability. Resetting priorities: replacing sustainability driven by sustainability, with sustainability driven by pedagogy (Image © Author, 2019).*

## Transacting meaning through assemblages

Moving on to some transactions of meaning in assemblages, we see numerous examples in everyday life of epistemic objectivity of ontologically subjective conditions.<sup>23</sup> Money, the menu and those sorts of things. Architecture for example is not the centre of the universe, but instead plays a supporting, yet invaluable role in the magic of emergent urban conditions. We can talk about Searle's conditions of satisfaction as one example. That it shouldn't be enough just to say that it's raining. It should be raining. Now this may seem obvious but how evident is it in much of the urban and as well as in our education? It shouldn't be enough for a street lined with buildings to say, 'I'm a street that means something to you because I have objects called buildings.' But that the conditions of satisfaction include that the street actually has meaning and value. Where we make something the case: 'I'm a street that is relevant to you, with memory and meaning'; or 'I'm a street by which you are sustained and enriched in daily life through the visual relationship you hold dear.'

In our urban we see evidence of connectivity of meaning; complex interactions; emergent properties; and delight in unpredictability. In looking to a pedagogy of linkage and orienting processes, in invisible interactions and use of space, what of this is teachable and what of this is being taught? In urban design, linkage information is used for people to cross from one space to another.<sup>24</sup> So too it is in a spectrum

# Education, Design and Practice – Understanding skills in a Complex World

AMPS, Architecture MPS; Stevens Institute of Technology  
New Jersey / New York: 17-19 June 2019

of meaning. Where an assemblage of meaning is slowly being enriched and changed over time. To the point that it becomes sustainable and fixed in our memory; and we use these assemblages to get around.

## CONCLUSION

In conclusion we will draw together some of the main points on a way forward. Visual sustainability is fundamental to pedagogical thinking. As we step away from the self-fulfilling prophecy of sustainability driven by itself. We can start looking at new ways around old ways of doing things. Using building blocks that Holland talks about.<sup>25</sup> Around the concept of invisible needs that Lefebvre talks about.<sup>26</sup> Of associations and relationships. Comfort and affordance. And so, as we look towards the environment that we're embedded in, instead of seeing separate physical objects, we see relationships. In conditions of satisfaction; fractal simplicity; and invisible needs.

Ultimately, what's most important really, is that if meaning is the luggage, then sustainability is the leaving. The luggage is 'hooking in' with the surroundings. The leaving transports that collective meaning into the future. For someone else to hook into. This paper argues that visual meaning is activated at the base of Maslow's hierarchy of human needs. Because people will place self-identity above even survival.<sup>27</sup>

In summarising around the concept of the meaning in seeing, what's not there and why this is important, we have explored meaning as an assemblage of ideas. We've broadly covered the key concept; some visual uncertainties in the urban; and a declaration of meaning. We have explored ideas around how our urban is a reflection of our education; uncertainty; ambiguity; perception-thought; attentiveness; collective intentionality; conditions of satisfaction; fractal-like assemblage; knowing how, not just what; creating the conditions for growth; process versus place; not objects but relationships; reconciling visuals and non-visuals; and finally, a spectrum of meaning.

Future research should focus on understanding the importance of our visual world to pedagogy, our physical world and modern-day sustainability. This can be done by way of visual meaning.

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## REFERENCES

- Appleyard, Donald. 'The Environment as a Social Symbol: Within a Theory of Environmental Action and Perception'. *Journal of the American Planning Association* 45, no. 2 (April 1979): 143–53. doi:10.1080/01944367908976952.
- Bell, Simon, and Stephen Morse. *Sustainability Indicators: Measuring the Immeasurable?* London: Earthscan, 1999.
- 'Camilo Jose Vergara'. *Camilo Jose Vergara*. Accessed 5 March 2019. <https://www.camilojosevergara.com/>.
- 'City of Newark, N.J. / Parsons & Atwater, Del.' Image. *Library of Congress, Washington, D.C. 20540 USA*, 2019. <https://www.loc.gov/item/98507609/>.
- Cuthbert, Alexander. 'Designing Cities – The Future of Urban Design Theory'. *On the W@terfront; Núm.: 4 Public Art & Urban Design Interdisciplinary and Social Perspectives*, 2003.
- . 'Urban Decay and Regeneration: Context and Issues'. *Journal of Urban Design* 22, no. 2 (April 2017): 140–43. doi:10.1080/13574809.2017.1288873.

# Education, Design and Practice – Understanding skills in a Complex World

AMPS, Architecture MPS; Stevens Institute of Technology  
New Jersey / New York: 17-19 June 2019

- David Hockney - *The Art of Seeing*, 2018. <https://www.youtube.com/watch?v=Cdqch3-D94A&feature=youtu.be>.
- De Landa, Manuel. *Assemblage Theory*. Speculative Realism. Edinburgh: Edinburgh University Press, 2016.
- Fleming Woelfell 3D Imaging. 'Civil War Newark | 3D Reconstruction 1646', 2019. <http://www.flemingwoelfell.co.uk/Newark-Civil-War.html>.
- Gibson, James J. *The Ecological Approach to Visual Perception*, 2015. <http://public.eblib.com/choice/publicfullrecord.aspx?p=1864844>.
- Holland, John H. *Modeling Complex Adaptive Systems*, 2008. <https://www.youtube.com/watch?v=6aN6PlsvkpY&feature=youtu.be>.
- Jeffery, Kate. 'Spatial Reference Frames and the Sense of Direction | Conscious Cities', 3 May 2017. <https://www.cities.org/spatial-reference-frames-sense-direction/>.
- Jones, Phil, and James Evans. *Urban Regeneration in the UK*. 2nd edition. Los Angeles: SAGE, 2013.
- Kelley, David. *The Perception of Causality (Part 1)*, 2013. <https://www.youtube.com/watch?v=Bz9QoCnG5t0&feature=youtu.be>.
- . *The Perception of Causality (Part 2)*, 2013. <https://www.youtube.com/watch?v=olPZSgs9pAo&feature=youtu.be>.
- Lefebvre, Henri, and Donald Nicholson-Smith. *The Production of Space*. Nachdr. Malden, Mass.: Blackwell, 2011.
- Little, Daniel. 'Understanding Society: DeLanda on Concepts, Knobs, and Phase Transitions'. *Understanding Society*, 13 November 2016. <https://understandingsociety.blogspot.com/2016/11/delanda-on-concepts-knobs-and-phase.html>.
- Michael Killen, and Elliot Eisner. *Sustainable America: Importance of Art Education*. Accessed 12 April 2019. [https://www.youtube.com/watch?v=6\\_76YZL\\_7fM&feature=youtu.be](https://www.youtube.com/watch?v=6_76YZL_7fM&feature=youtu.be).
- O'Sullivan, Feargus. 'Paris's Rue Cremieux Has an Instagram Problem - CityLab'. *CityLab*, 2019. <https://www.citylab.com/life/2019/03/rue-cremieux-paris-instagram-tourists-where-to-take-pictures/584164/>.
- Salingaros, Dr Nikos A. 'Twentieth-Century Architecture as a Cult', 2019. [https://www.newenglishreview.org/custpage.cfm?sec\\_id=189607](https://www.newenglishreview.org/custpage.cfm?sec_id=189607).
- Salingaros, Nikos A. 'Urban Space and Its Information Field, by Nikos A. Salingaros', 1999. [http://zeta.math.utsa.edu/~yxk833/UrbanSpace.html?utm\\_medium=website&utm\\_source=archdaily.com](http://zeta.math.utsa.edu/~yxk833/UrbanSpace.html?utm_medium=website&utm_source=archdaily.com).
- Searle, John. *John Searle - Consciousness and Causality*, 2012. <https://www.youtube.com/watch?v=yCii726A4Jc&feature=youtu.be>.
- . *John Searle on Gibson and Direct Perception*, 2013. <https://www.youtube.com/watch?v=ve0c0B47xJw&feature=youtu.be>.
- . *John Searle on Language & Social Ontology*, 2011. <https://www.youtube.com/watch?v=PESRS1EXfQA&feature=youtu.be>.
- . *The Problem of Perception & Intentionality (John Searle)*, 2016. [https://www.youtube.com/watch?v=lf\\_4t0\\_HUx8](https://www.youtube.com/watch?v=lf_4t0_HUx8).
- . *Unity of Reality - New Realism. Prof. John Searle*, 2014. [https://www.youtube.com/watch?v=h3\\_L0HVYdYI&feature=youtu.be](https://www.youtube.com/watch?v=h3_L0HVYdYI&feature=youtu.be).
- Sopow, Eli. *Applying Complexity Science for Organization Development*, 2012. [https://www.youtube.com/watch?v=g13lDarbR\\_4](https://www.youtube.com/watch?v=g13lDarbR_4).
- Stafford, Barbara Maria. *Designed to Hesitate: Consciousness as Paying Attention*, 2010. <https://www.youtube.com/watch?v=2BF6Ual7HGA&feature=youtu.be>.
- . *Selective Attention: Neuroscience and the Art Museum*, 2014. <https://www.youtube.com/watch?v=AvoGEScg0m4&feature=youtu.be>.
- 'Sustainable Development Goals'. *UN Environment*, 2018. <http://www.unenvironment.org/explore-topics/sustainable-development-goals>.
- TED, and Geoffrey West. *Geoffrey West: The Surprising Math of Cities and Corporations*, 2011. <https://www.youtube.com/watch?v=XyCY6mjWOPc>.

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<sup>1</sup> John Searle, *John Searle on Language & Social Ontology*, 2011, <https://www.youtube.com/watch?v=PESRS1EXfQA&feature=youtu.be>; John Searle, *Unity of Reality - New Realism. Prof. John Searle*, 2014, [https://www.youtube.com/watch?v=h3\\_L0HVYdYI&feature=youtu.be](https://www.youtube.com/watch?v=h3_L0HVYdYI&feature=youtu.be).

<sup>2</sup> David Hockney - *The Art of Seeing*, 2018, <https://www.youtube.com/watch?v=Cdqch3-D94A&feature=youtu.be>.

<sup>3</sup> David Kelley, *The Perception of Causality (Part 1)*, 2013, <https://www.youtube.com/watch?v=Bz9QoCnG5t0&feature=youtu.be>; David Kelley, *The Perception of Causality (Part 2)*, 2013, <https://www.youtube.com/watch?v=olPZSgs9pAo&feature=youtu.be>.

<sup>4</sup> Henri Lefebvre and Donald Nicholson-Smith, *The Production of Space*, Nachdr. (Malden, Mass.: Blackwell, 2011).

# Education, Design and Practice – Understanding skills in a Complex World

AMPS, Architecture MPS; Stevens Institute of Technology  
New Jersey / New York: 17-19 June 2019

- 
- <sup>5</sup> Alexander Cuthbert, 'Designing Cities – The Future of Urban Design Theory', *On the W@terfront; Núm.: 4 Public Art & Urban Design Interdisciplinary and Social Perspectives*, 2003; Alexander Cuthbert, 'Urban Decay and Regeneration: Context and Issues', *Journal of Urban Design* 22, no. 2 (April 2017): 140–43, doi:10.1080/13574809.2017.1288873.
- <sup>6</sup> Manuel De Landa, *Assemblage Theory*, Speculative Realism (Edinburgh: Edinburgh University Press, 2016); Daniel Little, 'Understanding Society: DeLanda on Concepts, Knobs, and Phase Transitions', *Understanding Society*, 13 November 2016, <https://understandingsociety.blogspot.com/2016/11/delanda-on-concepts-knobs-and-phase.html>.
- <sup>7</sup> Barbara Maria Stafford, *Designed to Hesitate: Consciousness as Paying Attention*, 2010, <https://www.youtube.com/watch?v=2BF6UaI7HGA&feature=youtu.be>; Barbara Maria Stafford, *Selective Attention: Neuroscience and the Art Museum*, 2014, <https://www.youtube.com/watch?v=AvoGEScg0m4&feature=youtu.be>.
- <sup>8</sup> Stafford, *Designed to Hesitate*.
- <sup>9</sup> Nikos A Salingaros, 'Urban Space and Its Information Field, by Nikos A. Salingaros', 1999, [http://zeta.math.utsa.edu/~yxk833/UrbanSpace.html?utm\\_medium=website&utm\\_source=archdaily.com](http://zeta.math.utsa.edu/~yxk833/UrbanSpace.html?utm_medium=website&utm_source=archdaily.com)
- <sup>10</sup> TED and Geoffrey West, *Geoffrey West: The Surprising Math of Cities and Corporations*, 2011, <https://www.youtube.com/watch?v=XyCY6mjWOPc>.
- <sup>11</sup> Phil Jones and James Evans, *Urban Regeneration in the UK*, 2nd edition (Los Angeles: SAGE, 2013).
- <sup>12</sup> 'City of Newark, N.J. / Parsons & Atwater, Del.', image, *Library of Congress, Washington, D.C. 20540 USA*, (2019), <https://www.loc.gov/item/98507609/>.
- <sup>13</sup> Fleming Woelfell 3D Imaging, 'Civil War Newark | 3D Reconstruction 1646', 2019, <http://www.flemingwoelfell.co.uk/Newark-Civil-War.html>.
- <sup>14</sup> 'Camilo Jose Vergara', *Camilo Jose Vergara*, accessed 5 March 2019, <https://www.camilojosevergara.com/>.
- <sup>15</sup> Simon Bell and Stephen Morse, *Sustainability Indicators: Measuring the Immeasurable?* (London: Earthscan, 1999).
- <sup>16</sup> 'Sustainable Development Goals', *UN Environment*, 2018, <http://www.unenvironment.org/explore-topics/sustainable-development-goals>.
- <sup>17</sup> Feargus O'Sullivan, 'Paris's Rue Cremieux Has an Instagram Problem - CityLab', *CityLab*, 2019, <https://www.citylab.com/life/2019/03/rue-cremieux-paris-instagram-tourists-where-to-take-pictures/584164/>.
- <sup>18</sup> Dr Nikos A. Salingaros, 'Twentieth-Century Architecture as a Cult', 2019, [https://www.newenglishreview.org/custpage.cfm?sec\\_id=189607](https://www.newenglishreview.org/custpage.cfm?sec_id=189607).
- <sup>19</sup> Ralph Stacey quoted by Eli Sopow, *Applying Complexity Science for Organization Development*, 2012, [https://www.youtube.com/watch?v=g13IDarbR\\_4](https://www.youtube.com/watch?v=g13IDarbR_4).
- <sup>20</sup> Michael Killen and Elliot Eisner, *Sustainable America: Importance of Art Education*, accessed 12 April 2019, [https://www.youtube.com/watch?v=6\\_76YZL\\_7fM&feature=youtu.be](https://www.youtube.com/watch?v=6_76YZL_7fM&feature=youtu.be).
- <sup>21</sup> James J Gibson, *The Ecological Approach to Visual Perception*, 2015, <http://public.eblib.com/choice/publicfullrecord.aspx?p=1864844>.
- <sup>22</sup> John Searle, *John Searle -Consciousness and Causality*, 2012, <https://www.youtube.com/watch?v=yCii726A4Jc&feature=youtu.be>; John Searle, *John Searle on Gibson and Direct Perception*, 2013, <https://www.youtube.com/watch?v=ve0c0B47xJw&feature=youtu.be>; Searle, *John Searle on Language & Social Ontology*; John Searle, *The Problem of Perception & Intentionality (John Searle)*, 2016, [https://www.youtube.com/watch?v=lf\\_4t0\\_HUx8](https://www.youtube.com/watch?v=lf_4t0_HUx8); Searle, *Unity of Reality - New Realism. Prof. John Searle*.
- <sup>23</sup> Searle, *The Problem of Perception & Intentionality (John Searle)*.
- <sup>24</sup> Kate Jeffery, 'Spatial Reference Frames and the Sense of Direction | Conscious Cities', 3 May 2017, <https://www.ccities.org/spatial-reference-frames-sense-direction/>.
- <sup>25</sup> John H Holland, *Modeling Complex Adaptive Systems*, 2008, <https://www.youtube.com/watch?v=6aN6PlsvkpY&feature=youtu.be>.
- <sup>26</sup> Lefebvre and Nicholson-Smith, *The Production of Space*.
- <sup>27</sup> Donald Appleyard, 'The Environment as a Social Symbol: Within a Theory of Environmental Action and Perception', *Journal of the American Planning Association* 45, no. 2 (April 1979): 146, doi:10.1080/01944367908976952.