



Complexity Theory readings and resources

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1. Introduction

This list of readings arose as a result of an extended conversation with Keith Elford and Sue Miller of the Susanna Wesley Foundation in November 2016. It is important to note how the various disciplinary approaches to complexity theories are not yet reconciled with one another: hardly surprising, given the range of biologists, mathematicians, meteorologists, psychologists, sociologists – never mind philosophers and theologians – who have been exploring this territory in recent decades. As an example, Polkinghorne (2007), whose disciplinary span is greater than many, observes that, “Microscopic quantum theory and macroscopic chaos theory are imperfectly reconciled with each other” (69). More worryingly, a recent book in this territory by a respected author (McGrath 2016) makes no reference, as far as I can tell in the absence of an index, to any of the concepts or works I have listed below in over 30 pages of references and further reading.

2. Discussion of references

2.1 Philosophical and theological foundations

An early conference in 1993 was co-sponsored by the Vatican Observatory: papers were subsequently published in Russell, Murphy, and Peacocke (1997). Gregersen (2003), Niekerk and Buhl (2004), Ledger and Pickard (2004), and Lineweaver, Davies, and Ruse (2013) offer more recent collections. Pickard (2012) builds on complexity thinking, along with the social Trinity, in his theological work on collaborative ministry. Two key figures are Stuart Kauffman, e.g. Kauffman (2008), and John Holland, e.g. Holland (1998). Both are linked with the Santa Fe Institute. Bird (2003) offers a personal perspective.

Bedau and Humphreys (2008) brings together a number of papers on emergence. Cilliers (1998) was one of the first authors to address postmodernism, while Mitchell (2009) calls for ‘integrative pluralism’ across physical, life and social sciences. For a thoughtful philosophical perspective on complexity thinking in the context of strategy, see Chia and Holt (2009).

Keller (2003) is outstanding theologically, on creation from chaos. I was well into developing my own modest contribution (Harle 2012) before I discovered Keller had beaten me to it! O’Murchu (2004) provides a lively read, while the Christology of Brewin (2004) is far more widely relevant than its subtitle suggests. Philip Clayton illustrates the (re)discovery of process philosophy and theology; for a recent example, see Clayton (2016).

2.2 Graduate level introductions to complexity

Boulton, Allen, and Bowman (2015) offer a good survey, with several examples of applications. Jean Boulton is, like me, a Visiting Fellow at Bristol Business School. One of her co-authors, Peter Allen, provides a direct link with one of the key figures in complexity science: he was a student of Ilya Prigogine. Allen is a co-editor of the Sage handbook on complexity (Allen, Maguire, & McKelvey 2011). MacIntosh, MacLean, Stacey, and Griffin (2006) offer a useful reader, with critical discussion of different contributions to the organisational field.

Capra and Luisi (2014) combine a number of disciplinary approaches. Miller and Page (2007) provide an introduction to complex adaptive systems (CAS). For an exhaustive take on emergence, Lichtenstein (2013) summarises a life’s work in identifying eight prototypes in 15 fields of complexity science! He and colleagues have highlighted an entrepreneurial strand (Goldstein, Hazy, & Lichtenstein 2010). Mon-

tuori (2015) edited autobiographical essays.

The main journal in this area is *Emergence: Complexity and Organization*, or *E:CO*.

2.3 Leadership

Meg Wheatley (2006) writes beautifully: her approach is underpinned, but not constrained by, rigour. From an academic perspective, Mary Uhl-Bien is a leading figure: Uhl-Bien and Marion (2008) provides a useful collection of papers. One of them, Uhl-Bien, Marion, and McKelvey (2007), won a best paper award from *Leadership Quarterly*, though she has told me that a subsequent paper (Uhl-Bien & Marion 2009) is better! I agree with her: the later paper is good at identifying whether a complexity or more traditional approach is more appropriate. This leads on to Dave Snowden's cynefin framework, introduced to the wider world through the pages of the *Harvard Business Review* (Snowden & Boone 2007).

Obolensky (2010) offers a good balance between the academic and the popular. Complexity thinking features in a research project on leadership implications of Web 2.0 (McGonagill & Doerffer 2011).

2.4 Ralph Stacey and the Hertfordshire School

With a background which included econometrics and the psychodynamic tradition(!), Ralph Stacey was a pioneer in the field. His early writings were on strategy (Stacey, 1995), but he subsequently developed a strong Complexity and Management Centre at the University of Hertfordshire (now morphed into this). Not satisfied with some of the standard thinking around CAS, he developed the idea of complex responsive processes of responding (CRP). I don't think the difference between CAS and CRP is as great as many of Stacey's followers believe (think of different conceptual fundamentals (baggage?) imported with the word 'system'). Some of my colleagues disagree strongly with my view!

Two of Stacey's colleagues produced significant works in their own right: Griffin (2002) on ethics and Shaw (2002) on conversations and change. Stacey, Griffin and Shaw edited a series of collections of papers by their students: Stacey (2005), Griffin and Stacey (2005), Stacey and Griffin (2006), Shaw and Stacey (2006). One student (Streatfield, 2001) provided a book length exploration of the paradox of control in organizations.

Stacey's successor at Hertfordshire has produced his own, more accessible, book (Mowles 2011).

2.5 Learning

Mitleton-Kelly and Ramalingam (2011) combine such standard approaches as Chris Argyris' work on double loop learning and Kolb's learning cycle, to note the opportunities for organizational learning. The collection edited by Mason (2008) offers a conceptual critique. Morrison (2002) provides an example of application of complexity theory to school leadership, while Bates (2016) writes from her experience as a primary school teacher, heavily influenced by the Hertfordshire School.

2.6 Organisational Change

Pride of place must go to Olson and Eoyang (2001); Eoyang (2011) provides a more recent contribution to the *Sage Handbook*. Tsoukas and Chia (2002) offer a thoughtful paper, while Burnes (2005) offers a good review article.

2.7 Project Management

Cicmil, Cooke-Davies, Crawford, and Richardson (2009) provide a very good introduction, commissioned by the (American) Project Management Institute (PMI); it includes an excellent bibliography (Svetlana Cicmil is a colleague of mine at Bristol Business School). Wanda Curlee and Robert L Gordon have waged a campaign to have complexity approaches recognised by the PMI (Curlee & Gordon 2011, Curlee & Gordon 2014).

2.8 Politics and Public Policy

There has been quite an interest in recent years, eg Geyer and Rihani (2010), Room (2011), Colander and Kupers (2014). Beinhocker (2006) offers a magisterial alternative to neoclassical economics, while Ramalingam (2013) addresses the international aid agenda. Ross (2011) offers a fascinating, if rather frightening, perspective from a former UN diplomat, who discovered complexity theory and behavioural economics.

2.9 Complexity and the churches

Bandy (1999) and Easum (2000) offer excellent introductions. The most substantial current contribution is contained in Moynagh (2012); he has a further volume in preparation. A number of authors, including those affiliated to the Emergent Village network, have used complexity concepts: eg Keel (2007), Sweet (2008 [1999]), Friesen (2009). Kilroy (1999) offers an early British example from the perspective of Roman Catholicism. I provided a modest introduction in a Grove booklet (Harle, 2011).

2.10 Some other applications

2.10.1 Sociology

Byrne (1998) provided an early introduction, subsequently updated (Byrne & Callaghan, 2014); see also Castellani and Hafferty (2009).

2.10.2 Psychology

Guastello, Koopmans, and Pincus (2009) offers a useful collection.

2.10.3 Healthcare

Kieran Sweeney (2005) was a pioneering GP in the UK, who died tragically young from mesothelioma.

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4. Endnotes