

**Accentuating the Positive: Developing a qualitative research framework linking
complexity theory and appreciative inquiry**

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ABSTRACT

This article offers an interpretation of Complexity Theory that has been useful in applied qualitative research. Its purpose is to offer organisational researchers and professionals the opportunity to engage with a Complexity toolkit for solving organisational problems. By highlighting a mutually informative relationship existing between a Complexity paradigm and Appreciative Inquiry, this paper highlights strategies conducive to dynamic and emergent conversation streams that lead to participant driven research outcomes. Techniques discussed here include coherent conversations, participant observation, and attractor/fractal narrative analysis.

Keywords: *Complexity Theory, Appreciative Inquiry, research design innovations, research paradigm, qualitative methods, narrative analysis, participant observation*

INTRODUCTION

Complexity Theory may be understood as a paradigmatic framework that helps to understand human behaviour within a relational world (Kuhn 2007). In the context of organisational research, such a framework shapes analysis by assuming that individuals (and organisations) are self-organising, dynamic and emergent. As such, it offers insight into human interaction and how these interactions can be managed. However, Complexity Theory can be a hindrance when communicating research to others. Consequent to its foreign language, drawn from areas such as non-linear mathematics and quantum science, researchers may find it difficult to communicate findings to key stakeholders.

Despite the challenges of communication, the principles Complexity Theory can resonate with practitioner perceptions. In my own research in the gaming sector, managers appear to use language that recognises staff as self-organising, dynamic and emergent. For example, when asked ‘how do things get done around here?’ one manager replied, ‘well we all just learn a little about everything and it just becomes a sort of self-perpetuating thing’. To this end, the manager saw his organisation as a dynamic and emergent entity that was fully capable of evolution through self organisation.

The purpose of this paper is to demonstrate the application of Complexity Theory in applied qualitative research. In particular, this paper aims to present a comprehensive research framework

including recommendations for data collection techniques. This is achieved through the exploration of a number of complexity metaphors (a Complexity Toolkit) and discusses their relationship to Appreciative Inquiry.

COMPLEXITY AS A RESEARCH PARADIGM

According to Milton-Kelly (2001) '[Complexity] is not a methodology or set of tools. It certainly is not a 'management fad'. The theories of complexity provide a conceptual framework, a way of thinking and a way of seeing the world' (3). Milton-Kelly explains that 'no single unified Theory of Complexity' (2001:1) exists, but rather a collection of 'understandings' derived from the natural sciences of biology, chemistry, mathematics and physics.

In contrast with positivist (or objectivist) thinking, which assumes that the knower is independent from the known (Guba, 1990; and Hall, 1999), Complexity assumes that the relationship is rather fluid. Consistent with the underlying assumptions of organic entities being dynamic, self-organising and emergent, a Complexity approach assumes that the epistemological relationships are similar. That is, that epistemology and ontology exist in a mutually informative relationship (Kuhn 2007).

As a culture of inquiry, Complexity Theory brings with it an evolving set of metaphors that can be used to understand human interaction. In support of this, a number of authors suggest that Complexity Theory metaphors can serve as tools for analysis (Aram and Noble 1999; Benvenuto 2005; Cioffie-Revilla; 2005; Dent 2003; Fotopoulos 2000; Holbrook 2003; Kuhn 2007; Kuhn and Woog 2007; and Maguire 1999).

Extending the work of these authors, this paper reveals that the range of metaphors offers a way of understanding the dynamic, emergent and self-organising behaviour of complex systems. More specifically, it allows for abstract and creative thought.

These metaphors represent a Complexity Toolkit – an every growing collection of metaphor driven by reflections of relevant literature. To demonstrate their practical application in academic research, this

paper presents a discussion of sensitivity to initial conditions; attractors; fractals; the Edge of Chaos; fitness landscapes; and vorticity. Each is addressed in turn.

Perhaps more of a principle than metaphor, Complex systems has an inherent *sensitivity to initial conditions*. This principle goes by many names, for example the ‘avalanche metaphor’ (Bak, 1996; and Kauffman 1995), ‘self-organising criticality’ (Kuhn 2007; and Nunn, 2007) and the common (almost colloquial) ‘Butterfly Effect’ (Dooley, Johnson, and Bush, 1995; and Holbrook 2003). In essence such labels are ‘a compact way of saying that complex systems are nonlinear, inherently unpredictable, and dependent on history’ (Nunn, 2007:99).

Attractors are that which influence the behaviours of complex systems. To explain through analogy, the sun is an attractor for the solar system. It serves as a force influencing the orbiting and weather patterns of the planets. In an organisational sense, attractors may be understood as factors that drive organisation behaviours.

Fractals describe mathematical patterns in which a scale image is the same as the whole (Mandelbrot, 1977). As a metaphor in organisational studies, fractals allow for the exploration of self-similar (or repeated) patterns of behaviour across different levels of analysis (Kuhn 2009). In a theoretical context, let us for example consider the fractal nature of organisational learning:

The learning organization is a metaphor with its roots in the vision of and the search for a strategy to promote individual self-development within a continuously self-transforming organization (Starkey, Tempest and McKinlay 2004:2)

The *Edge of Chaos/Chaotic Edge* describes a condition where complex entities seem to draw order from chaos. First introduced by Chris Langton (1990), the metaphor gained popularity in the social sciences as a way of describing the chaotic self organisation that leads to innovation (Kaufman 1995; and Kuhn 2007). In an attempt to bridge the language gap, there is a growing trend within the business understandings of Complexity to refer to the ‘edge of chaos’ as the ‘zone of emergent complexity’

(Carlisle and McMillan 2006). The edge of chaos, while a chaotic and somewhat unstable zone allows for an emergence of structure and innovation, but when the dynamics become too intense, and individuals begin to fear the chaos, the metaphor become the chaotic edge (Kuhn, Woog and Hodgson 2003). Here momentum and creativity is lost when individuals begin to see them selves as vulnerable and act accordingly.

Fitness Landscapes is a metaphor driven by biology and refers to the dominating survival drive seen in complex systems. Commenting on landscapes, Kauffman (1995) states:

Adaptation is usually thought of as a process of “hill climbing” through minor variations toward “peaks” of high fitness on a fitness landscape. And natural selection is though of as “pulling” and adaptation population toward such peaks. We can imagine a mountain range on which populations of organisms are feeling their way to the summits (p.154).

As a social metaphor, Fitness Landscapes offers an opportunity to explore and understand the search for attractors around which systems will self organise. A distinguishing feature of landscapes that is of particular importance to managers is that we have the capacity to manipulate, alter or explore new landscapes.

Vorticity refers to the interaction of opposing forces in the environment, which creates an energy that may be seen as a tornado or whirlpool. The swirling interaction of these forces creates more energy and momentum. Vorticity symbolises the creation of learning energy and the range of learning experiences. For example, observations made within the gaming industry identified a phenomenon referred to as ‘Vortical self organisation’ (Gould 2007). This was explained as a shorthand way of making reference to the energy created when individuals from differing (and sometimes conflicting) departments of an organisation combine their efforts and understanding in order to carry out work or problem solving.

The metaphors offered here are by no means comprehensive or complete (see Kuhn 2007; Kauffman 1995 for more discussion). They merely demonstrate the way they facilitate an abstraction of understanding, which is not often permitted in organisational research. Following this, the subsequent section discusses the ways in which it may be possible to create a data set suitable for Complexity based analysis.

FROM APPRECIATIVE INQUIRY TO AN APPRECIATIVE STANCE

Appreciative Inquiry (AI) has a strengths-focus – in the context of organisational research, it concentrates on what is working in an organisation. This focus demonstrates how change can be orchestrated in complex environments by recognising successful individual achievements and guiding activities around these successes (Cooperrider and Whitney 2005). The approach is appropriate in Complexity based inquiry as it supports future self-organising, dynamic growth within these areas of strength by establishing an appropriate set of initial conditions. That is an air of positivity and constructive criticism.

To explain the AI process, Johnson and Leavitt (2001) offer eight stages that collectively centre on the discovery of patterns through positive discussion. These include (1) collecting data from interviews; (2) determining common themes; (3) articulating provocative propositions; (4) validating the propositions; (5) supporting analysis; (6) developing an agenda; (7) implementing action from the agenda; and (8) evaluating the implementation.

Perhaps a more simple approach to AI can be delivered through an appreciation of the Four Dimensions (4D) Model (see Figure 1).

Take in figure 1 here

The model suggests four underlying sub-processes of AI. Through the application of AI to Nutrimental Industries (a manufacture of healthy food products located in Parana, Brazil), Barros and Cooperrider (2000) depict how each dimension can be formulated into an inquiry process.

Beginning with the discovery stage, the researcher begins to understand participant's views of the organisation in its current form. It is in the discovery stage that we first see the manipulation of participant responses; this is aptly demonstrated by Barros and Cooperrider's (2000) opening statement: 'We acknowledge that there are good times and not so good moments but we want you to focus on the good for now' (24). From this, individuals are asked to reflect on their individual experiences through questions aimed at generating positive stories – for instance, they may be asked to describe a time when they felt most alive/active/proud to be in the organisation; they might be asked what they value most as a human being and whether this is reflected in organisational life; they might also be asked to describe what keeps the organisation alive.

Following this, researchers move onto developing the dream. They develop and articulate a clear understanding of what characteristics participants hope to see in the organisation's future. Again, enforcing the positive responses, Barros and Cooperrider (2000) suggest asking, 'What are three wishes for this organization?' (24).

Once the ideal future or dream is established, researchers create mechanisms for orchestrating related and necessary change. However, the design of these mechanisms is informed by research participants. To exemplify this, Barros and Cooperrider (2000) pose the question, 'In order for [your organisation] to become the ideal organizations you imagine, what are the things you think should change?' (26).

Finally, the researcher arrives at defining the destiny. In this phase focus shifts toward strengthening the capability of the system, building hope and support for the new design to create a purpose generating momentum.

What can AI offer Complexity Theory? Conceptually, the two are quite similar. Both are concerned with identifying complex patterns, and using stories to create an image of the organisation for analysis. Perhaps the best way to demonstrate the similarities is to highlight the underlying assumption of AI:

[AI] is based on the premise that human systems grow and construct their future realities in the direction of what they most persistently, actively, and collectively

ask questions about. Based on the topic they choose to study and the questions they choose to ask, organizations enact and construct worlds that determine their eventual destiny (Mantel and Ludemal, 2000:44).

In Complexity terms, organisations dynamically self-organise in response to their needs. Just as a complex adaptive system grows and emerges consistent with present attractors, so too do the human systems that AI are concerned with. This similarity suggests that AI is an appropriate methodology for the Complexity framework.

However, the distinguishing feature of Complexity based inquiry is its acceptance of emergent or unexpected patterns of conversation (Kuhn and Woog 2005). To this end, it is suggested here that the application of AI, as it has been described above results in a distortion of the lived experience. In particular it manipulates the stories raised in the discovery stage by only focusing on the positive. In light of this, Appreciative Inquiry may be best utilised as an Appreciative Stance. In such a stance, the dimensions highlighted in the 4D Model serve as conversational attractors. Specifically, the principles underpinning each element of the conversation pathway (Discover, Dream, Design, and Destiny) are used to offer a starting point for conversation. From this starting point, there is an expectation that the conversation will evolve along emergent attractors. Following such conversational deviations leads to participant driven research outcomes through subsequent attractor analysis. The next section introduces suggested Complexity informed data collection and sense-making activities that are suitable from this appreciative stance.

PROPOSED RESEARCH METHODS

Participant Observation

When using observation as a method of data collection, the researcher must decide their role. According to Marshall and Rossman (1995):

The researcher may plan a role that entails varying degrees of participantness that is, the degree of actual participation in daily life. At one extreme is the full participant, who goes about ordinary life in a role or set of roles constructed in the setting. At the other extreme is the complete observer, who engages not at all in social interaction and may even shun involvement in the world being studied, And of course, all possible complementary mixes along the continuum are available to the researcher (60).

Within Complexity Theory, observation as a research method requires the research to be strongly engaged with their surrounds. As Babbie (2001) indicates, 'The [participant observer] frequently chooses a different role from that of the complete participant. You could participate fully with the group under study but make it clear that you were also undertaking research' (278-279).

To develop an audit trail of the research journey, participant observers may wish to keep a reflective journal, documenting interpretation of events and narrative. In my experience in the club industry, I have found this allows for participation in the research while minimising influence in the stories developed in group sessions.

Coherent Conversations

As already mentioned, Appreciative Inquiry seeks to create positive discussion through the four AI dimensions (Discovery, Destiny, Design and Dreaming). From an appreciative stance, these dimensions serve as attractor, facilitating the creation of shared organisational narratives. To be consistent with this approach this paper offers 'coherent conversations' (Kuhn and Woog 2007) as a technique for the facilitation of positive, yet emergent discussion. Such discussions begin to reveal organisational histories and stories.

The processes of coherent conversations might be understood as a tainted focus group in which the underlying focus shifts from a topical discussion to a permissive process of critical self reflection. This permissive and reflective environment is the distinguishing feature of coherent conversations (Kuhn

and Woog 2007). To better explain the value, of coherent conversations, it may be useful to call upon the Complexity Toolkit.

A coherent conversation as a research technique encourages vortical self organisation. In this respect, coherent conversations foster a new research community within an organisation. This community incorporates a wide range of experiences each carried by the individual members. Through the process of conversation proposed above, these sessions encourage the interaction of these experiences which allows for the emergence of new perspectives and new ways of knowing. Also important in this vortical self organisation is an acknowledgement of a co-existing and influential relationship between the researcher and the research participants. The influential nature of this relationship encourages the use of a reflective journal as part of the observation process discussed above.

The resulting organisational narratives may then be explored through attractor and fractal analysis. Each is to be explored in subsequent sections.

Attractor Analysis

Attractor analysis refers to the search for meaning behind self organisation identified in organisational narratives. Attractors offer insight into the “long-term destination of system trajectories” (Allen 2001:29). In essence, by understanding the attractors influencing the systems, we may be able to make inferences as to future self organisation. This principle is particularly important to the framework being presented here. The premise of AI as discussed above is to concentrate on what is working well within the organisation. The assumption here is that researchers seek to identify and develop strategies aimed at supporting the attractors that lead to this favourable self-organisation.

Fractal Analysis

If fractal patterns are assumed to be self-similar patterns observed at different levels of analysis, then it may be argued that understanding fractals allows for limited generalisation of research findings (Gould 2007; and Kuhn and Woog 2007). However, one cannot be so bold to suggest that findings

will be replicable, but they will be truthful, a characteristic congruent with the aims of qualitative research (Cavana, Delahaye and Sekaran 2001; and McMurray, Pace and Scott 2004). After all, the study of complex systems (which organisations are assumed to be) is highly sensitive to initial conditions. Therefore, while the patterns may be similar, the influence on the system will vary dramatically.

Fractal analysis builds on the assumption that the 'fractal relationship selected for study by the researcher is not merely a part of the whole, but that it is representative of the whole' (Kuhn and Woog 2007:186). In this respect, the study of one particular department of an organisation should provide insights into the organisation as whole. Fractal analysis may therefore be understood as recognising the self-similar patterns of organisation within an organisation.

To offer an example of attractor and fractal analysis it may be useful to draw on an investigation into the work practices of the Liverpool Catholic Club (LCC) (Gould 2007). This project utilised the research framework proposed in this paper in order to develop an understanding of the LCC as it was seen through the eyes of its employees. Coherent conversation sessions held with floor staff revealed that individual employees were attracted to the LCC for two reasons: firstly there was a need to secure an income. The second key point of attraction was a family connection. Participants suggested that such a family connection contributed to the development of a comfortable and entertaining work environment. This led to the identification of two key attractors: "Business" and "Family" (the FB Set).

In order to establish a fractal connection with these attractors, analysis then looked at the way 'work was done' at functional level. Conversations here suggested that staff deeply valued the family connection as a tool of communicating culture and core task competencies. "Business" needs were also recognised as employees called for more training so that they may be more 'professional' in performing their role. The issue of becoming more professional also became evident at the managerial level. An interview with the general manager of the LCC talked about the evolution of the club from a

social gathering of a few friends to an incorporated 'professional company'. Again there was a tension between "family" and "business".

With the FB Set evident at three fractal scales, (individual, workgroup and management), was assumed that this attractor set may also have implications at an industry level. This assumption is the focus of continuing research.

CONCLUDING REMARKS

This paper has introduced a framework for applied Complexity Theory. To achieve this, a simplification of Complexity ideas through the provision of a Complexity tool-kit has been offered. It was suggested through the course of this article that in order to set the appropriate initial conditions for data collection, researchers may need to facilitate a shift from traditional Appreciative Inquiry to an appreciative stance. Such a shift removes the manipulation of organisational narratives and allows for a more dynamic and emergent conversation stream. Within this appreciative stance, the article has made some recommendations as to possible data collection (Coherent Conversations and Participant Observation) and narrative analysis techniques (Attractor and Fractal Analysis). As discussed, these techniques are particularly useful in fostering future growth around positively charged attractors. To this end, offering the groundwork for organisational change based on the perceived strengths.

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LIST OF FIGURES

Figure 1 – The 4D Model (adapted from Barros and Cooperrider, 2000:23; Cooperrider and Whitney 2005 and Mantel and Ludema 2000:44)

