Jake Chapman – testimony to PDG 24th November 2010

Systems and system failure

I was trained as a physicist (at Cambridge) and taught physics, technology and systems at the Open University. I have no clinical expertise and no specialist knowledge of obesity. My evidence is presented as a result of my experience of teaching systems thinking, carrying out a number of projects using systemic approaches and working with senior civil servants on 3-day "system challenges" organised as part of the Prime Minister's Top Management Programme (TMP). I anticipate that my contribution may assist in developing the principles of adopting a "whole systems approach", complementing those with content expertise.

Science and engineering make use of three key principles in seeking to establish understanding and devise interventions in the world. The first principle is to be able to carry out reproducible experiments that enable different observers to validate data. This requires that experimental conditions can be constrained to be reproducible. The second principle is that understanding of the whole can be established by a detailed understanding of the parts; this is the principle of reductionism. This principle fails when either the characteristic under examination is an 'emergent property' i.e. one that is not explicable in terms of characteristics of components, or when the issue of interest is based on the *relationships* between the components. The third principle is that once an understanding has been obtained then it should be possible to devise tests that could falsify the theory or hypothesis by intervening in the situation of interest. This principle requires that the conditions of the test can be controlled sufficiently carefully to draw unambiguous conclusions regarding the outcome of the intervention. These principles do not apply when the domain of interest is a 'human activity system'. Where people and their behaviours are concerned 'observations' are more dependent upon the perspective (or paradigm or world view) of the observer than in science or engineering; objectivity is generally elusive. Furthermore the context in which observations or interventions are made is continually changing in unpredictable ways, which make experimental control and controlled interventions virtually impossible. It is therefore extremely difficult, if not impossible, to obtain 'evidence' about the functioning of human activity systems. Within such systems it is normal for there to exist:

(a) a complex network of causes that frequently feeds back on itself. The systems that have been modelled mathematically indicate that the overall behaviour of the system is determined by the *structure* of these interactions (in particular feedback loops and delays) rather than the values of any particular variables or parameters.

(b) radically different perspectives about how the system works or ought to work. The existence of these different perspectives adds significantly to the

> complexity of the system's operation, in part because messages and data will be interpreted differently by people with different perspectives and also because different agents and agencies are likely to be pursuing competing goals.

Although the relational complexity (point (a) above) is generally recognised, most people are blind to the pluralist complexity (point (b) above). This is because few adults progress in their development[1] to the point where they are sufficiently dis-identified from their own way of viewing the world that they can genuinely appreciate other perspectives. Indeed there is a disincentive for taking this step since it makes the depth of complexity, and the difficulty of instituting constructive change, more apparent. However until one is able to appreciate the multiple perspectives operating within a human activity system one's actions and interventions are likely to be misinterpreted, resisted or otherwise thwarted – which is why within such systems almost everyone regards themselves as powerless and blames malfunctioning on other agents within the system.

Peter Senge, a long term advocate of a whole systems approach, tells a story in which groups of people blaming each other for problems in the design of a new car, come together and reach a point at which they said 'My God! look at what we are doing to ourselves.' As Senge comments

> "The key word in this statement is 'we'. Up to this point there had been someone to blame for the problem; the other teams, their bosses, not enough time. When the 'theys' go away and the 'we' shows up, people's awareness and capabilities change."[2]

Associated with the issue of appreciating other perspectives is the tendency to group people into categories that conceal important differences between them. It is clearly impossible to consider each person in a complex system individually; but part of the *art* of human systems analysis is to recognise the features that distinguish different groups normally treated as a homogenous whole. Appreciating these differences means that interventions may need to be tailored for each sub-group rather than assuming the 'one size fits all'. I would imagine that there are significantly different groups of obese people; some who are addicted to food, some with low self-esteem, some driven by poverty, some without the capacity to understand nutrition and so on – and that each of these groups will respond differently to interventions. An example of this occurred in a systems project aimed at tackling youth nuisance on deprived estates in Manchester[3]. At that time Manchester was regarded as the ASBO (anti-

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[1] The argument dramatically curtailed here is based upon the work of Kegan, Loevinger, Torbert and many others in the field of adult development. The shift referred to is from conventional to post-conventional reasoning. An accessible summary is available as a reprint from Harvard Business Review at http://www.newperspectives.com.au/downloads/seven%20transformations%20of%20leadership.pdf

[2] *Presence: exploring profound change in people, organisations and society* by P.Senge et al. Nicholas Brealey Publishing, London, 2005, p.45

[3] *Lessons from a pluralist approach to a wicked policy issue* by Chapman, J. Integral Review **6** (1) 2010 available at http://www.integral-

social behaviour order) capital of the UK and there were fierce debates as to whether they assisted in the campaigns to reduce youth nuisance. Some argued that they increased the street credibility of those receiving an ASBO whereas others claimed that they were an effective deterrent, especially when properly enforced. Information from field workers resolved the dispute by pointing out that for gang leaders ASBOs were indeed a badge of honour; however for the larger numbers of gang followers they were often effective in reducing offending.

Because there are normally a wide variety of perspectives operating within a human activity system it is inappropriate to seek, or even imagine it is possible to devise, a *solution* to the issue being considered. This is because a 'solution' from one perspective may well make matters worse for people with different perspectives. Rather than seek a solution the aim of the process is to develop an *improvement* that all those within the system can agree will reduce harm or otherwise improve the overall functioning. This shift in aim is a key ingredient in adopting a 'whole systems approach' since it will enable most, perhaps all, of the agents within the system to act coherently. In some cases simply having the agencies directing their energies towards working together instead of trying to win arguments is enough for progress to be achieved. In other cases the improvement may appear trivial initially, but can make a substantive difference to the functioning of the entire system. For example one of the outcomes of the Manchester youth nuisance project was the introduction of parenting courses for parents with children over eight years old. Up to that time parenting courses had focussed on the earlier years leaving parents of children most likely to engage in anti-social behaviour without support or guidance. Instituting such courses would not 'solve' the problem – but it was an improvement that all those involved agreed would help.

Similar examples of simple improvement steps have occurred in many of the TMP 'system challenges' carried out on real life issues. One challenge was to assist the Neighbourhood Renewal Unit (NRU) 'improve the life chances of 19 year olds in Peckham'. Peckham was at that time one of the deprived neighbourhoods with high levels of exclusion, gang problems and teenage pregnancy. In exploring the system the TMP participants found that many of the excluded children, and others in trouble, were helped by dedicated and imaginative community groups. These voluntary organisations found it hard to provide continuity for their key staff because both the NRU and Local Authority supported them with annual grants. The feedback to the NRU pointed out that a significant improvement for the disadvantaged youngsters in Peckham could be gained by simply extending the duration of grants to these voluntary organisations to 3 or 5 years.

The shift away from 'solutions' toward 'improvements' is also consistent with a recognition that it is impossible to have sufficient understanding or control of the context to predict the outcome of interventions in complex systems. It is therefore more realistic to aim for small improvements and to support this with a learning

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review.org/documents/Chapman,%20Lessons%20from%20Pluralist%20Approach%20Vol.%206%20No.%201.pdf

approach involving as many of the key agents and agencies in the system as possible. This approach also recognises that sustainable change in complex systems occurs slowly and requires continued attention to improving rather than a strategy or policy designed to 'solve' the problem once and for all.

Another aspect of adopting a systems approach to issues is that it requires those involved to reflect on their own perspective and the implicit assumptions involved. When I began to explore this for myself I recognised that I had uncritically accepted the definition of obesity as a problem – largely because it would overwhelm the NHS - not because it caused suffering for the obese. I also saw that alternative frames that could be employed might cast the problem very differently. What if obesity were regarded as an addiction to food? Which of the many theories of addiction would be most relevant? Is the problem rooted in people's *relationship* to food? If so what are the factors that condition or influence this relationship? What would be the result of regarding obesity as an emergent property of a cultural system that fosters *greed* in many different ways? People are applauded and envied for being greedy for fame, for wealth, even notoriety – why not in relation to food? Or is the problem really one rooted in our sedentary lifestyle and desire to have *instant* satisfaction? It seems to me that at least some of these different frames could provide the basis of a fruitful inquiry – but they are all very different from my initial assumptions about 'the problem of obesity for the NHS'.

The challenge of exploring different framing of the issue is similar to, but not identical to, that of appreciating the perspectives of other agents or agencies within the system. For example as a part-time business person I have a limited understanding of the sense of achievement and pride that food producers must feel when they succeed in developing a product that the public likes sufficiently for them to be able to sell it profitably. Similarly I can sense the effort required by food retailers to differentiate their stores and to devise their pricing and marketing strategies so that they have the satisfaction of succeeding in both providing what the public wants and being a successful business. Food producers and retailers have a profound effect on people's relationship to food – but that is not their goal, so they are likely to resist taking it on unless they can see commercial advantage in doing so. I know from working with different perspectives in complex systems that it is impossible to appreciate another perspective by speculating about it; I actually have to find a way to put myself in the other's shoes. There are a number of systems techniques for achieving this, but they are rarely used because most people do not want to know about this level of complexity – they prefer to stick with their view of what is going on and their blame story about why the system is malfunctioning.

In most human activity systems a change in the functioning of the whole system requires a significant number of people within the system to change; they may have to change some or all of their habits, behaviour and values. When progress on an issue requires people to change their beliefs, behaviours or values then, according to Heifetz and co-workers, the issue is an 'adaptive issue' and requires a different

leadership style – known as Adaptive Leadership[4]. One of the key insights from Heifetz's work is that people resist change because they perceive the losses more clearly than the benefits. The losses may be of familiarity, of dearly held values or beliefs, of some aspect of self-esteem or simply loss of resources or power. Heifetz and his colleagues stress that one of the key tasks in facilitating change is to acknowledge these losses. What they do not emphasise is the degree to which this requires those fostering the change to appreciate the perspectives of those involved so that the nature and depth of loss can be acknowledged. So the importance of appreciating the perspectives of different people within the system is reinforced. It is also the most difficult and most neglected aspect of working with whole systems.

Summary

I have had very limited exposure to the work of NICE and this PDG on obesity and the adoption of a whole systems approach. I have emphasised the aspects of working with complex systems that appear to be absent from the documents I have been able to read. I apologise if, as a result, I have spent time on issues already well known to the PDG.

The key points I have sought to make:

(a) when dealing with complex systems it is impossible to obtain the sort of evidence that would be required in science, engineering or clinical trials.

(b) there are two aspects of complexity in human activity systems. One is relational and can be understood by mapping sequences of causes through the system (holism). The other requires an appreciation of the different perspectives used by agents and agencies within the system (pluralism).

(c) most of the population, including many experts and scientists, are not able to dis-identify from their own perspective sufficiently to be able to appreciate other people's perspectives fully. Until all the key perspectives are incorporated into a study then any analysis will be partial and any intervention likely to fail.

(d) when dealing with complex human systems it is necessary to focus on improvements, not solutions. Sustainable change takes place slowly and as the result of co-operative action by large numbers of agents and agencies within the system.

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[4] The theory and practice is described in the following books: *Leadership without Easy Answers* by R.Heifetz, Harvard University Press, 1994; *Leadership on the Line* by R.Heifetz & M. Linsky Harvard Business Press, 2002 and *The Practice of Adaptive Leadership*, by R.Heifetz, A. Grashaw and M Linsky Harvard Business Press 2009