Almost 50 years ago we began a series of studies of the goals of education as perceived by pupils, parents, teachers, and employers. Subsequently we confirmed the accuracy of the perceptions through studies in workplaces and society. The results for adolescent pupils are shown in the next OHD.
There are many important things to be said about this list, but the most important from our point of view today is that most of the goals at the top get neglected. Teachers teach and pupils work toward the goals that are assessed although, if one looks at some of the items near the bottom, one sees that the content on which those assessments are based is considered relatively unimportant. The system more or less does the opposite of what it is intended to do.
There are many reasons why these goals are neglected and some are extremely important on their own.
5. Transformational. Can't specify outcome in advance.
7. No tools to help teachers administer individualised, CBE programmes. Too much to expect.
8. Variety and choice in conflict with equality: Worries about reinforcing social divisions.
9. Conflict with beliefs about behaviour to be expected of public servant. Requires teachers to attend to pupils’ needs and invent ways of meeting them. Requires teachers and pupils to be doing things they do not know how to do and the outcomes of which they cannot specify in advance.
Public servants not expected to be innovators and adventurers: expected to do bidding of elected representatives. Criteria and tools of accountability. Creation and management of innovative climates in schools/public service.
Won't call for research because do not think it can help them with such problems.
Many of the reasons why these goals are neglected are extremely important on their own.

But the most important from the point of view of today’s discussion is that

they form an autopoietic, self-reinforcing, self-extending **system**

which is sketched in the next slide.
Figure 1: Feedback loops driving down quality of education
The attempt to change any one part of this system on its own is

- not merely negated by the reactions of the rest of the system
- but also produces un-intended, and often counterintuitive and counterproductive, effects elsewhere in the system.

Note that this usage of the word “system” differs very much from the way it is used by eg Gordon Hall and John Seddon.

What help can we get in how to map such systems and think about how to intervene in them

The next slide reproduces a figure from Gareth Morgan.
Price Inflation as a System of Mutual Causality. (Discussion on next OHD.)
When we understand the problem of price inflation as a system of mutual causality defined by many interacting forces, we are encouraged to think in loops rather than in lines. No single factor is the cause of the problem. Price inflation is enfolded in the nature of the relations that define the total system.

Many of the links represented in this diagram are deviation-amplifying (heavy lines); negative-feedback relations (dotted lines) are more sparse. Positive feedback thus gains the upper hand.

The system can be influenced by amplifying some feedback loops and damping down others … as in electronic circuitry.
But note that such intervention is usually said to be dependent on “political will”, which is then said to be lacking.

In other words key feedback loops are missing from the diagram.

Our central task over the past few years has been to find ways of conceptualising, mapping, and measuring such social forces.

Unfortunately, we have not been very successful.

Let me now give another illustration of the value of pursuing such systems maps. This time from Forrester. These maps provided the basis for Meadows’ 1971 “Club of Rome” Limits to Growth report.
The next figure shows what is likely to happen (as of 1961) if things are left pretty much as they are.
But look what happens if one has the bright idea of limiting consumption of natural resources.
Fig. 3. A pollution crisis is precipitated by lower usage of natural resources. In 1970, natural resource usage is reduced 75 per cent by more effective technology without affecting material standard of living.
By not running out of resources, population and capital investment are able to rise until a pollution crisis is created.

Pollution then acts directly to reduce birth rate, increase death rate, and depress food production.

Population, which, according to this simple model peaks at the year 2030, has thus fallen to one-sixth of its peak within 20 years.

This would be a world-wide catastrophe on a scale never before experienced.
Generalising this observation, what we have here is a dramatic example of the common experience whereby a programme aimed at fixing one problem creates a new set of problems somewhere else in the system.
That’s it, really.

I think I have illustrated the importance of developing new ways of thinking about, mapping, measuring, and harnessing social forces ... and intervening in systems *qua* systems.
Website: www.eyeonsociety.co.uk, especially http://eyeonsociety.co.uk/resources/fulllist.html which contains pdfs of many articles and books, including the following:

John Raven: Conceptualising and Mapping Social Forces.
http://eyeonsociety.co.uk/resources/sico.pdf (includes refs to Morgan, Forrester, Meadows, etc.)

http://eyeonsociety.co.uk/resources/ravnav3.pdf or, better,

John Raven: Advancing and Defeating the PEGS Agenda: Socio-Cybernetics and Murray Bookchin
http://eyeonsociety.co.uk/resources/GS09.pdf
