John Raven: Education and Sociocybernetics

Brief description: The paper describes and maps the social (sociocybernetic) forces which drive education out of schools, outlines possible new public management arrangements which might help us to engage with those forces, and identifies the competencies required to understand and intervene in complex networks of social forces.

Abstract: Maria Montessori not only promoted a version of multiple talent education to be used by schools and teachers but also emphasised that it would be necessary to put the "child at the centre of society" to bring about the societal developments that were needed for that form of education to spread more widely.

Montessori's followers have not succeeded in doing this. Far from it. By and large, the forces which would need to be tackled have largely corrupted the programmes Montessori schools offer into being minor variants of conventional (mis-) education.

How has this come about?

In this paper it is suggested that a major component in the explanation is that Montessori teachers themselves have not examined – and developed the competencies required to tackle – the social forces which regularly undermine well intentioned social action.

So: Bringing children and adults to understand those forces and develop the competencies needed to understand and engage with them becomes a central goal of education for both children and adults.

This paper will discuss the application of sociocybernetics to this process.

In this paper, I will try to hint at some of the social forces which have deflected schools and teachers from the main goals of education and corrupted the system into becoming largely a mechanism to create and legitimise the kind of hierarchy which expresses itself both in huge social divisions and the generation of endless senseless work which has, as "side effects", the destruction of our habitat, in turn leading to our extinction of our species and even Gaia herself.

Maria Montessori explicitly set out to nurture and recognise the vast range of talents pupils actually possess instead of mainly arranging them in a hierarchy from "smart" to "dumb".

But, although generally overlooked, she recognised that social, as well as educational, change would be needed if such programmes were to be introduced more widely. To this end she spoke about "putting the child at the centre of society".

Failure to do this is perhaps the most important failure of the Montessori movement.

This raises the question of what competencies teachers would actually need to bring about the developments needed to "put the child at the centre of society".

Clearly they would need the ability to work out how society works combined with a collection of the abilities needed to intervene in it.

At the root of the problem lies the question of why there has been a continual drift, over many millennia, toward a social hierarchy based upon the creation and management of largely senseless "work". Senseless work which does little to enhance the quality of life of those involved (or other members of society) but does destroy our habitat, and thus our chances of survival as a species, at an exponentially increasing rate.

The trend toward the creation of largely senseless work is actually clearly visible within the educational system itself.

More and more bureaucrats are employed to generate more and more specifications for what teachers shall do in every 10 minutes of the day and check the evidence (which all teachers have to spend huge amounts of time producing) to show that teachers have followed these prescriptions and the endless tick-box-based, assessments of pupils' "knowledge" – tick-box forms which themselves require enormous amounts of time to produce.

Nothing could be better designed to prevent teachers thinking about the idiosyncratic talents of each of their pupils and how to create personalised developmental programmes to nurture them.

Nothing could be better designed to lead teachers to believe that the only thing they can do to change the stultifying situation in which they find themselves is to shout at the bureaucrats who generate the regulations. And, when they find that this is futile, complain in back rooms about the inadequacies of the (public management) system. And communicate these feelings of powerlessness and futility to their pupils.

The same is true of social workers: They now spend 60% of their time in front of computers searching out approved procedures for pre-specified situations and documenting outcomes. Little time is left for studying the actual needs of their clients and the situations in which they find themselves or working out situationally-appropriate ways forward.

The same is true of doctors. They too have been deprived of the opportunity to attend to their patients' particular problems and are instead commanded to prescribe one course of drugs-based treatment or another. In short, their professionalism has been destroyed.

The same is true of those who dig holes in the road.

And farmers.

And so on and so on: The generation of endless regulations and checking procedures is not the preserve of the EU!

The general effect of all this has been to generate a pervasive feeling of alienation from work. And this is exacerbated by a gross feeling of anger and injustice stemming from an awareness of such things as the injustice of the International banks' role in generating the "banking crisis" (the consequences of which have been inflicted on society as a whole) and the World Banks' "structural adjustment programmes"(1).

So how to move toward understanding what is going on and working out how it might be possible to intervene in it?

Toward an Understanding of the System

As it happens, I have developed a few insights in the course of my 50 years' study of the educational system itself(2).

We first showed that the vast majority of parents, pupils, employers, and other adults, like Montessori, wanted the educational system to nurture the wide variety of talents which different pupils possess. (Examples of these talents would be initiative, problem-solving ability, the ability to put people at ease, and the ability to understand and intervene in political systems.) Then we showed that these talents are indeed required in workplaces and society more generally.

Then we showed that very few schools actually set about nurturing them. Instead they, in effect, arrange pupils in a single hierarchy of "ability" based on temporary mastery of out of date, and rapidly to be forgotten, "knowledge" which is rarely relevant to their needs.

Then we showed that there are many reasons for this. These include the absence of any well-established frameworks for thinking about multiple talents and how they are to be nurtured … let alone how give pupils or adults credit for possessing them … or teachers credit for having nurtured them.

But the most important reason for their neglect is that schools mainly exist, not so much to educate, as to perform the previously mentioned sociological function of arranging pupils in a hierarchy which contributes to, and legitimises, the hierarchical basis on which society is organised.

A Core Insight

Yet, despite the importance of these specific insights, the most important lesson we ourselves learned in the course of this work was that these various constraints do not operate independently but form an interlocking network, or *system*, which has the effect of ensuring that one cannot change any one part on its own without the effects of that change either being neutralised by the reactions of the rest of the system or producing counterintuitive, and usually counterproductive, effects elsewhere.

Two components in this network turned out to merit particular attention.

One has to do with governance: The conclusion usually drawn from the observation of the previously mentioned systems effects is that systemic change can only be introduced via centralised system-wide command.

The other has to do with a network of forces which collectively result in the previously mentioned inexorable progress toward a hierarchical social structure which depends on the creation of the endless senseless work which is needed to constitute, legitimise, and sustain hierarchy.

Creating a design for a new *system* of governance – an alternative to our current fraudulent and dysfunctional "democratic" system – and finding ways to intervene in the network of social forces which seem to have the future of mankind and the planet in their grip are therefore crucial to moving forward.

My claim is, therefore, that unless the Montessori and related movements concentrate explicitly and intensively on these two tasks their work will have, at best, short-term, palliative, effects.

In the remainder of this paper, I will expand on what we ourselves have learned about some of these things and indicate some of the research and development needed to take things forward.

Mapping, measuring, and harnessing the network of social forces which control the "educational" system ... and have the future of humankind and the planet in their grip.

A rough systemogram depicting the network of social forces which deflect the so-called educational system from its manifest goals is reproduced in Figure 1.

There is not space to unpack this diagram here but full discussions can easily be found by clicking the electronic links available in the citations to Raven (1994, 1995 or 2012)

Nevertheless, the systemogram illustrates why we believe the two sub-systems which have just been mentioned are of particular importance.

The first of these sub systems comprises the formal governance (ie socio-cybernetic(3) system society deploys in its attempt to manage many of its components, including the educational system. Some, mainly dysfunctional, features of this sub-system are listed in the central box. This governance system operates in such a way as to, among other things, stifle educators' attempts to cater for, nurture, and recognise the huge range of talents that are available in the student body(4) and, instead, forces the educational sub-system as a whole to arrange students in what is essentially a single-factor hierarchy of "ability". This seemingly unarguable (but actually manufactured(5)) hierarchy then contributes to, and adds legitimacy to, the hierarchical arrangement of society. The current governance system also stifles the variety, experimentation, and learning which would be required for any form of evolution worthy of the name to take place in the educational system itself.

Diagram 23.1. Feedback loops driving down quality of eduction.
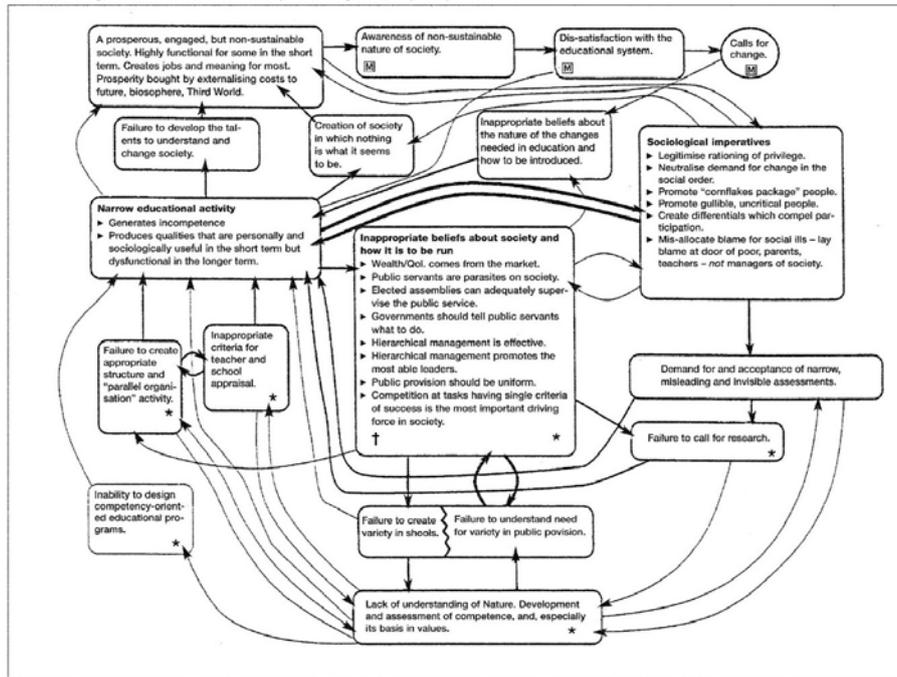
*Intervention in these cells would help change the nature of the qualities nurtured and rewarded in the system. Motives which could be harnessed to do this are marked Ⓜ.

†These need to be replaced by acceptance of the need to make managed economies work – to find way of giving effect to information concerning the public long-term interest, the need to explicitly create variety and information on the personal and social consequences of the options, and to find ways of holding public servants accountable for, and getting them to at in, the long-term public interest. This means systematic, broadly based, evaluation and participative democracy.

Figure 1 Feedback Loops Driving Down Quality of Education

An enlargeable version of this diagram is available at:
http://eyeonsociety.co.uk/resources/Figure%201%20%28formerly%2023.1%29%20rev.pdf

The second sub-system playing a major role in deflecting the educational system from its goals is the wider network of sociological forces driving toward hierarchy. This is represented in the right hand box, labelled "Sociological Imperatives", in Figure 1.

It turns out that this sub-system also plays a major, if not the major, role in determining what happens in society as a whole. Although neglected by most researchers, its importance has been heavily underlined by Bookchin(6).

What Bookchin argued is that the sociological forces pushing toward the centralised, command and control oriented, management systems shown in the central box in Figure 1 have been exerting their influence inexorably over endless millennia, over-riding numerous protests, documentations of the ecologically- and humanly- destructive nature of current ways of doing things, and demonstrations of the desirability and, indeed, viability, of alternative ways of doing things.

Bookchin argues that the development and perpetuation of this hierarchical system depends above all on the creation of endless senseless work (such as building pyramids, manufacturing, marketing, and distributing cars, junk foods, junk toys, junk "defence" systems, junk insurance systems, and junk public management systems). The hierarchical system that results constitutes, legitimises, and compels participation in, itself. People participate in the self- and community-destructive work of which modern society is largely composed in order to avoid the degrading and dehumanising treatment meted out to those who arrive "at the bottom of the heap". Contrary to one of the self-reinforcing myths created by the system, the goods and services produced contribute little to quality of life(7).

Bookchin simply attributes all this to a "self-organising" process. But such an "explanation" is altogether too facile. If we are really to explain it, it will be necessary to map and understand the network of mutually supportive and recursive socio-cybernetic forces involved.

[For some readers it may be necessary at this point to repeat that, as explained in an endnote cited earlier, cybernetics is the study of the (largely invisible) guidance and control (governance) systems of animals and machines ... and the design of better ones. So *socio*cybernetics becomes the study of the hidden network of feedback mechanisms which control the operation of society (and its components) … and the design of better ones. Note that *most* feedback mechanisms in organisms are *not* hierarchical. Indeed, many of them remain deeply mysterious.]

Before moving on, it is important to still further underline the importance of the problem by noting that what we have said means that, in contrast to the autopoietic, self-extending, network of processes which have promoted life and eventuated in Gaia herself (or perhaps the reverse), what we seem to be observing here is a network of processes which collectively amount to nothing less than an autopoietic (viz self-elaborating, self-reproducing, and self-extending) process destined to *destroy* Gaia – that is to say, life – itself.

Our conclusion is, therefore, that, regardless of the exact basis on which progress might be made, it is of the utmost importance to find ways of conceptualising, mapping, and harnessing the social forces involved.

What Figure 1 says is that the operation of the "educational" system is largely controlled by a network of invisible, mutually reinforcing, feedback loops or forces. These collectively form an autopoietic (viz self-organising and self-extending) social system with multiple interacting feedback loops. Hence, one cannot change any one part on its own

without the effect of that change either being cancelled by the operation of the rest of the system or showing up as counterintuitive, and usually counterproductive, effects elsewhere. So, essentially, if we are to improve on things, we must find nodes through which effective exogenous change can be introduced. To do this, it will be necessary to transform systemograms (such as those shown in Figure 1) into *Dynamic Systems Models* such as those illustrated in the work of Forrester, Meadows et al. (2004, 2008)(8), STELLA(9), and Harich (2010).

By the time Figure 1 was published(10) it had become clear that the widely shared image of – and, indeed, the actual operation of – the central "governance" sub-system within which the "educational" system operates (ie the in the centre of Figure 1) needed to be re-designed along more organic lines. In saying that it needs to be more "organic" we mean to indicate that it needs to incorporate more, and especially more non-hierarchical, feedback loops and arrangements for promoting pervasive (non centrally directed) innovation.

Although the main contribution of my *New Wealth of Nations* consisted in generating an alternative design for this governance box the results were summarised in Chapter 19, which can be viewed through the link at(11) and other links available in the citations to Raven (1994, 1995 and 2012):

However, if one considers the developments that would be needed to get the educational system to nurture and credential the talents of all our children in this context one finds that it would be necessary to undertake a huge amount of research into the nature of multiple talents and how they are to be nurtured and recognised.

One also finds that, in order to cope with the diversity of values involved, one would have to create, in each community, a variety of distinctive educational programmes, document the short and long-term consequences of each (what is good for the individual and/or community in the short-term may have negative -term consequences) and to feed that information to the public so that they can make informed choices between them.

Feeding such information to the public so as to enable them to make informed choices is very different from most hierarchical images of public management via hierarchical "democracy".

Generalising and expanding these observations, one then finds that a major problem is that we need to change in the way we think about the role of public servants.

It is their job to:
– Create variety.
– Arrange for *comprehensive evaluation* of the short and long-term, personal and social, desired and undesired, desirable and undesirable, consequences of each of the options.
– Feed that information to the public so that they can make informed choices between the options.
– Make arrangements to involve many more people (especially marginalised groups) in generating the options.
– Create a climate of innovation and *systems*(12) learning and action.

Put another way, we need to expect public servants to:
– Initiate information-collection (especially on the operation of systems processes).
– Co-ordinate and sift all available information for good ideas.
– Act on that information, in an innovative way (i.e. via comprehensively evaluated experiments followed by further experiments based on that learning), in the long-term public interest.

To get public servants to do these things it will be necessary to introduce:
– *A New Staff-Appraisal System:* To give people credit for innovatory activity in the long-term public interest.
– *Network-Based Working Arrangements:* To draw public servants' attention to what is happening in areas which impinge on their own work.
– *"Parallel Organisation" Activity*(13): To create a pervasive climate of innovation within the public service.
– *Better Arrangements to undertake more Systematic Evaluations of Policy and especially the (systemic) reasons for failure* …and then initiate a further cycle of experimentation.
– *A New Interface between Public Servants and the Public*: To make it easier for the public to obtain provision suited to their particular needs and make it easier for them to influence provision.
– *A New Supervisory Structure*: To help to ensure that public servants seek out, and act on, information, in an innovatory way (ie through appropriate arrangements for experimentation, evaluation and learning), in the long-term public interest.

The last two requirements amount to new forms of democracy and demand new concepts of citizenship. Note, in particular, the disappearance of multi-purpose assemblies of elected representatives who know little about most of the issues on which they are taking decisions … assemblies which both Adam Smith and John Stuart Mill termed "committees of ignoramuses". As Mill noted, the functions of such assemblies are "not to govern – a task for which they are eminently unsuited – but to make visible to everyone who did everything and by whose default anything was left undone". If that is their function there is clearly no need for the kind of multi-purpose assembly, controlling the spending of some 75% of GNP, to which we have become accustomed.

Enter Thanatos

As already mentioned, since my *New Wealth of Nations* was published, Bookchin's work has underlined that we had seriously underestimated the importance of studying the network of social forces hinted at in the box to the right of centre in Figure 1 (ie the box labelled "sociological demands"). It is now clear that it is this sub-system that has the survival of our species and planet in its grip.

In the course of writing *The New Wealth of Nations* we produced a preliminary map of the network of social forces constituting that system. This is available at http://www.eyeonsociety.co.uk/resources/diagram%2020.6.pdf

It is now quite clear that it is vital to re-draw and complete this map using the tools that have become available through the work of Forrester and STELLA, which was mentioned earlier.

That said, it is of the greatest importance to note that systemograms even as good as these fail to indicate the relative strength or importance of the various feedback loops involved … that is, they fail to indicate the relative strength of the forces involved in a manner analogous to that which enabled Forrester and Meadows to calculate the probable effects of alternative interventions in the network of physical, biological, and economic feedback loops they mapped as a basis for the predictions made in *Limits to Growth*.

Mapping the network of *social* forces involved – and transforming it into a genuine socio-cybernetic/dynamic systems model (as distinct from a mere systemogram) – would be an enormous task. It certainly could not be accomplished without substantial funding. Yet the importance of doing it *well* cannot be underlined too strongly. Reliance on incomplete models has, in the past, led to grave policy errors. An incomplete and misleading map could thus be *worse* than useless. It follows that bringing such a project into existence on a well-funded basis would be one of the most important things the World Council for Curriculum and Instruction could possibly do.

Nevertheless, having underlined the importance of the dynamic systems modelling approach developed by Forrester and deployed in the "Club of Rome" report, it is important note that the failure of that report was precisely its failure to map the *social* forces which result in the decisions which determine what the outcome of the interactions they map will be. They are *external* to their model.

Forrester, Meadows, and others, weakly conclude that we "lack the political will" to enact the policies to which their research points. This statement actually reveals a very important limitation in their systems thinking.

It tells us that they have utterly failed to think about, never mind map, the network of social forces which result in arrangements which have, for millennia, been recognised as running counter to the interests of both mankind and Gaia continuing to be implemented on an ever more destructive scale.

The implicit assumption on which their conclusion is based is, yet again, that some*one, some authority, some world government,* should command the necessary actions.

Yet one of the things I hope I have shown in this article is that faith in the efficacy of command and control arrangements lies at the very heart of many, if not most, of our problems. What I hope I have shown is that Adam Smith was right to argue that what we most need is a *learning society* – a society which will experiment, innovate, learn, and evolve without central direction. Unfortunately his suggestion that the "market mechanism" might provide a basis on which such a society might be built is wide of the mark. As I have shown in the *New Wealth of Nations,* is that it does not and cannot work.

So we still urgently need a new image of the arrangements – the the socio-cybernetic (governance) system – on which a public management system which will act in an innovatory and evolutionary way in the long-term public and planetary interest might be built. And we need to understand, map, and harness the network of social forces which seem to have our future, and that of the planet, in their grip.

A daunting task

Given the difficulties which teachers and others have in stemming the destructive developments continuously being introduced into public management, including the educational system, the thought of bringing such developments into being is a daunting task.

Unfortunately, this is only the beginning.

What Montessori is really saying is that moving forward depends on the creation of a *learning society* – a learning society very different from that which lies behind most discussions of "lifelong learning – a *learning society defined as one which innovates and learns without central direction.*

The task of doing this becomes even more daunting the more one learns about the central role which the international banking community have, over at least the last 10 millennia, played in creating the perilous situation in which we now find ourselves.

As one familiarises oneself with this(14), the notion that it might be possible to stem our plunge toward extinction as a species by seeking to conceptualise, map, measure and harness the hidden social forces at work seems to become less and less plausible … because, in a sense, these forces are right here in front of our eyes … and clearly visible through the works of such people as Susan George(15), Naomi Klein(16) (17) and David Graeber(18).

On the other hand, it is also true that the drift to hierarchy, centralisation, and command and control has, as we have seen, been going on since long before the emergence of modern capitalism, banks, and bankers(19).

Has this happened because some people are just so much better at systems thinking than others that they are better able to work out how to advance themselves (and the sub-set of the community to which they belong) than others? Or is the explanation to be found elsewhere, just as the behaviour of the planets and other moving objects is to be found, not in the will of the gods or the nature of the moving objects(20), but in the laws of physics. Only when the latter had been understood was possible to design the cybernetic (governance) systems that made it possible to have sailing boats that could sail *into* the wind and interplanetary missiles.

As I see it, one of the things that Graeber(21) has shown is that the recent attempt by the *Occupy* movement to stem the tide and create a more satisfying and sustainable society in America has been met, not just by a combined massive reaction on the part of the banks, trans-national corporations, governments, and other vested interests, but by a *systemic* reaction – a reaction of a system *as a whole* – as distinct from the prolific, but discrete, reactions of its constituent parts(22).

In other words, it is *not true* that we understand the forces at work and who the enemy is, who to fight.

More specifically, it is not true that, as is often claimed, we need to join forces to "fight the banks".

What is true is that, if we are to survive as a species, we urgently need to dismantle our economic system, our chemical intensive agriculture, our oil-based economy(23). Contrary to the beliefs of many radicals, we *do* need austerity … but not the kind of austerity that is currently being talked about: we need a form of austerity which, without destroying

our habitat, delivers long, high-quality, lives (which, as we have seen, do not depend on the material goods we strive so hard to produce(24).

The way forward will not, as most of those associated with the degrowth movement seem to assume, be found by fixing this or that so that we can go on pretty much as we do now. All their good ideas will be eliminated by the onward march of hierarchy unless we understand the forces responsible for this phenomenon and work out how to intervene in and harness them.

One cannot fight the wind which crashes our boats against the rocks. It is no good shouting at ships' captains or politicians or sacrificing our children to the Gods. We have to conceptualise "force", and show how it can be measured, mapped, and harnessed by putting keels on our sailing boats and redesigning the sails and the rudder.

By analogy, we now have to conceptualise social forces, identify how they operate(25), and work out how to harness them.

Just as we had to progressively redesign the cybernetic system of our sailing boats we have to redesign the governance system we deploy in an effort to manage our society.

We have made a start. We have sketched out an alternative response to Adam Smith's quest for an image of a cybernetic (viz governance) system which would enable society to innovate and learn without central direction. And we have contributed a (less good) preliminary sketch of the network of social forces which perpetuate the creation of senseless work … though not of the elaboration and perpetuation of hierarchy(26). The problem is to find a way of continuing with the task, the magnitude of which is huge in comparison with current budgets for social research(27).

And, even then, we would not have "solved" the problems, any more than Newton prevented sailing boats crashing against the rocks. We would only have better tools to facilitate evolution toward a dimly glimpsed, but as yet unknown, destination.

But, to end on a more positive note, Bosch and his colleagues (2013) have provided a remarkable demonstration of the successful application of the full process outlined above (complete with testing the dynamic systems maps of the social forces involved) in connection with community development.

Back to the conceptualisation of competence – and one more problem.

One of the things we have seen in this article is that competence in modern society depends overwhelmingly on the ability to engage in systems thinking and beliefs about how society works and the role of citizens within it.

However, one thing that has not so-far been stressed is the error of focussing on *individual* competence. The problem is that, as perhaps best emphasised in Raven (2014), the multiple talents and competencies so clearly visible in appropriately organised classrooms and workplaces *could not exist outwith those contexts.*

Once again, this is part of another pervasive tendency in modern society – a tendency to *individualise* everything – to abstract behaviour from its social context. Thus responsibility for health and well-being is assigned to individuals instead of the contexts in which they live and work. (For example, responsibility for "stress" is assigned to individuals instead of, for example, working conditions and the conditionalities required to obtain "benefits" and treated via drug prescriptions.) Likewise people are expected to obtain security by taking out individual insurance policies. Poverty is attributed to individual negligence and "treated" by removal of "benefits". Failure to create developmental environments for one's children is attributed to individual incompetence (and treated by requirements to attend parenting courses criminalisation for failure to follow prescribed rules) rather than the contexts in which the parents find themselves, people are held individually responsible for "war crimes" while the social contexts in which prompted the behaviour are overlooked.

And here we can add one more remarkable finding from systems studies of workplace behaviour. It has emerged(28) that, in round figures, some 94% of the variance in performance within specific jobs is attributable to variation in *system* constraints and only 6% to variance in the personal competence of the individuals.

We may therefore summarise and reformulate an issue which has become increasingly clear throughout this article: **We need *to turn psychology inside out*** in a manner analogous to the way in which Newton turned physics inside out. Before Newton, if objects moved or changed direction it was because they were *animated* – i*e* it was due to their *internal* properties. After Newton it was mainly because they were acted upon by networks of *external* forces which could nevertheless the conceptualised, mapped, measured, and harnessed.

So what are we saying? We are saying that, if teachers wish to implement multiple talent education along the lines suggested by Montessori and others, they will need, among other things, to abandon their focus on *individuals* and instead focus on creating the kinds of *developmental environments* discussed in Raven (1994 and 2014).

Implications for Teachers, Teacher Organisations, and the WCCI

One thing that is clear from this article is that, if teachers wish to advance the cause of general education, there is a vast range of things which they (collectively) will need to do.

They will have to get together with their colleagues to influence not only their professional organisations(29) but also what happens in society more generally.

They will have to promote the evolution of alternative forms of government which will act in an innovative way in the long term public interest.

They will have to promote the development of alternative ways of thinking about the nature of competence, developmental environments, and climates of innovation.

They will have to move from understanding "teaching" as mainly involving "telling" to teaching "as facilitating growth".

They will have to encourage their pupils to engage in more systems thinking and especially to map social processes by constructing systemograms and building dynamic systems models.

They will have to reconsider their image of science, and especially to move away from enthrallment with reductionist science toward what might be called "ecological" science … science grounded in systems thinking(30)

In this context, they will have to rethink their views about the nature of scientific competence how its development is to be facilitated in schools and other educational contexts(31).

Acknowledgements

Notes

(1) See Raven (2014, 2015)
(2) See Raven (1994) for a summary and Raven (2012) for a longer version of this article.
(3)This term will be explained below. Nevertheless, it may be useful to say that cybernetics is the study of the (largely invisible) guidance and control (governance) systems of animals and machines ... and the design of better ones. So sociocybernetics becomes the study of the hidden network of feedback mechanisms which control the operation of society (and its components) … and the design of better governance systems.
(4)See Raven (1994).
(5) See Raven (2008).
(6) Bookchin (1991/2005). [see Raven (2009) for a summary].
(7) See Robert E Lane (1991), Marks et al (2006).
(8) see http://www.eyeonsociety.co.uk/resources/forrester2.pdf
(9) http://www.eyeonsociety.co.uk/resources/STELLA_Flow_Diagram_of_SDSIM_Version_1.pdf
(10) in Raven, (1995)
(11) http://www.eyeonsociety.co.uk/resources/NWNChap19.pdf
(12) Failure to think in systems terms about the manifold consequences of intervensions – ie failure to think about all the possibile contributors to a problem and the diverse and counterintuitive consequences of an intervention is actually pervasive modern society. Failure to do so results in endless errors in both the interpretation of "scientific" findings and the generation of social policy. The policy failures are actually nothing short of disastrous. (See Raven, J., 2016).
(13)"Parallel Organisation Activity" is a phrase coined by Rosabeth Kanter (1985) to characterize the non-hierarchical, fluid work-group based, activity which goes on alongside normal hierarchical activity in innovative organisations.
(14) See Raven, J. (2015)
(15) George, S. (2010)
(16) Klein, N. (2007)
(17) I have to confess that I find myself to be utterly schizophrenic about this matter. I flip from a quest for explanations grounded in social forces into "explanations" couched in conventional "psychological" and "sociological" terms. Thus, at times, I find explanations couched in terms of the operation of undesirable human traits – the adulation of authority, greed, an insatiable desire to be one's brother's keeper and insist on imposing one's own values and beliefs on others by force (see Raven, 2006) – irresistible. Despite widespread assertion that many of our problems stem from a lack of "systems thinking", I am regularly struck by the opposite. Someone, or someones, devise complex schemes to orchestrate wars, financial scams, conquest, and control of political and financial structures. If "proof by example" is needed, Robert Reich (2015) has shown how Blankfein and his team at Goldman Sachs worked out how to make a fortune for the bank by first helping the Greeks to hide 2% of their "debt" and then doubling it (charging $793 million for their services), and then devising a "rescue" package in the form of a "loan" of 2.5 billion (fictitious) Euros. But then there is the counterthought: single-factor intervention in poorly understood complex systems almost always has counterintuitive and counterproductive effects and thus, in a sense, illustrates Adam Smith's claim that the decisions are taken by committees of ignoramuses. But, then again, who cares about these unintended and undesirable effects? And how to take steps to avoid them? These are fundamental questions that sociocyberneticians and systems thinkers more generally need to address.
(18) Graeber (2011, 2014)
(19) Bookchin (2005). Graeber (2011) has also shown that the creation of debt with the resulting arrangements for subjugation, control, exploitation, and extortion has also proceeded and accelerated over many thousands of years.
(20) Prior to Newton, if objects moved or changed direction it was because they were "animated", ie because of their internal properties. After Newton it was mainly because they were acted upon by networks of external forces which could nevertheless the mapped, measured, and harnessed.
(21) Graeber (2014)
(22) I am deeply grateful to Aidan Ward for a powerful illustration of the difference between the two. A human body is made up of numerous cells and endless interacting processes (most of which by-pass the brain – ie they are not hierarchical). But, by and large, if one wishes to influence a human being, it is best to address the whole body – to speak to it or imprison it – not to address the individual cells or processes of which it is composed. Aidan speaks of the "Gestalt flip". Instead of seeing all the components one by one, as one could do when viewing the furniture in a room, one sees the whole. The body has emergent properties not located in the cells or the relationships between them. It can sing and dance and shoot to kill. A bank or military-industrial complex has similar emergent properties. But how to think about, conceptualise, a wider system that reacts as "America" did to Occupy? How to influence it? How does it spawn banks and police forces? What are the key feedback loops in its internal organic sociocybernetic system? How does it maintain itself? What are the sensors through which it collects the information needed to respond to its environment?
(23) The evidence to support these claims was brought together in Raven (1995, 2014).
(24) See Marks et al (2006) for examples of societies that approximate this ideal.
(25) Bookchin explicitly ducked the task of working out how the seemingly inexorable onward march of centralisation, hierarchy, command-and-control (all seemingly associated with the creation of endless senseless work), came about. He simply asserted that it arose from a "self-organising" process. Our first response to this has to be to say that the phrase "self-organising" is an understatement. The processes are self-elaborating and self-extending, in a word "autopoietic".
To take an everyday example for illustrative purposes. I remember the first Director of Education being appointed in my home town. Everyone wondered what he was to do. Before that there was just a central office paying salaries and then schools, teachers, and head teachers operating within central government proclamations about how to cater for the three types of mind identified by the Greeks and allegedly confirmed by the latest psychological research. Now, 70 years on, the staff, offices, and pay of the administrators, inspectors, specialists, advisors, and enforcement officers of this central agency cost more than the total for schools. It is "obvious" how this came about. Bit by bit the staff of the Department usurped the responsibilities of teachers and head teachers and, to ensure that there would be

no "failing" schools or pupils, prescribed what teachers should do every 10 minutes of every day and checked up on them via check-lists, inspectors, and centrally generated and scored tests first of pupil attainment and now of an extraordinary culture-bound concept of "well-being". Now the bureaucrats are into generating parallel mandates for what parents must do to promote the development of their children's (hierarchically-defined) "ability" and (centrally-defined) "well-being", hoarding them into compulsory parent-education classes, sending inspectors into their homes and fining and imprisoning them if they do not follow the state's prescriptions.

All of this may sound bad enough, but it is also important to remind ourselves of one other, very important finding from our research. What passes for "education" consists primarily of involvement in activities which are entirely senseless from the point of view of promoting the development of talent and competence … but are extremely valuable from the point of view of inculcating a willingness to compete at senseless tasks and in such a way as to generate acceptance of the notion of a hierarchy of "ability" linked to social position and willingness to follow the dictates of authority.

All this would seem to constitute a sufficient explanation of a particular autopoietic process. So it raises the question of whether there is any need for any deeper sociocybernetic understanding. Is there any need for any explanation except for the lust for power on the part of some and distrust in the goodwill and competence of others? In short, is there a need to posit any specifically sociological as distinct from psychological processes?

In this context it is useful briefly to mention the work of de Jouvenel (1945/48). He has contributed an extraordinary detailed account of how the processes promoting centralisation, bureaucracy, and hierarchy, which are collectively termed "power", have operated and evolved over the centuries.

It would seem that power has been progressively wrested from the people by a range of managerial types who claimed to be able to intervene in more and more of the network of hidden forces which primarily determine people's quality of life but are generally beyond their control.

The process starts with people who claim they can intervene with the gods to control the weather and those who are actually able to better ward off attackers.

Continuously, more and more people are dragooned into devoting their energies and lives to supporting these people, who then become more dictatorial in their pronouncement demanding an ever greater proportion of the ordinary people's resources.

In due course, the people rebel. But they quickly appoint new leaders to help them fight both their previous oppressors and those of their fellows who take advantage of the situation to advance their quest for power, gory, or possessions.

But these new leaders quickly become even more oppressive and coercive of the people than those have overthrown. Except that this is now done in the name of, and with the support of, the people themselves.

Vastly more people are conscripted into, and die in the causes of, "the peoples' armies" and "the common good" than the deposed king could possibly have dreamed of.

They murder, dispossess, and acquire the resources of, ever more "enemies" … even enemies within their own ranks.

The expectation is created that it is the authority's responsibility to right all wrongs instead of the public themselves being expected to at least contribute to that.

Once "the authority" becomes a parliament elected by popular mandate, there comes a flood of demands to fix every conceivable wrong experienced by every member of the population. Individual "parliamentary representatives" are so flooded with demands to do something about everything that they have no time to think about anything. The resulting situation unleashes a swathe of pressure groups to put pressure on the representatives to advance the cause of one sectional interest or another (rather than advance the general public good). All of this leads to demands for conformity to authority rather than the release of a climate of diversity, experimentation, and innovation.

I am sorely tempted to summarise more of de Jouvenal's observations but enough has been said to justify my making one more point.

Here we have a classic positive sociocybernetic feedback loop (or spiral) whereby a problem generates a "solution" which exacerbates the problem.

But the question is: "Why does that spiral only advance toward centralisation, command-and-control, and destruction of habitat instead of toward more 'organic' arrangements which would enhance the quality of life of all and reduce the destruction of habitat in such a way that our species would have at least a chance of survival?" What are the social forces behind this?

(26) Raven (2014).

(27) Note that both the development of radar itself and the work needed to conceptualise physical force and demonstrate the value of so-doing were conducted, as it were, "under the radar". No one in their senses would have funded Newton asserting that there is somewhere an equal and opposite reaction to the force of the wind on the sails … and that it is … where? … in the sea … and it can be harnessed by … what? …adding a keel to one's boat!

(28) Eg Seddon (2008), Deming (1980)

(29) Raven, (2011, 2012)

(30) Raven (2016)

(31) More specifically, they will have to reconsider their notions of what is involved in generating "evidence-based policy" and use these new insights as a means of encouraging their pupils to routinely ask "What is the evidence for … (commonly accepted assertions)". It may be noted in passing that such a change would offer a means of achieving the widely endorsed but rarely practiced goal of encouraging critical thinking.

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