

Ongoing Discussion “Thought Piece”

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How to Advise the President

21st Century Thinking and Decision Making

Graham Rawlinson

(An excerpt from his [book](#), available in Kindle edition)

Imagine

In her book, [Ten Zen Questions](#), Susan Blackmore takes us through an attempt to 'see ourselves.' I can see my feet, I can see my legs, I can see my hands and arms, and I can just about see my nose, but apart from my nose, as she says, 'I have a headless body!' Because we are in our minds, rather than out of them, they are the hardest things to see. So let me take you through an exercise which I hope will help you start this journey of discovery of what may be inside your mind, not for any other reason than you are the start of any and all journeys, and so knowing where you start seems like a sensible thing to do.

At the steps of a monastery there are 10,000 steps to the grand entrance. Imagine.

You could be taking each step thinking, 'I wish they would repair the cracks, I could trip over.'

Or, you could be thinking, 'If only these steps were a bit bigger I could get there in 500 paces.'

Or, you could be thinking, 'I am taking one step at a time, nearer and nearer, to a place of peace and tranquillity.'

Or, 'nearer and nearer to God', if you are of religious mind.

The difference between one experience and another, between different experiences of walking up those steps, is massive. Yet in Brain terms, as far as your Mind goes, it will be relatively tiny. Just a switch, one part on, the other off, a switch between your left hemisphere getting active over the detail on the cracks, over analysing the detail of muscle movement for every step, or your right hemisphere taking in some kind of whole picture, the immense history of it all, the enormity of the passion of the millions of pilgrims who have climbed up these very steps.

Suddenly you feel a majestic certainty of the splendour, of the holiness, of the mystery, of enlightenment, of pure joy.

One little switch, on, or off, pure joy, or total sorrow.

This book is an attempt to explore those journeys.

"To bring anything into your life, imagine that it's already there" -

Richard Bach, Bridge Across Forever - A love story.

21st Century Paradigms

The most difficult steps to take are those which break the paradigms we have in our heads, and in the heads of our connected community. There have been some fundamental paradigms through the 20th Century which I think have led to major errors in thinking and decision making, for everyday folk and for those who advise the decision makers of the world, as Corporate Presidents, Political Presidents, Chief Executives or simply thought leaders in business, science and art, public and private.

20th Century Paradigm 1. Decisions are best made through conscious decision making, we are free to choose our actions

Although Freud had 3 levels of mental drives, Id, Ego and Superego, he has been seen as the prime mover in the idea of conscious and unconscious motives, the unconscious yielding all kinds of malevolent and dangerous decisions, including the idea that every accident has a motive. The paradigm that there is somehow a real us, one without necessary flaws, not driven by subconscious desires, is core to many other 20th Century Paradigms:

Paradigm 2. Reasoning should be at the heart of decision making;

Paradigm 3. That our Personality Profiles should match our position in teams and in hierarchies of decision making (the 'creatives' being best in early stages and so on);

Paradigm 4. That the exercise of Free Will rests in distancing ourselves from direct influence of our subconscious desires and the views of others;

New Paradigms

1. We are continually conscious at various levels, unless in deep sleep;
2. All mental operations are part of us, who we are;
3. All mental operations contribute to decisions, to thoughts, to judgements, and do so usefully but with potential faults in the system;

4. Reason is useful but has faults, and works best in parallel with intuition, with mutual checks and balances;
5. We are all multiply minded, and there is no I which sits somewhere making decisions;
6. We all have minds which work in collaboration with other minds in other bodies and in our own brain, but also which work in competition with those minds;
7. Free Will is not an illusion but nor is it simply a set of executive, independent actions of the mind;
8. Thinking, judgement and decision making work best when related to the contexts of the situations we are in, for complexity, risk, time scale of change and the collaborative nature of the change.

These different paradigms contribute to a set of ideas about how we think and how we make decisions.

They can be headed:

How we think about how we think - consciousness and free will

How we think about judgement and decision making, with reason and intuition, as single minded and as co-minded people

How we think about what kind of thing we are thinking about, the context.

I will cover these in three sections therefore.

Consciousness and Free Will

As a psychologist Susan Blackmore was interested in her own conscious states and sought to experiment on herself using meditation practices of Taoism/Buddhism. She writes eloquently of the difficulties in facing her own sense and control of her mind and the fundamental significance of these thoughts.

We have all found ourselves trying to concentrate, trying to focus on something, only to find that that concentration eludes us, we are distracted by things outside and inside, we are not in control of our thoughts, though possibly with years of work we might get a bit better.

I would suggest that many of the people interested in seeking new forms of awareness are in part responding to a false paradigm, that being focused, being attentive, is the state of mind we should seek. I might even suggest this goes back to Descartes, with his thought space translated as 'I think therefore I am.' It seems as if

only when we are aware we are aware are we sufficiently aware to make conscious, free decisions.

This kind of paradigm is assisted by the parallel paradigm of reasoning, for to use reasoning we must be using some kind of focus, and an awareness of that focus, for if we were not aware of how we are focussing how could we know we are focussing, and not drifting off somewhere, with thoughts driven by deep unconscious desires? This kind of thinking is normally associated with operations of the left hemisphere (a good reference is Iain McGilchrist's book, [The Master and his Emissary](#).)

[In addition to his book, I'd also like to reference his talk at the Royal Society of the Arts (RSA), posted here:

<http://www.thersa.org/events/audio-and-past-events/2010/the-divided-brain-and-the-making-of-the-western-world>

<http://www.thersa.org/events/video/vision-videos/iain-mcgilchrist>

<http://comment.rsablogs.org.uk/videos/>

But this kind of thinking about consciousness and awareness and focus and reasoning is being challenged in a number of directions. Gigerenzer's book [Gut Feelings](#) promotes the idea that in many situations to rely on or even use reasoning is faulty. Jonah Lehrer, in his book [How We Decide](#), calls the pre-frontal cortex, which is also key to focussed decision making, a 'cheap calculator.'

And we can suggest that programmes for 'Mindfulness' now being fashionable, or Tao practices, really suggest the opposite of awareness, the aim is to lose your awareness in order to become more aware without being aware.

The answer, as a new paradigm, is to drop any sense that one type of awareness should dominate, and to take the view that being adaptable in how we can be aware of our varying and various types and levels of consciousness makes more sense. Sometimes, when, for example, checking this document, I should be able to focus, but focus on what? On the coherent meaning? On the grammar? On the spelling? On the repetition of words and ideas? When I try to do one I may jump to another, another state of mind, which was also doing coherence processing while I thought I was doing spell checking, perhaps. So what should I do, what kind of processing should I adopt. The answer comes in the third part of this portrait of thinking about thinking.

The challenge to the idea that focus and reasoning are to be sought as the best manner of thinking also comes from studies which strongly suggest we do not have free will anyway. Analysis of 'decision paths' in the brain clearly suggest that decisions are made *before* you are aware of yourself making decisions. So it seems you cannot stand aside and reflect and then somehow choose. You can stand aside, you can reflect, but the only choice you have maybe whether to decide this was your choice or just a decision which came to you out of the blue.

I think the book [Nudge](#) is popular because it represents what we may deeply understand to be true, that all we can do is nudge our thinking, all we can do is shift the kind of processing, perhaps, maybe to being a little more focussed, or a little more open, to being a little more positive or to deciding to be negative. All we can do, perhaps, is nudge our habits in and out a little, that is the extent of our free will. Though in saying this I am very aware that many if not most of the psychologists and neuroscientists in this area probably would deny any idea of free will. But were they free to choose this paradigm?

If you accept this shift in paradigm, that as you proceed in daily life you shift levels and states of consciousness all the time, and that many are usefully operating, then the implication seems to be a pretty good one, which is to relax and enjoy the ride, trust that thinking is going OK and that only from time to time should you, and even could you, stop and check your thinking processes.

That checking also means truly listening to what other people say, and also what other minds you have in your head say, and so we move on to the next section.

Judgement and Decision Making, Reason and Intuition, Single Minded and Co-Minded Thinking.

If we accept the paradigm about multilevel consciousness and its usefulness, then we should examine again how we see decision making.

Decisions seem to be made as 'extensive' activities in the brain rather than as concentrated/'intensive' activities. That is, they are not made as a sequence of events so much as an orchestra of neural motions in harmony and disharmony, what happens happens. And what makes a big difference is something I would call judgement, which is how the various associations between different neural patterns are weighted, weighed, to create judgements which themselves through the chaotic activity lead to decisions.

The process of science for several centuries has usefully been to segment everything, to look at smaller and smaller pieces and to decide how the sequences work together. But in many fields it seems as if the extent of the value of segmentation is dropping, it is more useful to look at multiple attribute causation, where many things depend on many other things for the outcomes which result.

This matches more our real experience. Whether buying a bar of chocolate or a house, or employing person A rather than B, there is no single trigger, almost never, it is all about multiplicity of actions and contexts.

With that kind of new thinking, with the dominance of reason coming into question, people are beginning to examine where reason works well and where intuition works well, and likewise, where there are faults in the processing.

Where intuition scores is when reality is complex, so without some way of bringing the multiple attributes together and 'scoring them' putting them into some kind of weighing scales, the brain does this magic job of using intuition and comes up with telling you what it 'feels' is the right thing to do. Some pretty good experiments show that intuition can be way better than you might suppose, and certainly way better than reason, even when some numbers are involved!

A simple example would be whether to eat an apple or a pear. Not only are there complex facts of chemistry, rate of deterioration of product, change of taste over time, potential as a food hazard and so on,

A key **paradigm extension** is into the idea of 'multiplicity'. This is the idea that our brains do not develop just one 'persona', but most often many persona. This means that it is not simply that we have different moods, or that we play act different people at different times, or that we change as we grow older. The different persona are meaningful in that they have different memories, different motives and different skills. These ideas were discussed extensively in the Ongoing Discussion conference call in June 2009 (<http://www.in2in.org/od/announcements/ODAnnouncement-2009-06.html>) on the topic of "Multiplicity - A New Approach to Delivering Innovation," with myself and Rita Carter, author of the most recent book '[Multiplicity.](#)'

The rationale for having different persona is that it aids survival value. Rather than having internal mental conflict when faced with different scenarios, the mind simply switches from one persona to another, so motives change, memories change (you don't want bad thoughts intervening when you have a different agenda) and even skills change (ask any golfer entering a tournament.) So It 'makes sense' that we are multiple. Interestingly, one of the founders of the idea of being multiple was William James, who was one of the founders of psychology itself. Somehow the idea got dropped.

Incidentally, this also challenges much of the business of identifying our 'personalities', what we probably get from 'personality tests' is an identification of the persona that does personality tests, but nothing on the other persona we adopt from time to time or could adopt if we were prompted to do so. So maybe HR departments are missing a huge set of resources, all those other persona who could do different jobs but never get called into action. Or, at the other end, all those other persona who disrupt and sabotage projects because they never get recognition! Consciously or unconsciously of course.

The idea that we should deploy our different persona to suit different tasks again seems sensible enough, it is a different paradigm, and then we can add one more level, which relates to teamwork, leadership, people management. If each person available could be any one of several different people, how would you then build a team and lead and manage it? It opens up all kinds of new possibilities.

And we have one more step again, the paradigm extension which says that much of the time the thoughts you have, have an extended existence outside of all of your persona. In its simplest sense we have 'memes', which like genes have their own survival processes, some kind of extended survival of the fittest. But more than that, just as evolution is not necessarily as simple as it first seems, so thoughts, ideas, even paradigms, exist within a context of other thoughts, ideas, and paradigms, and it is the overall collaborative and competitive ecology of the system that leads to some surviving and growing while others die.

So the reality is that within our own persona, within the varying persona of the groups with which we interact, and within the more nebulous cross connected multiply minded networked of connected thought engagements, we have thoughts, idea and paradigms each living and breathing inside and outside our heads.

In terms of reasoning and intuition what this means is that the values we place on the procession of thoughts in our heads is constantly changing, the way in which those thoughts are connected is also constantly changing, as are the values of those connected thoughts because each new connection brings positive and negative attributions. It is all one very alive kind of process.

Whilst the value of intuition in seeing/getting the 'big picture' can be recognised, the danger is also there, not only can there be a constant flux of values in the big picture but from time to time the big picture can change but will it change for the better? Will too much change lead to never getting anything done?

So one value in having reason is to stabilise the picture, it is to create what is essentially an artificial structure, with a very poor set of true value attributes, the value attributes which can't tell good stuff from bad stuff, but at least will get you to stick to things and get something done.

And then the bad thing about reason is that it will get you to stick to things even when any proper 'value attribution' would make it clear that the whole thing should be abandoned, in the end, too many soldiers die fighting the same battle again and again.

Summary on Judgement and Decision Making: It is the collection of attributes which creates a collective aggregation of values which constitute judgements at various levels, in a multiple cross connection of minds, and the end decision has final value through some use of reason and intuition, but never reason alone. Your job, as owner of your own thoughts, ideas, judgements and decisions, is to manage the process of thinking, bringing balance into the operations. How you do this depends on context, which is what we look at next.

The Context

To ensure that a better understanding of thinking and decision making can be applied, there is a need to reflect on the kinds of conditions that our thinking and decision making processes have been design, by evolution, to adapt to.

A simple map is needed, though a greater degree of sophistication is possible. We only have a certain amount of time to reflect on our thinking and decision making, so to begin with let's keep it simple. For more detailed review of thinking, it is recommended that people work with the processes of [Synectics](#) and [TRIZ](#), as outlined in [How to Invent \(Almost\) Anything](#), by David Straker and Graham Rawlinson. This can be read alongside a broader exploration of thinking and feeling in the novel, [Judgement Day](#), by Graham Rawlinson.

The 4 aspects of Context

1. Complexity
2. Competition and collaboration
3. Short term/medium term/long term and completion/progress
4. Risk type – catalytic or progressive, known/unknown ratio

Complexity

There are many ways of looking at complexity, and in some ways it is possible to say that you can never know how complex a situation is, you may have missed a simplification which reduces everything to a Eureka moment.

So Archimedes found a simple way of measuring the weight of gold, and Galileo reduced the complex orbital motions of planets by offering the paradigm that the Earth travels around the sun.

Even in what may seem horrendously complex situations there could be a simple solution. Reducing street crime might seem a multilevel problem of societal attitudes, systems of detection and punishment, education, religious attitudes and more. But it is possible that a simple advanced CCTV (closed-circuit TV) camera cuts overall street crime in half.

Making a decision on how complex a situation is becomes important when you try to explore which mind tools are best for the job. Even though there can be no absolutely certain 'right answer', a judgement needs to be made and decisions follow on how to adjust your thinking accordingly.

So stage 1 in your thinking is exploring the nature of complexity of the situation, and as the outcome of that exploration might vary from a judgement of 'massively complex' to 'totally simple' an open ended exploration is where you should start. You can use any set of tools for this, any creative process for wandering through possibilities such as [de Bono's Lateral Thinking](#), [Synectics](#), [CPS](#) (Creative Problem

Solving), [Storytelling](#), and [Storyboarding](#). At the end of the process, which is usually best done in groups, with a facilitator, you sit back and let your inner judgement suggest simple or complex.

Occasionally the task might be so important you want to try both tracks, and for this the best approach would be to have two teams, one seeking the simple solution and the other trying to explore the complex features and see where they lead. For example, if you decided that reducing obesity levels was probably a complex problem but the savings and benefits from finding a simple solution are worth some level of investment, then you might have two teams, either of which may become redundant depending on the outcomes each produce.

We can now explore how we would treat simple and complex problems, starting with simple.

Problems which are believed to have or may have simple solutions

There are two types of simple solutions. The first is the solution that is obvious as soon as you see it, so the process is one of searching, and conducting the search in such a way that you look for it everywhere and you spot it when you find it.

It might seem like contradictory to suggest that you have to ensure you spot something that has been defined as obvious when you see it, but it depends on what is meant by seeing it. If I am looking for a screwdriver and see a spoon which has an end which is just like the end of the screwdriver, I may see the spoon but not see it as a solution to the search. Once I see it as a solution it is only then obvious. So the definition of obvious is 'obvious when you see it as the solution.'

For the 'obvious' when you see it solution you can use open exploration processes, like [Synectics](#), or you can use systematic search processes, such as [TRIZ](#). The choice depends on the risk of not finding something that is there. That is covered later.

The second type of simple solution is the one which requires substantial revamping of the constructs, features, attributes of the system before the solution is wrung out. If the revamping is of the major premises of the context for the solution, then a highly challenging open process may be used. [Synectics](#) uses processes which will challenge all basic tenets where necessary. If the revamping is complex towards the solution end, so it is a problem where you keep getting close to a simple solution but not quite, then the very substantial closure processes of [TRIZ](#) may be preferred.

Problems which are believed to have only complex solutions

Where the type of problem being faced is complex, the processing of that complexity is as much about how to value the costs and benefits of the potentially infinite number of different actions that can be taken.

In this situation, the major mind processing will be related to the right hemisphere, it will be holistic thinking that needs to be core to the process. The reason for this is to avoid the big picture being diverted by potentially rather irrelevant facts. The 'cheap calculator' that is adding up one benefit and comparing it with another only counts numbers, it has no sense of whether the benefit is small or large. Going into town to a sale which offers £5 off is a good idea, perhaps, and it does not matter whether the £5 off is for an item which costs £6 normally, or an item which costs £600. If the cheap calculator is given the figure of £5 off, it might value both equally, if it is given the figure as a % off, it might favour the £6 item. In both cases it is a Right Hemisphere judgement of value triggered by Left Hemisphere 'counting'. Your judgement is that personal purchasing is a complex situation except where something is driving the decision, e.g. a broken part for your lawn mower (which you have 'decided' to repair. Facts, such as cost savings, might be entered into the scene, but your mental operations should moderate the value of that information.

So the advice is: Stay with the big picture and treat data, facts, information with great care, when the situation is truly complex.

Staying in a higher plane I probably achieved most easily with open processes like [Synectics](#) and [CPS](#). There may be good value in working at a lower plane for more 'data' based improvements, but this should be done only after the big picture solutions have been evaluated.

Collaboration and Competition

1. Collaboration

It is useful to separate analysis between two types of collaboration. One is co-working with skills and knowledge, which no one individual has, to deliver a product or service within fairly well defined known boundaries. Another is co-working for a broad but 'fuzzily achieved' common mission where tasks, skills and knowledge are all overlapping. Designing a next generation car would be of the first type, going for first place in a team competition in league football would be of the second kind. A third type is where the co-working it itself designs the final outcome, people work together to create a product or service in which the value of the attributes are created alongside the outcome. People fundraising and then getting built a community sports centre would be a project of the third kind.

In all situations competitive thinking may occur. A designer of one feature of the car may want to beat another in some kind of cost/benefit stand-off, more is spent on her design so less can be spent on his design. A football player may sacrifice team performance for better chances of appearing to be the best player, by scoring goals perhaps. This will be particularly true where performance is rewarded to individuals rather than teams, an all too common situation. The same competitive element often enters community projects, unfortunately.

Where collaborative effort is required then that kind of competitive thinking and decision making will tend to be harmful.

Other features of collaborative thinking also need to be considered in all scenarios.

Collaborative effort works best if each mind has some awareness of the minds of others, so that the thinking and decision making of others is more easily understood. In [Synectics](#), the facilitator works to try to get people to be able to have a feel for the view of others but not to adopt an identical view. If the thinking of one person is too greatly influenced by other perspectives then compromises will be built into that persons thinking and decision making, in the end everyone will be doing everyone else's job without doing their own to best advantage, a process which will often yield a mediocre solution. So the designer of the bonnet catch will be designing for what they perceive to be the best bonnet design, and the footballer will be working too hard to get someone else to score a goal rather than score the goal themselves. In a community sports centre every little option might be catered for, except the grand vision, which cannot be afforded.

If we return to our summary of judgement and decision making we can see how we might think about collaborative work:

“It is the collection of attributes which creates a collective aggregation of values which constitute judgements at various levels, in a multiple cross connection of minds, and the end decision has final value through some use of reason and intuition, but never reason alone.”

Some degree of **necessary distance** is desirable at every stage of problem formulation, idea generation, idea selection and idea development right through to solution finding and selection.

'Necessary distance' is a concept developed by Iain McGilchrist, mentioned earlier. It is the old idea of seeing the wood or the trees. Our management of our thinking in collaborative work especially needs some kind of reflection on the necessary distance we should keep from the thinking of other minds, close enough to have some feel but not so close that the valuations of thoughts and ideas of others takes over. Some vision of the Community Sports Pavilion is needed, as well as someone thinking about pregnant mothers and access for wheelchairs.

The difference between collaboration where we combine use of skills and knowledge for a specific or broad team goal is the 'tolerance for failure' in the system. You don't have to win every match to go top of the league, but you do have to have every part of a car fit together and work together. So with collaborative effort with a specific goal there is going to be more reference to left hemisphere focussed thinking.

A common problem in that kind of teamwork is that the battle between one person's left hemisphere focus on one small element of the design against another person's grand holistic vision is not necessarily resolved.

Collaboration, a summary

Collaboration should be monitored and facilitated to allow management of 'necessary distance.' In the early stages the thinking work should be open, creative, allowing holistic thinking to lead. In later stages the extent to which the left hemisphere focus is 'listened to' or valued, depends on how far the project is specific or general. Footballers don't score goals by watching their feet, and cars don't exit the production line and work unless some pretty hard focus has been placed on every element and its implications.

One final point is that taking the line that people are multiply minded, a sound collaborative and healthy mind is one which allows each mind to listen to the others. This can be facilitated by good mentoring, and can be self-mentored through use of note taking, diary keeping, sketch making, storyboarding. Too often people are working in one conscious mode and feeling stressed because other minds are saying to them they want some air time, and some of these minds are in the same brain box! Take care of all your persona!

2. Competition

Competitive thinking is winner takes all. It may require putting together any number of pieces, but anyone, of many people, can put those pieces together. But they might not fit without an enormous amount of mental effort. Paradigms have to be challenged, old value systems broken up. Courage is needed to propose the ridiculous, sometimes.

The value of the attributes of the winning idea is not created by human minds, not directly anyway. It exists out there in the laws of physics, chemistry, and biology, at basic level or as emergent properties in the evolution of systems. These emergent properties may exist all the way up to the next fashion in clothes or cars or computer games, but they are real emergent properties, the mental operations in the mind are ones of discovery, not creation.

This kind of winner takes all thinking works very well with a substantial multilevel process such as [TRIZ](#), which can dig deep and challenge to any level needed. And this sounds like left hemisphere, focus, detail, digging deeper and deeper.

If I was working within a competition to come up with the winning ideas I would definitely pick [TRIZ](#) as the process tool of choice. And I would definitely be using focussed thinking a lot. So the only question is, is there any value in holistic thinking? Is the right hemisphere needed at all?

To answer this question we need to look at the possible faults of left brain focussed thinking. Returning to the idea of focus as being able to work on numbers as an adding machine only, we can see that one danger is that the focus becomes one of satisfying the numbers rather than delivering real benefits. The holistic thinking is

needed to check that a solution is doing what it is really supposed to do in adding value.

Let's imagine an example which may not be so far from the truth. Suppose you want to create a database of all cars in a country, their tax status, their engine and registration details, and their owner's details. Cataloguing all these is fairly simple and an algorithm is created which works well for 99.99999% of cases, meeting all the database size requirements, speed of operation and cost factors. But the one car it cannot add to the system is a specially built Bugatti for Major General T J Thompson-McKinley-Smythe. For one thing, the Bugatti has never had a model number, and in fact is not really a Bugatti as it was made ex works by staff from the company. Also, the Major General has two elements to his name title and the database only really works with one, and it allows two 'Family Names' hyphenated, but not three. The left hemisphere stays on target, works through algorithmic options and superbly computes additional special options with only a little extra cost, just 0.0001% of the overall cost, to complete the task.

But the right hemisphere, the one seeing the whole picture, may suggest another solution. It says, 0.0001% of the cost is the salary of one person for a whole year, so how about we appoint one person on a part time basis to phone the Major General and get the car tax update each year personally?

The point of the story, I hope, is that ultimately the left hemisphere cannot be relied on to stay with a holistic view of value. The numbers take over, the number of facts means more than the value of the facts. So some creative thinking, some holistic thinking is still needed.

Competition, a summary

Competition is mainly a highly directed, focussed activity, a winner takes all, and mostly left brain, but the right brain, the right hemisphere, with its holistic thinking is needed from time to time to make sure that the thinking has not left the real world altogether. This is where some creative thinking work is done just to check all is OK.

And finally, if the competitive thinking seems to be delivering All Gold at very little cost, then one final check of Gut Feeling should be done. Does this feel right? Can I trust it? Maybe you can, and if the work has been done well it should be OK, but the final check before total commitment seems a good idea.

There is a lovely story of how a fairly nerdy professor had worked out all the parameters of a successful long term relationship. The facts were there, he published them, and then he met someone and got married. He was asked if he used all his ideas in the choice. Not at all, this was too important a decision to leave to theory!

Short term/medium term/long term and completion/progress

So how long before the solution is needed? How long is it supposed to last?

For short term goals we have a greater need for 'on task' thinking. People who are forever thinking up something new when there is 'a job to be done' get very annoying. Of course there may be a better way of doing things, but the risk is that any delay increase the risk of panic action at the end, with consequently higher cost.

Relaxed, holistic thinking takes time, does not always work to schedules, is more happenchance, and even though the benefits can be enormous, the risk is there that delay will occur if allowed too much reign.

The most appropriate thinking strategy where short term goals occur is to have done the relaxed, holistic creative thinking beforehand. Then the only right hemisphere check is to see if the 'gut feeling' you have is sending any warnings that the pre-planned process for dealing with the short term goal is sending any warning signals, 'is there anything different which would not make this process work? If no signals, then allow focussed work on getting things done.

For long term goals we have the luxury of allowing a lot of time for big thinking, suggesting that a number of open thinking tools like [CPS](#), [Synectics](#), and even [TRIZ](#) used in an open facilitated session will pay back in time and effort and cost and benefit. The left brain will be wanting to get stuck in there and analyse everything to death, so the choice to be made is how much time to give to details. You may find that keeping the left brain quiet is hard work, and if so then allocated periods of focus is no bad thing, in fact the exploration of detail may be a catalyst for new thinking. Usually, however, groups of minds tend to jump too readily into action mode, left brain takes over when much easier ways of resolving through to solution would have been found if open minds had stayed in charge.

And of course, for the medium term, your choice is somewhere in between.

The approach suggested is not to make out that everything is one side or the other, but that an awareness of how thinking works, and how group thinking works, and a clear decision to manage a switch between left and right brain thinking is no bad thing.

A final note should be on how long it takes to switch from focus to open thinking. It seems that these levels relate to the measurable regular frequencies of the brain, with sleep at 0 to 3 cps, dreaming at 3 to 7 cps, creative thinking at 7 to 14 cps and focused thinking at 14 to 28 cps. We are built to switch easily from slow to fast, perhaps because if a danger occurs focussed thinking is needed, fight or flee, and if you are fighting that bear don't let creative thinking distract you too much (though the odd good idea may be worth it!) We are not built to go easily from fast to slow, so while in idea sessions you can almost instantly get people into focussing on a particular issue, you need some exercise to get people back into slow, which could

be just having fun, telling jokes, having a laugh, or could be going for a walk, having a shower, or just reading a book.

Risk type – catalytic or progressive, known/unknown ratio

Collaboration or competition, and short term to long term goals are both related to types of risk, but they don't cover all types of risk. Collaboration vs competition and short and long term goals are 'process speed' risks, a kind of people factor which does need to be considered as risk.

Also we have two other factors in risk:

1. Catalytic or progressive
2. Known and unknown

Catalytic and known

A catalytic risk occurs when a system has built in vulnerability. It might be a market vulnerability or an operational system vulnerability or it may be a product vulnerability, things will fail in certain circumstances. Dealing with a known vulnerability is a standard problem solving exercise, and the types of cost benefit analysis using left and right brain are appropriate.

We know that the right brain will want to hold on to a current viewpoint and be blind to information which challenges that viewpoint. So the right brain is not listening to the left.

We also know that the left brain will be a bean counter and fail to see significance in change if the change seems to be small in terms of numbers. If you need 100 litres of water to walk across a desert and lose 5 litres, you might end up dead, but the left brain will not be shouting that loud and clear, unless the framing has been adjusted in such a way as to indicate the number is important. So the left brain needs to hear that the water for the last ten miles has ALL been lost, 100%, and it is the right brain which would suggest a way of capturing the importance of all the elements. The whole picture needs to have value attributes which indicate true loss, as only that will trigger the kind of catalytic response the brain needs in such circumstances.

We also know that in group situations it will be the groups' value attributes which will prevail, and despite the possibility of there being wisdom in crowds there is also the possibility of stupidity in crowds. Even if one mind has recognised the real value attributes of a situation, the end result will be a failure unless that person has ultimate power or unless they can change the value attributes of others, unless they can change how people FEEL about what is true. It is not enough and never is enough to put forward anything that may appear to be facts. ***People's decision making is not based on being right, only in being in agreement with the majority.***

That is a fundamental problem with the brain, evolution has 'decided' that advantage lies in being with the majority, not being the one who is right. If you are a lioness and you think it is clear that you should go for the smallest gazelle, that will be of little use unless the others go with you. The rules of the pack are pretty clear. This is why ostracism is so strong. We are pack thinking and decision makers.

Catalytic and unknown

One very interesting and challenging question is, 'how do you know what you don't know?' This can be a question posed by someone who just wants to disagree with you, it is the question of universal uncertainty. So in one sense it is unanswerable. But the interesting question is, 'what can you do to minimise risk from the unknown?'

Fans of [TRIZ](#) will know the main answer to this question, you build in gradual failure into the design. If you make a 5 legged chair then one leg should fail if the system begins to be compromised. If your market might have vulnerabilities in it then you have one part of the market slightly weaker so you get advance warning.

If the consequence of failure is severe then the effort put into covering all possibilities has to be much higher, but we have processes in [TRIZ](#) to cover those, and all we need is the additional cross checks between right and left brain thinking as noted earlier.

Finally, we have the big 'What if?' What if we still have missed something big? As Gerd Gigerenzer points out in his book [Gut Feelings](#), it is surprising how good your gut feel can be when things are complex and the unknown really does seem unknown. Sometimes we will miss seeing the big thing because we have too many facts in front of us. So when facing situations which could contain lots of unknowns, it is best to bring in facts slowly, if they come in too quickly they create formulations of the future which make a great picture or a great story, which has big holes in it.

Summary

Understanding paradigms on thinking helps you frame how to think about your thinking.

Thinking may be focussed or holistic, and may occur in several of the minds of each person, and develop alongside and within the minds of others. Thinking, leading to judgement of value attributes of things, is a dynamic concatenation of neural events for which people have little specific control.

Managing one's thinking is about matching thinking processes to task types, to risk types, to speed of need and to the extent of collaborative activity.

Understanding this means that a framework can be established on how you will check your focussed thinking, and how you will check your holistic thinking, what tools you will use, how frequently you will use one side of the brain to check the

other, and how frequently you will use it to check what is going on on the same side. So focussed thinking can check focussed thinking, and holistic thinking can check focussed thinking, and vice versa.

We have been making big mistakes as individuals and as a society, with leaders and people who follow, and the big mistakes in part have just been having the wrong paradigms about thinking.

In the 21st Century, it is time to adopt a real science of thinking, judgement and decision making.

Appendix 1 - How to Practise Your 21st Century Thinking

1. Consciousness is a multi – mind, multilevel operation, don't think focus is always a good thing, think broadly and deeply or in focus by choice of mind and choice of level of awareness. People are capable of using many different persona, personality tests have wrongly suggested people are a single profile.
2. Be aware that your thoughts take on judgement attributes differently in different minds, different minds recall different memories and skills. Choose minds variously for different parts of a task as well as for different tasks.
3. Be aware that your thoughts and their judgement attributes coexist across the minds of others, that this is useful in part. Choose how much you nudge judgements when listening and recording the judgement attributes of others, think about how your judgement attributes are influencing others, in collaboration or competition.
4. Listen to the parts and the whole, observe the parts and the whole, have a feel for the parts and the whole, thinking at its best is being inside and outside your mind and its relationship with what is there.
5. Use toolkits for thinking alongside recording processes, from diaries with words and sketches, to mind-mapping software and hardware, to process toolkits like Synectics, [TRIZ](#), [CPS](#), and [Lateral Thinking](#). Match the tools to the thinking processes and be aware of how each influences the other.
6. Watch out for the common errors of left brained focussed thinking (thinking by numbers and segregated parts and valuing everything equally) and errors of right brained thinking (creating an over-simple imagery and sticking to that in defiance of numbers, facts, observations – cognitive dissonance.)
7. Work out and continue to modify how you perceive the context of the problem, issues, opportunities, the complexity, the collaboration/competition, the time scales and the risk factors. Choose minds and thinking tools which match those aspects of context and change as needed as the task progresses.

Appendix 2 – Images of How Brain Networks Might Fire

If you can imagine how firing is going on in your brain you may find it easier to make choices about how to handle different kinds of situations.

The network diagrams here are very speculative, but perhaps offer some intuitive insight into how to handle the nudging of your thinking and judgement options.

The purpose of this 'imaginary' imagery is to help portray what our 'Multiplicity' is really like.

In one 'Mind State', or 'Persona' we might be set to respond to specific triggers but not to sequenced pathways of thought.

In another persona we might be ready for 'complex reflexive' thinking (see below) and in another for diffuse triggering.

So if, for example, we are interviewing candidates for a job, in the morning we might be in one persona and in the afternoon acting in another, so the candidate selection will reflect more the persona we are in than the candidates themselves.

If we can learn to 'spot', or maybe 'sense', or 'intuit' how our brains are reacting we can exercise some limited choice about how to nudge ourselves into a persona which suits the task.

So if we are seeking a candidate with expertise in applied nuclear physics we might decide one particular persona is needed for that kind of selection.

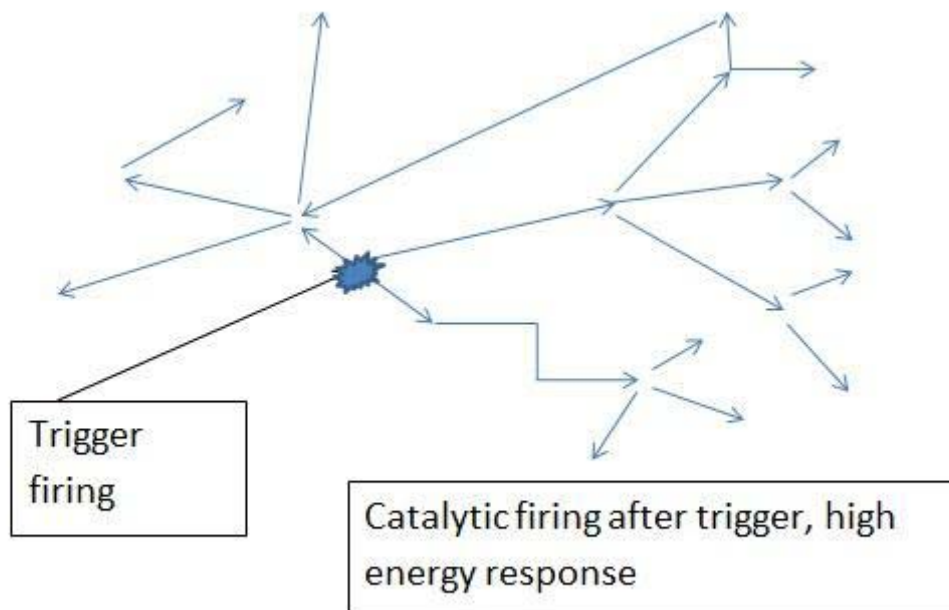
Another is needed for someone who has the job of leading the PR campaign for the next nuclear power station.

It is a bit like having different toolkits available in different places.

We can choose to 'get away with' using the toolkit we have in the car or we can choose to go into the garage for a more extensive toolkit, or into the house, or we can choose to borrow someone else's toolkit.

Once we start using that toolkit most of the judgements will run through with little options for choice by us, unless we stop from time to time to do some more thinking about thinking.

Specific Trigger



Sometimes a mental event, which may be as simple as hearing a specific sound, a spread of neurons fires in an uncontrolled way.

We all sit on potential catalytic responses and they may be small and insignificant or extensive and catastrophic. Emotions run high when brain activity is running on high levels of response.

There may be no connection between the level of response and the importance of the outcome of the 'thinking.' In this situation judgements should be delayed and checked with reason.

Delay lowers the response (even 30 seconds may mean that chocolate is not quite so lovely) and reason can introduce alternative pathways.

Such responses are more likely when a general state of high alert arousal has been set up.

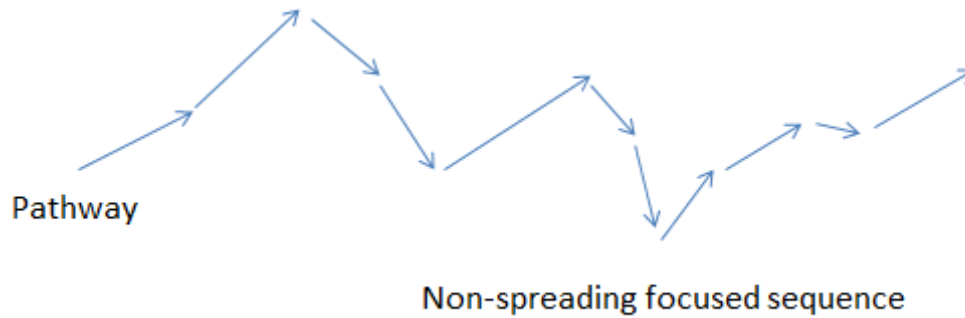
So if you feel a specific event has triggered a high level response, delay and check. If you know you are on high alert be especially careful in allowing judgement to create decisions.

The final danger is avoiding all high level responses by being over rational.

Catalytic firing may have reduced your ability to make good judgements but it does not mean that good intuitive feeling based judgements are not the best thing to do.

If you find yourself in a riot watch out for some pretty poor judgements on your part.

Pathway



On some occasions a mental event will lead to a rapid sequence of other mental events, one following the other.

This will occur because there is a locked channel, an often repeated series of mental events because of training and reinforcement.

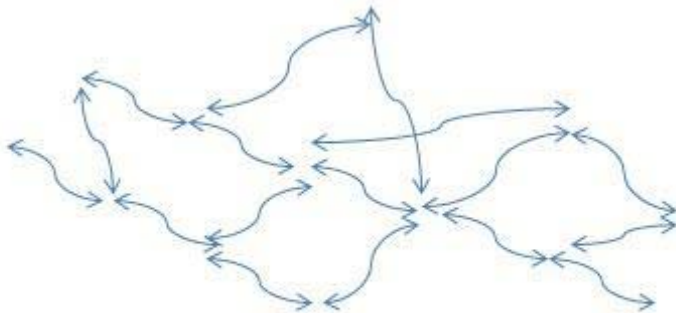
This will lead to feelings of certainty, and may be a reliable indication of the veracity of the connections and outcomes.

Where an innovation will challenge the status quo of thinking this will therefore be a disadvantage, making it difficult to feel OK about a difference on pathway that the innovation is suggesting.

For efficiency, contexts which have low risk and long term progression of ideas means such path-ways are appropriate, with just occasional checking of direction and progress.

Where a catalytic change is required, where innovation is significant and substantial, any intuition that standard pathways are being followed should be checked.

Complex Reflexive



Feed forward and feed back

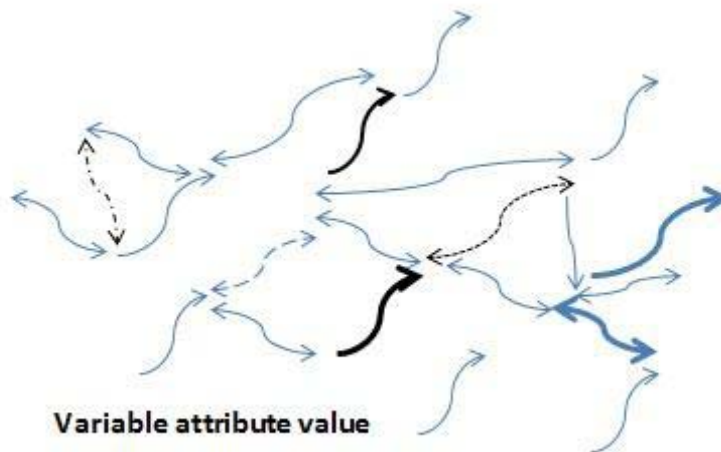
This kind of thinking and responding is probably a state of mindfulness. Events are being triggered in a non-directional way, as the 'energy distribution' is pretty even.

This is an open minded state of being. It is a placing of trust in one's thinking that the truth will become clear, the best option, what you truly want most, will appear from loosely flowing thoughts.

For most people this would not be the state of mind when packing bags for that trip abroad.

Somehow the toothbrush gets left behind but the book that happened to catch one's eye is in the hand luggage.

Complex Diffuse



As the complex reflexive thinking wakes up to sensing some things have more value than others then complex diffuse thinking states emerge.

This is a persona where intuition and reason are working well together, a good state of mind to be in when moving things forward.

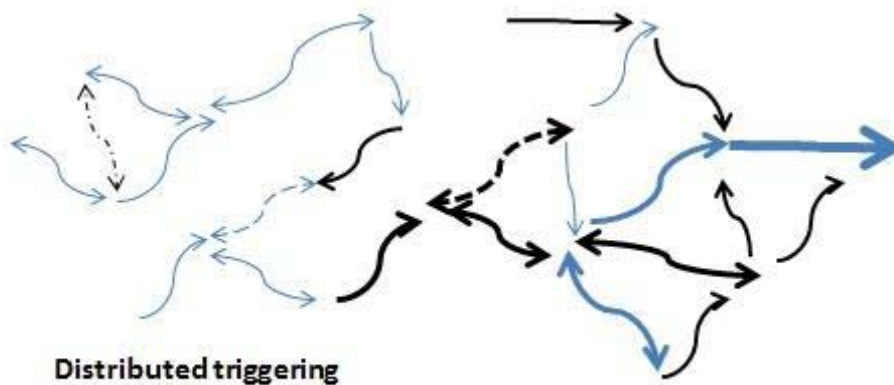
The danger is that we are tempted to move into this kind of mind state too early, because we want to get a move on, we want to get into doing things.

It is a mind state readily recognised by the 'hobbyist', who has done quite a bit of thinking about how to do something and then gets stuck in.

Usually getting stuck in occurs too early and mistakes are made, but this is part of the fun of hobbies perhaps.

Not so good when it is work and the outcome have wider implications.

Diffuse Trigger



This is the messy mind state. It may be the kind of mind state we are in first thing in the morning, or even all day.

It might appear to be pretty poor as a place to be, but may be the best mind state at the beginning of any big project.

As long as there are good evaluative processes which can later challenge any ideas which came from this mind state this may be the way to generate really whacky ideas as thoughts come out of the blue, are misplaced, over-valued, enough to challenge the status quo.

This is the kind of mind state which will get you bringing the cat on holiday and forgetting the kids. So checks are needed.

Biography

The Father of two grown up sons with professional careers, Graham thinks the thread through all his various work situations has been that of a Bayesian Scientist, the weave of evidence and theory, the 'phase space' as Stewart and Cohen put it in *Figments of Reality*. He is driven by the belief that the best learning is that which we manage ourselves, that learning and creativity are twins. A lover of diversity, he's worked in many countries, from Aboriginal Communities in the Northern Territory of Australia to the tranquil plains of Denmark. He has been a barman, park-keeper, boatman, trainee accountant, trainee actuary, delivery driver, postman, gardener and Academic Director. Professional - Chartered Psychologist, Chartered Scientist, Fellow of the RSA, a lifetime career of problem solving, as an educational psychologist, as Director of Enterprise at the University of Surrey, as a Consultant with Synectics Europe, as a Consultant and Trainer with Invention Machine Corporation, as author of 5 books, [How to Invent \(Almost\) Anything \(co-authored with David Straker\)](#), [The No Recipe Cookbook](#), [Sam the Problem Solver](#), [Judgement Day](#), and [How to Advise the President – 21st Century Decision Making](#). Numerous roles in inventing and innovation, including setting up and running a Local Food on line business in the UK, which ran for 5 years, judge for the British Invention Show several times and for the Global Women's Inventors and Innovators Network several times. Founder of The Rural Inventors Club, on Advisory Panel for UNESCO Technology Transfer Network for Africa, on Advisory Panel for Expert Marketeer, Founding Director of MindTrust International, with experience in teaching and training in many areas and countries over many years.

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