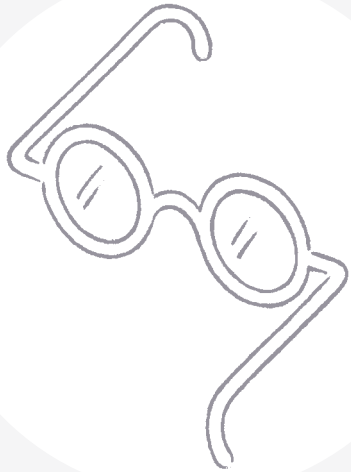
Five Essays on Design

Christopher Rose



Illustrations by George Hardie

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Introduction

Five short essays upon topics relevant to a philosophy of design, to material culture, and to issues of creativity, knowledge and experience. Made possible by a grant from the University of Brighton Faculty of Arts & Architecture, and by Rhode Island School of Design, where they first appeared as a creative workshop series in the Digital Media Department.

Key terms are in bold and are indexed to other occurences in the text.

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Creativity and Paradox

"When we bump up against the limits of our own self-imposed cognitive reality the result is always a paradox"[1]

Paradoxes:

- A plant needs water in order to live, but either too much or not enough will kill it.
- Does the advent of '**communication technology**' mean that people are better at communicating?
- We are happy to meet someone and sad to say goodbye – but we don't spend all the time with them. Is the meeting about them or us?
- "This sentence is not true."
- Seeking the primitive state we use modern technology to take us to wild deserted places which thus as a consequence cease to be wild. (mass tourism)

To confront **paradox** can be to stay in front of an opening to creativity or new **knowledge**. We tend to label the seemingly contradictory or nonsensical aspects of a paradoxical situation in a way that separates it from what we desire to be true, and thus disallow it temporarily. Actually the contradiction or nonsense comes from within because the personally constructed narrative with which we attempt to live in fairly predictable ways is shown as inadequate when confronted by paradox. Looked at in this way, it is clear that since paradox cannot independently exist in the world, we live at what we could call a '**paradoxical interface**' of our own making, that is, between what might be going on and what we prefer to think is going on. Some individuals appear to live on the

[1] *The Dancing Wu Li Masters* (overview of the new physics, **Gary Zukav**)

'safe' side of this paradox interface; some on the edge, and some over it. In my view for example, Proust was 'on the fence' as it were, Jorge Luis Borges was 'over' it and say 'My Year in Provence' author Peter Mayle is on the safe or knowable side of it.

Touching Knowledge

Luckily for us, the different senses (see Fibonacci senses diagram at the end) evidently activate at different complexity levels. This is like a multi-dimensional form of the stereoscopic principle in perspective, i.e., the sense of distance or relative location established through the capacity the senses have to situate us separately but related to that which is being experienced. Thus we can handle time, space, close, far, direction, speed, all with different orders of magnitude seamlessly incorporated as we attempt a conceptual 'fit' with sensory experience. By analogy, our conscious engagement with experience has a variable capacity for complexity allowing us to be more or less engaged, more or less effective, more or less relaxed etc. The touch related basis of experiential knowledge gives us a nice example of highly complex knowledge being subsumed and located by visual cues after its initial acquisition. The acquisition is slow and painstaking (think of a baby trying to feed itself), but latterly by associative reasoning enabled by visual and touch related cues, such complex processes are significantly speedier once the connections have been made. Conscious thinking has a significant (slow) role during acquisition but much less of one as skills become subsumed and are effected unconsciously.

You Know More Than You Think; (By Art We Live)

The foregoing explains why we know more than we think we do. In fact we know as much as our means of expression, engagement, our 'art' allows us to know. Since we can only know what we have attempted to share, explain, present or negotiate. Another way of putting that is that we only know what we can 'do'. The increasing passivity of

contemporary urbanism is the root of a sharp rise in **mental illness**. The end game of the so-called '**mind/body problem**' of western philosophy is, severe dysfunction either way (too much body stuff… too much mind stuff…). Some form of balance is necessary. Why seek balance? The answer to this puzzle that is given by a Chinese treatise on medicine and health[2] was; "To maintain oneself at the **gateway of life**".

Deliberative Complexity, Shared Metaphors, and Remembering Childhood
(The metaphors we grow up with)

The manner in which we gather hard experiential knowledge as we grow up, such as 'sharp' 'rough' 'cold' 'soft' etc., is durably linked with flavours of the circumstances and associations in and with which we had those experiences. In this way we are equipped to share (see the term metonymy) with others a fundamental experiential platform giving us a starting network of references. Very soon as individuals accumulate more years however, generally speaking language and experience becomes narrowed and specialised with the exception of those who make language their specialist field. Working together, i.e., working socially, becomes more difficult outside ones own pool of experience and expertise, except in unusually severe or exigent circumstances in which it is forced upon us. Whilst shared metaphors can still be found and can be used in the beginning stages of cross-discipline work, which is an essential working skill for designers, a more structured approach is needed to move into a developmental phase in group endeavours. **Childhood** play incorporates this beginning stage naturally and it is not surprising that creative strategies used in cross-disciplinary work are reminiscent of this 'childishness'. However by using additional strategies to then connect the seemingly naive with those

[2] The *Nei Ching*

issues or situations which are currently the focus of current work or priorities, there is usually a kind of unlocking effect; a principal feature of creativity. One type of paradox in this scenario is that in order to make progress sometimes one must face the other way. Similarly, an understanding of a subject or an object is best developed by concentrating upon that which surrounds it, or upon 'what it is not'; upon its context or environment. Therefore, in building cross-discipline process we need to communicate or represent to each other not just 'what' we know, but also what we intend, together with what we have 'done'. This process begins to explore the negotiable territory between **intention and realisation** (two conditions that rarely correspond exactly) and to deliberately occupy the 'spaces between', an activity that will inevitably begin to reveal complexities that are worth unpacking.

Connections:
Naïve; Naissance (Fr. = Birth, source) (Re-naissance, etc.)

Five Senses? Operational or experiental metaphors; who says there are 5 senses?

Fibonacci Series

1	2	3	5	8	13?
•	•	•	•	•	•
• Unity	• Self • Outer	• Being • Balance • Touch	● Gustatory ● Sense of Self ● Balance ○ Haptics ● Vision	• Gustatory • Self • Balance • Touch • Taste • Smell • Vision • Hearing	

Technology, Craft and the Transformation of Skill

Craft as interpretation of invention

Technology = how we do something.
Complexity = a condition midway between a total mess and total organisation.
Craft = reflection on a doing process in real time.

"The **hand** concentrates for you." Multiple perspectives are needed to locate something in our cognitive world. The hand has extremely complex and hierarchical degrees of freedom, providing just such multiple perspective. But we know that only a small proportion of sensory input to the whole body is consciously experienced, the rest could be said to construct our extensive 'haptic' body of knowledge (Our '**bodily intelligence**' we are mostly not consciously aware of until it is needed or is drawn upon.)

In the now dated but significant critique of the negative effects of overly contrived ordering in city life, *The Uses of Disorder*, the following quote from author **Richard Sennett** is relevant to the craft-technology relationship.

'In pre-industrial workshop production systems, the experience of making a product was more important than a predetermined standard image of the 'whole' to be made. These craftsmen conceived that to define in advance what a thing should look like would interfere with their notion of 'efficiency', that is, with the freedom of the craftsman to exploit the materials and forms during the **making** process. In an industrial situation the product to be made is conceived beforehand so that its realisation is a passive routine, not an active experience of exploration'. (paraphrased from Richard Sennett, *The Uses of Disorder* 1973)

'Making' is experience based, therefore connected to unconscious thinking and knowledge as well as to conscious intention. This connectivity anchors the process and results in experimental knowledge being discovered and expressed, not merely in the symbolic representation that is a 'design' that is then 'followed' by others. The industrial situation Richard Sennett refers to, necessarily involves this representational threshold; something absent from the experience of the craftsperson. In my first job as an architectural assistant I produced a very careful working drawing of a 18th century cottage that was to be restored. The builder called by the office and I asked him if he would like the drawing. "Yes, thanks, I can use that" he said. A week later I visited the site. The drawing had been folded into a wad that wedged open a window. The builder already knew what had to be done and in fact did a great job. There are situations like this where working drawings are of little relevance. Such a representational convention in this case (the drawing) had almost no relevance to the makers skill. It is this skill that connects his **actions** to the materials and processes, even if the drawing did have some defined cultural role for other people elsewhere in the social context (contractual notions, centralised information storage, planning etc.)

In other situations of course, where skills based precedent is not so helpful or where many differing types of specialist expertise have to be brought together and properly integrated, the working drawing is the key tool for achieving this integration. It underpins the negotiated processes that resolve actions and provides a common reference for the organisational discipline necessary to proceed. It is both an accurate representation of the convergence of different disciplinary fields, and an abstraction that can be legally referenced.

Fred Baier has pointed out that to use computer **software**, for example computer aided drawing (which encodes drawing processes in a kind of multiple-choice operation) is like entering the **intellectual property** of many people. Playful use of such software allows the user to deconstruct their own knowledge through interaction between their own experience and other's encoding of 'the same' process. In this way it can be possible to

find out what you didn't know you knew, and to discover more content in something you already did (that is, if you learnt it another way first). This condition presumes some kind of knowledge that can be mapped onto the multiple choice code. When software is approached by someone without this prerequisite, or the person is presented with this encoded 'multiple-choice version' of a skilled and complex process that they are new to, it can appear to be insurmountable nonsense until another person who knows that specific version can act as a translator/mediator.

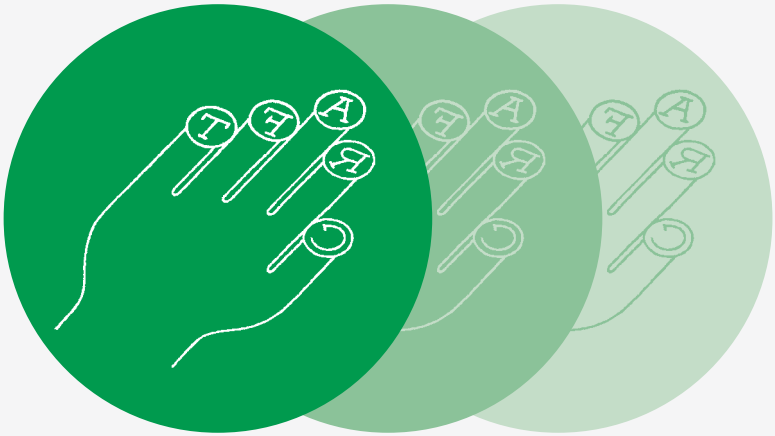
Learning from another person while you are in their presence involves **emulation** – something the body is phenomenally good at. The problem with learning software is that unlike, say, archery, the process of learning by emulation (or **empathetic study** as described by **Goethe**) is severely reduced. Imagine learning archery from written instructions. The business of being required to learn something via, as it were, 'someone else's haptic knowledge' is a deeply frustrating and stressful experience. Here we have another paradox, one that little progress has been made in solving so far. The nearest thing we have to date, in terms of the office environment and teambuilding, is that to overcome the irritations and tensions produced by the domination of software-mediated collaborative work, it is necessary to send the team off for a bit of shared white-water rafting or something equally intensively 'haptic' as a kind of counterbalance that addresses integration.

Given the previous discussion of experience being applied directly in a 'craft' process, there is a deep-seated problem with all means of digital processing of 'representational' information (that is, in the manner available to users at the consumer or software interface level). That problem is simply that if it's digital, it is *inescapable* that the multiple intellectual property content of software is *interposed* between you the individual and whatever it is you are trying to do. This is simply not so with analogue processing which is by its nature more capable of becoming a natural extension of the body and its processes. Of course we can learn to cope, but this coping tends to be about forced adaptation rather than intuitive augmentation. A way forward may involve

the integration of these vectors, for example with virtual reality interface design linking directly to gesture and touch. More readily available to us are practices to ensure that the stifling effect of software mediated work is reduced; by ensuring we spend a proportion of time with the analogue paradigms; speaking, writing, reading, moving, observing, drawing, acting, creating; and their corollary; **stillness**.

Interestingly, and paradoxically, (in contrast to the observations above) a practised **code-writer** will develop a 'feel' for the code. Arguably this is because the skills associated with coding are much closer to the nature of the tool (the *ordinateur* to use the french) than the more awkward adaptations a user has to make to use consumer software which deploys designed representations that will come between them and the processes they wish to use.

In the developing mental 'craft' of the virtual design process that utilises digitised information technology, and the struggle to begin to realise the potential of this, the body and its processes has to be given equal access. To date this has been largely



overlooked in a rationalist culture which for some reason has presumed all stems from the mind. A design process restricted to present software limitations has a tendency toward stagnation as constant reiteration, or recycling of visual imagery becomes cut off from the 'bodily intelligence' of the craftsperson. Symbolic representation of something is not the same as understanding, and the design process must acknowledge this in order to be able to refresh and sustain itself. Research is beginning to show us that the haptic repository within the body is a rich and multi-dimensional source of insight, underpinning the insights possible with the mind, and which can unpack and illuminate our metaphorical world. Throughout history this engagement with the body has affected and effected realisation of the made object, and only recently has been denied a seat at the table.

We can think of 'craft' as where art and science meet; and it is experiential learning that locates this potential in our individual realities.

The Designed Object: An ecological and ergonomic matrix

Using a chair design participatory exercise as an illustration exploring the personal ecology of ergonomics

Affordance: what does it afford you?

The consumer model of product design that encourages a personal, **psychological attachment** to a product, (through the marketing of object-based associations) and the design of products that exploit this propensity for attachment, tends to lead to a somewhat one-sided version of design. This approach attempts to isolate certain real or imagined **values** with which to imbue the designed object. It is then these 'connective values' that are marketed, rather than the artefact itself. This essay poses an alternative conceptual model of the designed object, with the intention of expanding our appreciation of the **material world**. It begins with a consideration of the design of a **chair** and goes on to illustrate an approach very different to the conventional consumer model above, and which can be seen as either alternative or complementary to it, beginning instead from a more humanistic premise.

An interactive exploration of knowledge and experience

Using a study of chair design as an example

If we bring together ten or twelve objects to sit on gathered in a room including mostly chairs but also a couple of non-chairs e.g. an old computer, some telephone directories, and a 40cm diameter inflated exercise ball etc, this is a good starting point for some experiential learning. Say there is a group of sixteen people; get eight of them to sit in or on everything in turn, as in the game musical chairs, and the other eight to watch and

observe. What do they notice? Ask the observers to note or comment upon anything they notice about the behaviour of the 'sitters'. Then swap, so that everybody does both the exploratory sitting, and the observing and noting. Then ask people to report and comment upon what they noticed. Right away, the experience of being with, and using chairs has been theatrically engaged with, illustrated and communicated. The contrast with a process of just looking or choosing is obvious. The beginnings of an extended language has been struck for the group. Nothing they didn't already know has been 'put in', but the movement and enactment and observation has created a complex set of links to everything that all in the group know about chairs, to be drawn out subsequently and developed in the coming sessions. Aspects of the participants' 'haptic knowledge' (that is, touch and movement-related knowledge) have been made partially visible, and established as an extendable design language of greater sophistication than one that deals only in appearances, which as we know can be deceptive.

Having set the scene by these means it is then possible to grab a chair, to walk around it, to pick it up, to knock it over, to stand on it, lounge in it, work in it, try to test it, etc., all by following around with the relevant body movements all the **affordances** of the object i.e. the fully fledged extended dance of use that the object can afford to us through our expectation, imagination, and dependence. This is the outer life of the chair; the relational properties of it, all of which can be thoroughly explored as a set of principles or phenomena before considering the individual object design and construction. It is, if you like, an exploration of 'chair-ness', in the human context.

This approach to ergonomics links to the already formed haptic intelligence of the participants from which can be quickly developed a personalised design technique which, rather than being theory based, becomes an evolution of knowledge already present. It is so much easier and more natural to take something you already know (even if you don't know you knew it) and then refine, add, or subtract from this; rather than try to 'apply' something you do not know, i.e., have only encountered in the form of a representation, such as a book, charts, diagrams etc. Whilst this example about the affordance of the

chair is a specific one, in general terms the way this approach relates to such things as fluid dynamics, scientific visualisation, illustration, spatial design etc., is compelling. This concentration upon the affordance of the designed product goes further than chair design of course. It could be thought of as a core principle of ecologically configured design and sustainable social processes.[1]

Exploring further the relevance of 'The Outer Life' of the designed object

If you consider how much of the total **product life** is hidden from the consumer, then the reframing of design through its entire set of relational properties has become a contemporary imperative:

- where the materials come from,
- who gets them,
- how they are obtained/traded and the localised consequences of this,
- how they are transformed,
- the consequences of material processing,
- the distribution of products,
- the effect of products in use, the disposal, reuse or recycling of materials,
- the consequences of this on the environment,
- the consequences of total product life upon people and on other life forms,
- who does the handling of materials.

Looking at this list, it becomes obvious that most of the 'whole story' of products is concealed from the consumer, but people are starting to notice. In the context outlined above, the evaluation of what is economical or good value, can be seen in present terms to be hopelessly skewed to a narrow definition of bottom line accounting, which conveniently ignores most of what is actually occurring. Such an 'accounting' model pushes aside an equivalent to the list above of attributes invisible to the marketplace,

[1] For a longer discussion re-examining material value systems in the context of sustainability, see *Green Composites*, Woodhead Press, 2004. Ed., Baillie, C. Includes chapter by CR

placing it ‘elsewhere’. However in the global village our ‘elsewhere’ is somebody’s ‘here’. Understanding how to work with this requires us to concentrate upon relational properties, not just the object. Referring to another essay in this series (***Self Imposed Cognitive Reality***), we can see that the phenomenon referred to there describes both the problem and the possibility of a solution.

The Material Connection: What aesthetic references do

Aesthetic language explored and related to knowledge

We Describe things (i.e., objects, materials, environments etc) by using **analogy** and **metaphor**; these analogies and metaphors are sourced from and referenced to our 'body' of knowledge and experience. Our body accumulates such touch and movement-related knowledge continually. The dimensions of this body of knowledge (something we all possess and which occasionally cross-references with other's) are as varied as all the ways we ever experienced or expressed anything. But in the process of expression, we convert or translate 'between' dimensions, and this is where our conception of meaning can become further elaborated; i.e., that which occupies the in-between spaces of our experiential references becomes the arena in which we can explore meaning. We can attempt to think of a framework for this to help us be clear about the language we use concerning matters of aesthetics. So, for example:

When we read a particularly satisfying sentence or line of poetry we can feel that it has a particular 'shape'.
(**FORM**)

When we see certain combinations of colours we can experience different 'energies'.
(**ACTION**)

When we pick up something that 'fits' the hand, it has those properties of sensitivity that reflect the complexity that we 'know'.
(**KNOWLEDGE**)

We say that an argument can 'leave a bad taste', or that someone was 'blue'
(SENSATION)

We may say they had an 'uplifting' experience.
(MOTION)

When we make drawings from observation or draw from the imagination, we "make drawings" i.e., call up resources registered within us that connect our body of knowledge to our visual thinking. This can be likened to drawing from a well that in itself is too deep to see into clearly.

Two quotations that refer to these ideas:

Wassily Kandinsky, from *Concerning the Spiritual in Art*,
(Dover Publications Inc., New York 1977.)
"Form, in the narrow sense, is nothing but the separating line between surfaces of colour. That is its outer meaning. But it also has an inner meaning, of varying intensity, and properly speaking, *form is the outward expression of this inner meaning*."

Achile Castiglioni, *public lecture at the University of Industrial Arts, Helsinki 2001*
"Aesthetics makes intentions clear"

The contrast between experiential learning and information delivery

We can begin to see from this that the empathetic learning afforded us by the body and its multiple intelligences is significantly more empowering than anything afforded us by an 'Information delivery' process, in that the multiple cross-referencing that occurs can draw upon our entire haptic knowledge in order to 'experience' an experience. Information delivery by itself does not necessarily produce this effect, because it cannot of itself 'incur' any consequences in the body unless such information finds a pre-existing

experiential equivalent with which it can resonate. Worse than this, continued information delivery in the absence of experiential learning and the absence of 'consequence' that can be neurologically mapped, tends towards a dulling, or blanking response. (Something that parents with young children, and participants in boring lectures know only too well!). While the usual response to this effect in the recipient can appear as being difficult or non-cooperative, it is more likely a defence mechanism.

The Material connection

Material culture is the stuff of society, knowledge and ideas, built upon a cognitive framework that 'is' the complex of systems and interactions of our sensory processes. This complex of systems is the connection to the material world and it can be no less than the 'actuality' of the material world as it occurs in our body. 'Material world' in this sense being everything it is possible to come into contact with- be attracted or repulsed by, be washed with or jolted, learn by, enjoy, engage with, distinguish between, possess, give, seek, discover, rely upon, use and protect, grasp onto or shield from.

Thought of in this way all senses are varieties of touch, each with a distinctive mode and each selective of its own nano- micro- or macro- terms of reference. From the taste molecule receptor shape, the warmth in the skin, to the light that touches us from Jupiter; the materials that convey this spectrum of touch constitute the spectrum of the possible, from light itself to the sharpest diamond and from the stickiest of glues to the slipperiest of surfaces. Just the word 'soft' embraces a universe of meaning and variety all of which can be mapped by our physical systems before the verbal struggle to attach an appropriate metaphor to the experience has begun. The 'inadequacy gap' between the touch mediated experience, and the words we use to indicate those experiences, is a territory that is mapped by materials and their inescapable qualities. These qualities exist simultaneously as fact, as signifier, as metaphor, as metonym, as concept, and as relational and societal tendencies.

Wooden. Prickly. Cold. Wet. Warm and Dry. Heated. Windblown. Slimy. Metallic. Sunk like a stone. Over my head. In the bag. I grasped the idea. Overcome by. Bogged down. Safe and sound. Blanketed.

Without material references there is no language, yet the material references are more than signifiers- they evoke for us the sensory changes that incur meaning as an experience, not just an abstract idea. There is a phenomenon of emulation more fundamental than description; an emulation that occurs in the intelligences of the body and which is full of the anticipatory energy that embodies anything from a pinprick to a grand concept. In this way life is a lived experience mediated by materials, with material association covering the entire range of complexity that is our human territory of sensory experience. The human cognitive capacity is able to generalise from the specific, and to specify from the general; to exert total freedom of reference, and freedom of conversion or interpretation from the actual to the conceptual, from nano to macro, from the sociological to the physical. This phenomena (of adaptation) is applicable to sensory functions generally, but not in the sense that all the sensory functions work like little independent machines that measure and record what is 'out there'. Rather there is a sensory+knowledge paradigm that is situated partly 'in the world' and partly, interdependently, in us, and indeed in all living things.[1] This **embodied materiality** is the connectivity of living processes to their respective **ecologies**. One of the most stunning omissions from a critical history of design has been an upfront acknowledgement of the basic underpinning of this principle to issues of environmental poisoning and that, yes it does indeed affect and involve us, and no, we are not immune to it.

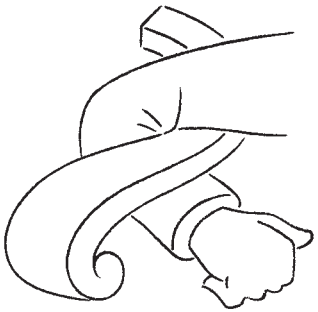
To return to the discussion of materiality, we can relate this to contemporary and historical cultural issues concerning products and material trade. Since notions of 'value' are culturally constructed and predicated upon localised psychologies rather than necessarily upon inherent properties, the scene has been set for a distorted and confused picture of material culture. In recent history, and although the phenomenon has ancient

[1] Differing **colour perception** in different creatures tells us there is a relational framework particular to their differing yet overlapping ecologies.

origins, this is becoming apparent as the bigger picture of global material trade and its effects is more easily accessed by a greater proportion of the world population.

The potentially adaptive psychological dimension to material culture, as described above in terms of adaptive cognitive phenomenon rather than any fixed fact, is humanity's big opportunity to re-envision human trade and social cohesion. Although generally the twentieth century model of consumer product culture is being swallowed by many communities world wide, alongside this appears to be a growing sense that is hasn't, and cannot, be the fulfilling or life affirming thing that it was assumed to be. Its essentially paradoxical nature is peeking at us from the landfill sites and giant 'logistics' depots that occupy the 'in-between' spaces of the land. The scale differential between the comfortable theatre of domestic residential living, and the sheer enormity of the infrastructure that is needed to maintain the illusion, is clear enough evidence of a dysfunctional psychology. However, this is not to say that any of the scenarios is irreversible or adaptable to reflect revised ideas and imperatives. In humanistic terms it would appear that many people are looking for a model of how to live, instead of what to buy.

The American author and co-instigator of the *Natural Capital Institute* **Paul Hawken** is very eloquent on the topics surrounding corporate responsibility, business intelligence, and **sustainable materialism**. The big experiment that was powered in the post-industrial age has to start 'inhabiting' the materials it depends upon, rather than just 'deploying' them. The realisation of the connectedness between our intelligences and senses, between inner knowledge, intentionality and outer process; the mind embodied by action which is in turn mediated by materials and energies; these principles are being acknowledged everywhere, in linguistics, neuroscience, psychology, information technology, physics, and in cognitive science. If intelligence is thought of as "a clear view of a situation" and it is known now that intelligence is best thought of as an emergent property of the human-environment interaction, then it is clear that our material culture is symptomatic of our intelligence.



Whilst this may lead some of the more sensitive of us to panic, it is good to carry the notion too that nature only needs half a chance to draw breath in order to recover and heal, or reinvigorate the living imperative at its core. In the twenty-first century we really do have the potential and real techniques to move beyond the **Victorian notion of nature** as a raw and frighteningly dark beast that needed beating or destroying to ensure its submission in order to make space for the proper concerns of a civil life. It is now clear that this notion was a projection of self-referenced fear onto the outer environment. Equally clear is the need for a very different twenty-first century alternative to this, by projecting actions informed by the co-dependent intelligence described above, we can maintain an intelligence that is 'socially constructed' and which rather than being a symptom of illness can become symptomatic of **healing**.

Self-imposed Cognitive Reality

An exploration of our personal virtual world

"Whenever we bump up against the limits of our own self-imposed cognitive reality the result is always a paradox"[1]

I became interested in this statement when a friend lent me a book by **Gary Zukav** about apparent connections between the elegantly paradoxical developments in **contemporary physics** and **Chinese philosophical principles**. The following is my attempt to explain why this provocative statement can be a key concept for any kind of research. By appreciating the perceptual and psychological phenomenon it identifies it provides a gateway to creativity and some clues to distinguishing a humanistic identity from one constructed largely by **commodification**. This in itself is a serious and rapidly growing post-war phenomenon that lies at the core of non-sustainable design practices. A robust critique of the cultural practices that have led to environmental crisis, waste, the inhibition of living processes on the planet and the terrible contradictions world-wide of '**wealth generation**' must accommodate the cognitive 'reality gap' that faces us and which is briefly discussed here.

How do we know what's out there?

We can only know what is 'out there' as a consequence of the way we have interacted with or been affected by various influences upon our own sensory faculties. Such 'experience' gets built into memories and associations, creating an open-ended internalised flux of potential meaning, a kind of holographic potential that at any point

[1] *The Dancing Wu Li Masters* (overview of the new physics, **Gary Zukav**)

can become a temporary representational model for us. In new situations what we *experience* are the interactions *between* 'that which is affecting us', and these very cognitive models, or propositions; that's as far as it can go. (i.e., it is not simply an **input-output paradigm**) Experience could then be thought of as a kind of **friction** between inner and outer realities.[2] There is no way of knowing what is 'out there' that circumvents this interface, however gross or subtle the nature of it.

In the machine age, attempts to model our internal workings would consist of images of **hydraulics**, levers, boilers etc., applied to the human complex in an attempt to understand processes at work. In the computer age the prevailing metaphors tend to be about **wiring**, connectivity, **memory space**, hardware and software etc. Tidy and appealing as such metaphors are, whether they have any relevance to such things as the formation of knowledge or the experience of insight is very doubtful. However because of the nature of language and the formative influence it has upon understanding, these are inescapable problems. The least we can do is attempt to stand apart from them to increase our awareness of their shortcomings.

It can be called a 'self imposed' cognitive reality because we can be more or less aware and accepting of its biases, limitations, imbalances and temporary truths, and so can take some responsibility for changing or relocating our references, or states of mind, attitudes struck etc. We are forced to accept that our personal cognitive reality has a certain poise to it, and that this must differ from that struck by others. The fact that we are able to relocate or re-contextualise our references shows us that there always exists a backdrop of some kind to our perceptions; be it **figure-ground**, **signal-to-noise**, ambient and particular, etc.

If we fail to see that our experiential mode or condition is a partial construct affected by our education, by our particular social and personal factors, our likes and dislikes etc., then we mistake all this so called 'experience' for something that is 'in the world' as against something that is a consequence of that internalised matrix that governs our

[2] a 'frictionless' experience could be thought of as the kind of state experienced by an artist, musician, dancer, etc., when they become 'lost' in a performance or a practice and cease to consciously check or edit what they are doing because they have become integrated with the practice of it.

perceptions and filters or constrains our understanding. In other words we attempt to ascribe, to what is a tenuously internal experiential phenomenon, an objective reality which it is not capable of possessing. It is natural to do this because we desire to be right; but if consciousness has any function, part of that function must be to remain open to a fluid reconfiguring of the internal-external dynamic. A powerful conceptual key to this difficulty, and one which allows us a way out of insoluble contradiction, is represented by the **yin/yang** principle of Chinese philosophy, medicine and science.[3] This is that any **thesis** contains the seeds of its own **antithesis**, which leads to continuing cyclical and graduated change between differing conditions. This in turn leads to a perception of ***tendencies*** in the world rather than ***things***. For example, when does winter turn into spring?

Paradoxical difference between 'reality' and 'knowledge'

There are times of challenge for us when our own self imposed cognitive reality model bears less and less relationship with actual experiences impacting us. This situation can be experienced as anything from **epiphany** to the paradoxical or to the seriously depressing. **Mental health** is a significantly growing problem in a society where notions of 'being in control' are implicitly referenced at every turn – especially in the service of product aspiration, promotion and coercive influence through sophisticated marketing. The 'self imposed cognitive reality' is thus not only suspect because of the way it is constructed simply by virtue of what it is, but additionally is manipulated for us by others according to other agendas that are not concerned with 'direct perception' but with subverting human behaviour and psychology to a commodification process.

The paradoxical can, in view of the foregoing be seen in the light of this quote as a doorway, a prising apart of the closed perception, an opening to creative opportunity. '**Magic**' exists on the other side of this **paradox boundary** that encircles human experiential knowledge. The fact that different living things have different paradox

[3] see the *Nei Ching*

boundaries was interpreted in the ‘pre-scientific’ era as a sign that certain creatures had magical powers.

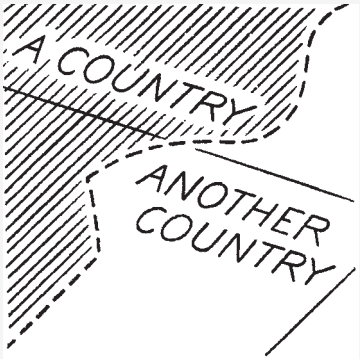
An individual’s 'paradox boundary' can be extended or expanded in many ways; by simply encountering more in the world, by travel, by discourse, by negotiating knowledge by attempting to ask the right questions, by using different attitudes, such as humility, through reflective or meditative practices, by trying out ideas and processes in contrasting situations, by connecting one way of representing something with an alternative way and thus experiencing the difference between the signified and the signifier; not as a theory but as an experience in real time and hence affecting and creating our haptic knowledge.

An opening to research

When one is aware of the principle that a cognitive reality is partially self-imposed and is always awaiting an upgrade or replacement, research becomes not simply a matter of piling up data on top of an unquestioned representational model, but a simultaneous process of allowing information or experience to remodel or affect any representational model that may be in play. A deliberate intention to do this and a willingness to endure the inconvenience of doing so are essential components of genuine research. This is by

its nature a more socially constructed process. The principle has profound consequences from how to carry out research in cross-disciplinary or cross-cultural situations*, to the ability to frame a research process for the individual. (For an example of this, see the essay titled *The Designed Object*.)

Cognitive experience, when seen as being partially freed from any necessary connection with the open actualities of our material world, becomes a creative asset holding powers of interpretation; an essential feature of the practice of design.



* For an example of a structured art-science project that incorporated some of these principles, see: *Travelling Facts; The Social Construction, Distribution and Accumulation of Knowledge*, Campus Verlag New York, 2004, (Institute of Advanced Study Berlin). Chapter by Chris Rose on vision and drawing in design. International scientific conference papers, conference of the same name Berlin 2002. Baillie, C Ed.

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