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17 July 2011 | Draft

¿ Higher Education ∞ Meta-education ?

Transforming cognitive enabling processes increasingly unfit for purpose

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Introduction

The current period is witness to severe inadequacies in response to humanitarian crisis (10 million threatened with starvation in Africa) and in governance of the global financial system (risk of imminent dollar and eurozone defaults). It is curiously significant that the potential dollar default is associated with the most powerful nation, recognized for the merit of its higher education system, whereas the most probable eurozone default is that of a far weaker nation from which understandings of higher education first originated. The debt of the former nation is far in excess of that of the latter -- with little said as to their relative competence in governance.

It is appropriate to ask whether, more fundamentally, this situation is a consequence of inadequacies in the education of those most influential in such matters. Is the evident incompetence a consequence of "higher education" as currently conceived? Is it a consequence of unexamined assumptions regarding the governability of the global system and the ability to achieve consensus to that end -- again deriving from inadequacies in higher education (*Ungovernability of Sustainable Global Democracy?* 2011; *The Consensus Delusion*, 2011)?

These inadequacies are compounded by the tragedy of unemployment with the associated personal despair, the relative sterility of conventional education with its focus on paper qualifications, and the questionable communication efficiencies of meetings for the development and exchange of ideas in response to such issues, including climate change. Ironically this complex of challenges is further highlighted by the amazing advances in electronic communication and the ever wider access to information of every kind -- in the sense that diminishing attention span becomes a consequence of information overload leading to underuse of vital information. The matter is further complicated by questionable patterns of peer review and intellectual copyright, both severely limiting access to knowledge and insight.

More evidently dramatic is the continuing challenge of "delivering" education, ideas and skill sets to areas which are either geographically remote, variously constrained by cultural circumstances, or subject to forms of impoverishment preventing any engagement with educational processes of a "higher" order. The situation is especially dramatic in conflict zones and in "temporary" refugee camps which become tragically permanent.

All these factors are a constraint on the fruitful development of the imagination -- so fundamental to all that is implied by education, especially in the lifelong form articulated by the UNESCO [Institute for Lifelong Learning](#) and by its *Learning to Be: the world of education today and tomorrow* (1972).

With respect to "higher education", the exploration here follows from the extensive critique by Antonio T. de Nicolas (*Habits of Mind: an introduction to the philosophy of education*, 1989). For him:

Habits of mind are identified as the whole range of mental operations people perform, and have performed in history, giving them an individual and social identity, to include cultural diversity and individual uniqueness.... These habits of mind are: the abstraction of images from objects already in the world, the forming of opinions, cognitive operations with their diverse levels of abstraction

as exemplified in the operations of science and art and the whole range of imaginative operations for original creation without borrowing from the outside, by recollecting from the past those memories of images, and acts that represent the best of what is human and cultural. (p. xvii)

De Nicolas then argues that:

Plato proposed these plural habits of mind and their development as the curriculum and project of education. This project never took root in our educational system, but was discarded by those who came after him, who offered instead something more narrow in the name of certain ideological promissory notes to be cashed at a distant future date. We have thus developed certain habits of mind while burying others, using education to indoctrinate rather than to recall from the past those habits of mind that made us different and diverse, and which guaranteed our continuity as a species and as a multiplicity of cultures. (p. xviii)

Given the apparent current inadequacies of "higher education", it is curious that it has been primarily inspired by the Aristotelian model, with little capacity to reframe fruitfully any complementarity with the contrasting perspective offered by Plato. Hence an institutionalised inability to engage constructively with potentially valuable "alternatives".

The use of "meta-education" here endeavours to articulate the dynamics of engagement with Plato's plurality. Rather than emphasizing conventional disciplines requiring conventional styles of lengthy education to achieve competence, it seeks to focus on the rapid acquisition of the set of fundamental cognitive skills vital to human survival and thrival. Particular importance is attached to the way in which such a cognitive "toolkit" might be understood in order to enable effective use of its elements. The role of metaphor is seen to be vital in offering a degree of insight to many -- especially those in constrained circumstances, potentially characterized by metaphorical impoverishment inhibiting their imaginative development and ability to engage fruitfully with their environment (*In Quest of Uncommon Ground: Beyond impoverished metaphor and the impotence of words of power*, 1997).

The reasons for the unusual typography in the title, used to challenge the sterile implications of binary logic, are discussed separately (*Defining the objective ∞ Refining the subjective ?! Explaining reality ∞ Embodying realization*, 2011). This is consistent with a concern with the paradoxical nature of the challenges of the times, a degree of convergence on a "memetic singularity", and the obligation for many effectively to live "between worlds" (*Emerging Memetic Singularity in the Global Knowledge Society*, 2009 ; *Living as an Imaginal Bridge between Worlds: Global implications of "betwixt and between" and liminality*, 2011).

The fundamental challenge for "meta-education"? World Population to Reach 7 Billion on 31 October 2011 Estimate of the 2010 Revision of World Population Prospects, prepared by the Population Division of the UN Department of Economic and Social Affairs (3 May 2011)
Fifty years ago, when the WWF was founded, there were about three billion people on earth. Now there are almost seven billion. Over twice as many -- and every one of them needing space. Space for their homes, space to grow their food (or to get others to grow it for them), space to build schools and roads and airfields. Where could that come from? A little might be taken from land occupied by other people but most of it could only come from the land which, for millions of years, animals and plants had had to themselves - the natural world.
But the impact of these extra millions of people has spread even beyond the space they physically claimed. The spread of industrialisation has changed the chemical constituency of the atmosphere. The oceans that cover most of the surface of the planet have been polluted and increasingly acidified. And the earth is warming. We now realise that the disasters that continue increasingly to afflict the natural world have one element that connects them all -- the unprecedented increase in the number of human beings on the planet. (Sir David Attenborough, <i>President's Lecture 2011: People and Planet</i> , Royal Society of Arts, 10 March 2011)
Challenge engendered and sustained by "higher education"? <i>Institutionalised Shunning of Overpopulation Challenge</i> (2008) <i>United Nations Overpopulation Denial Conference</i> (2009) <i>Lipoproblems: Developing a Strategy Omitting a Key Problem</i> (2009)

Images of education, learning and knowing

Maintenance learning vs. Shock learning: A major report to the Club of Rome (Mahdi Elmandjra, et al. *No Limits To Learning: bridging the human gap*, 1981) highlighted the contrast between "maintenance learning" and "shock learning". Maintenance learning was recognized as reinforcing existing categories and paradigms, the disciplines to which they give rise, and the professional and institutional division of labour of which they are the basis. It noted:

Traditionally societies and individuals have adopted a pattern of continuous maintenance learning interrupted by short periods of innovation stimulated largely by the shock of external events... Even up to the present moment, humanity continues to wait for events and crises that would catalyze or impose this primitive learning by shock. But the global problematique introduces at least one new risk -- that the shock could be fatal. This possibility, however remote, reveals most clearly the crisis of conventional learning: primary reliance on maintenance learning not only is blocking the emergence of innovative learning, but it renders humanity increasingly vulnerable to shock; and under conditions of global uncertainty, learning by shock is a formula for disaster". (5, p. 10)

Higher education may be understood as focused on maintenance learning. The dangers of the shock learning identified may be

understood as those of failure in capacity to navigate the [adaptive cycle](#), notably as articulated by the [Resilience Alliance](#) and highlighted in the study by [Thomas Homer-Dixon](#) (*The Upside of Down: catastrophe, creativity, and the renewal of civilization*, 2006). The assumption by the report of the absence of limits to learning can now be understood as ill-founded -- given both the disruption by civilizational shocks and the memetic singularity implied by increasing information overload (*Societal Learning and the Erosion of Collective Memory: a critique of the Club of Rome Report: No Limits to Learning*, 1980).

The challenge is framed otherwise by Will McWhinney and Laura Markos (*Transformative Education Across the Threshold. Journal of Transformative Education*, January 2003) who argue that the human condition has changed radically in the past 100 years and that educational institutions, formal and informal, have not kept pace with technological innovations, the lengthening life span, or the need for ongoing reeducation to reinvigorate lives. They distinguish between learning and education and, more significantly, between transformative learning and transformative education. Their purpose is to highlight the need for another level of education suitable to 21st-century society, and to engage a global, cross-disciplinary dialogue to inform transformative educational practice across its personal, productive, instrumental, emancipatory, and holistic goals. "Meta-education" as discussed here could be understood as consistent with this purpose -- although not with its presentation as a "level".

Images of organization: In considering education in the future, it is appropriate to explore how education is imagined, can be imagined - and how it might be imagined especially when supported by new technologies. One useful point of departure is the work of Gareth Morgan (*Images of Organization*, 1986; *Riding the Waves of Change; developing managerial competencies for a turbulent world*, 1988). In the former Morgan has provided a widely-cited set of eight metaphors through which organizations tend to be viewed: **Machine, Organism, Brain, Culture, Political System, Psychic Prison, Flux and Transformation, and Instrument of Domination**. Operating within any one of these metaphors of course reveals its style of truth and development (if any).

Morgan's work tends to be cited in discussing "images of education" -- understood as a form of "organization", whether with respect to knowledge or its institutional transmission. Clearly metaphors of this kind can be used, or adapted, to frame the implied modes of learning and knowing. Any such set can be developed to distinguish "ways of knowing", including "ways of ordering" and even "ways of questioning" -- all of which are of significance to possible understandings of education. The "way" metaphor is of course consistent with that of the "journey" metaphor frequently associated with education, learning and discovery.

Images of teaching: Especially relevant is the argument of Mary Ann Bowman in the case of higher education (*Metaphors We Teach By: understanding ourselves as teachers and learners*. In: *Essays on Teaching Excellence*, 8, 4, 1996-7), inspired like many others by the approach of cognitive psychologists [George Lakoff](#) and [Mark Johnson](#) (*Metaphors We Live By* 1980). For Bowman: **The challenge is to bring our operating metaphors into conscious awareness, to consider how they may be encouraging or restricting our growth, and to change those metaphors that are creating too many limitations**. She presents a sampling of teaching metaphors, prefaced by the remark that

Many educational metaphors exist that describe the processes of teaching and learning. The metaphors with which we are most comfortable as teachers communicate clearly our philosophy of teaching and learning, revealing how we see ourselves in relationship to students and what we think it means to teach.

This point can be considered pertinent, as a warning, with respect to the intellectual comfort zones within which the future of "higher" education tends to be envisaged. As examples, Bowman identifies:

- **"teaching is telling"**: Many college and university faculty appear to have this as their primary operating metaphor. The teacher possesses the body of knowledge, and learning occurs when the student is told the information. At its most fundamental level, this metaphor is based on the assumption that the teacher who stands in front of the class and talks about the subject at hand is engaged in teaching and that therefore students are learning. Much large-class and lecture teaching is clearly based on this metaphor.

Many college curricula support this metaphor through their detailed objectives about what students must learn, without clearly developed strategies by which the learning will occur. Faculty express this metaphor implicitly when they state their concerns about "covering" the material, meaning that they need to tell the students about the material. They also reflect this metaphor when they define faculty development strictly in terms of gaining more knowledge about their disciplines, excluding activities which enhance teaching.

- **"teaching is like banking"**. Knowledge exists in the head of the teacher, who deposits the information into the head of the student. The student is a passive recipient of the wisdom of the teacher. This model at least allows for the possibility that the student's knowledge may earn interest.
- **"the teacher is the master, the student the disciple"** also fits in this general category. This metaphor more explicitly delineates the power-over relationship between teacher and student although when the teacher is telling or depositing knowledge, power-over is also suggested.

Such metaphors notably frame the conventional processes of academic meetings and policy presentations. Bowman notes their limitations as being:

- they view the teaching-learning process as a one-way exchange in which the power, authority, and expertise of the teacher exert control over the student.
- they view students as passive, rather than active learners, and tend to overlook opportunities for students to become engaged with

the material they are learning.

- they view teaching excellence as primarily dependent on discipline knowledge and tend to overlook other factors that contribute to quality teaching and learning.
- they subtly encourage faculty to be nonreflective practitioners in their teaching role.

Such metaphors are clearly a constraint on policy formulation and strategic design where successful communication is dependent on imbuing a "higher" degree of "education". Bowman then elaborates on the merits of other metaphors regarding the teaching role:

- teaching as gardening, through which a more organic view of the teaching-learning process emerges.
- teaching as cooking, especially given the variety of understandings of the cooking process and the variations between the traditional teacher-centered approach and a more cooperative, group-centered one.
- teaching as coaching, with a focus on a cooperative approach, especially in a group setting.
- teacher as guide on a journey of learning and discovery, possibly an adventure shared by both teacher and student -- allowing the guide to take advantage of the collective wisdom of the students.

Another valuable articulation is offered by D. J. Cunningham, Thomas M. Duffy and R. A. Knuth (*The Textbook of the Future*, 1993; *Metaphors We Teach By*, 2001) within the framework of *The Handbook of Research for Educational Communications and Technology* (Association for Educational Communications and Technology, 2001). In discussing **metaphors of the mind** they fruitfully distinguish between "mind as computer" (MAC), "mind as brain" (MAB), and "**mind as rhizome**" (MAR). The latter metaphor enables them to emphasize that:

- all knowledge is constructed; all learning is a process of construction
- many world views can be constructed; hence there will be multiple perspectives
- knowledge is context dependent, so learning should occur in contexts to which it is relevant
- learning is mediated by tools and signs
- learning is an inherently social-dialogical activity
- learners are distributed, multidimensional participants in a sociocultural process
- knowing how we know is the ultimate human accomplishment

These are variously consistent with the arguments of George Lakoff and Mark Johnson (*Philosophy in the Flesh: The embodied mind and its challenge to western thought*, 1999) and Francisco Varela (*Laying Down a Path in Walking: essays on enactive cognition*, 1997).

The policy implications of choice of metaphor were notably highlighted by Donald Schön (*Generative Metaphor: a perspective on problem-setting in social policy*, 1993).

Images of religious education: Bowman's insights are cited by J. Cy Rowell (*Empowering images of the minister as teacher*, *Religious Education*, Winter 2000) in discussing the educational role of a religious minister:

There is one task central to ministers' expanding their understanding of teaching and to becoming empowered to experiment and to live into new images. It is to reflect on one's present metaphors for teaching and to explore new metaphors for teaching.

The use of metaphor has been widely explored as a means of reframing, and rendering accessible, the insights of religion. Of particular relevance to any reframing of "higher" education are the arguments of **Sallie McFague** as a feminist Christian theologian. She has notably focused on the use of metaphor as **a way of speaking about God** -- perhaps to be understood as the epitome of "higher" education. She argues for new metaphors to help give substance to new ways of conceiving God appropriately for the present times and for more adequate models for the ethically urgent tasks humankind faces, principally the task of caring for an ecologically fragile planet (Sallie McFague, *Models of God: theology for an ecological, nuclear age*, 1987).

McFague's concerns helpfully transform the nature of the encounter with that which is inexplicable as a cognitive challenge within a current educational framework -- and about which it may be inappropriate to use the language of that framework, as separately discussed (*Engaging with the Inexplicable, the Incomprehensible and the Unexpected*, 2010; *Being What You Want: problematic kataphatic identity vs. potential of apophatic identity?* 2008).

Reference to "God" is helpful in the light of the disastrous conflict engendered by the failure of interfaith dialogue between those variously adhering to religion and to the implied subtlety which "passeth all understanding". The problematic framing has been the subject of notable criticism (Richard Dawkins, *The God Delusion*, 2006; Stephen R. Prothero, *God Is Not One: the eight rival religions that run the world*, 2011). The "God" of Dawkins' delusion may however be understood as indicative of an even more fundamental delusion, namely that which assumes that any consensus on challenges facing civilization is possible through conventional mindsets (*The Consensus Delusion*, 2011).

These considerations may be very relevant to strategic challenges of governance relating to the future -- as highlighted by the widely cited remark of Albert Einstein:

The significant problems we face can not be solved at the same level of thinking we were at when we created them.

Varieties of rebirth: A particular understanding of education is framed (or experienced) in various ways as a birthing process (a "breakthrough") -- an emergence into a new mode of awareness (*Varieties of Rebirth: distinguishing ways of being "born again"*, 2004). That review clustered such understandings into:

- **Cultural rebirth:** renaissance, aesthetic birth, mytho-poiesis
- **Socio-religious rebirth:** birthright, destiny, reincarnation, social status, ceremony, ritual, group affiliation, games, sports
- **Psycho-behavioural rebirth:** sin-to-virtue, changing patterns of consumption, conversion

- **Developmental rebirth:** education, perspective, initiation, cultural creativity, individuation
- **Therapeutic rebirth:** release from trauma, mentors, self-help, discipleship
- **Cognitive perspective:** metacognition, critical thinking, philosophy, aesthetic sensibility, orders of thinking, systematics, orders of abstraction, disciplines of action
- **Experiential rebirth:** operacy, flow, embodiment of mind, speaking with God, born-again, possession, psychedelic experience, embodiment in song, spiritual rebirth

Rather than classical educational appreciation of "enlightenment", this implies a degree of focus on the process as in the compilation by Peter N. Gregory (*Sudden and Gradual; approaches to enlightenment in Chinese thought*, 1991).

The "rebirth" metaphor is a challenge to that of "higher" in education but is suggestive of some of the qualities of "meta-education", especially the self-reflexivity implied by "re". A more systematic approach to a set of metaphors of relevance to education is discussed below.

Education: "higher" vs "meta"

In the following discussion use is made of "meta" to encompass a degree of self-reflexive, critical insight into the learning process and the manner in which it needs to be continually rethought by the individual to enable more appropriate responses to emerging situations in a turbulent context. In this sense it is contrasted with the codified learning characteristic of "higher" education.

Reframing education: The radical argument developed here is that education now suffers through having been widely commodified as a deliverable product. This framing has necessarily engendered a pattern echoed in both conventional education and in the communication processes associated with further "education" in support of decision-making. Both may be compared with the patterns of communication in religious contexts -- in which many of the concepts and processes originated:

Comparability of "higher" communication contexts		
Education	Meetings	Religion
books	(official) documents	scriptures
lessons	training sessions	seminars
talks, lectures	talks, lectures	sermons, lectures
teachers and professors	(keynote) speakers	priests, clergy,
examinations	votes, surveys	examinations
certificates, credits	certificates of attendance	certificates
class rooms	conference meeting rooms	places of worship
educational institutions	conference centres	religious institutions
curriculum, agenda	programmes, agendas	order of service

The system is in process of being enhanced by the introduction of numerous electronic facilities: laptops, screen presentations, internet access, multi-media products, videos, and the like. These are promoted as enabling the necessary breakthroughs into more effective forms of education.

Whilst the progressive introduction of technology appears to be radically modifying the engagement with information, the argument here is that this is done primarily in support of educational processes which would be familiar to society in earlier decades, centuries or even millennia. Would Aristotle be surprised by the format of a modern lecture theatre -- if invited to "give a talk" there? Would Cicero?

Do the "eternal verities" imply that they should be presented for all eternity through the same models? Or might that be construed as a failure of imaginative innovation within the educational and meeting environments? How is it that theatre design in support of dramatic innovation is far more radically inventive than is evident in the case of meetings for education-related purposes?

Challenged meeting process -- a reflection of "higher education"?	
The point is appropriately emphasized by the following contrast	
1979	2011
The Silver Anniversary International Meeting of the Society for General Systems Research (SGSR) (London, 1979), predecessor of ISSS, with the theme: <i>Improving the Human Condition: Quality and Stability in Social Systems</i> . At that event key figures in the systems approach engaged experimentally in an exercise to apply their techniques self-reflexively to enable the participants to self-organize in the light of their diverse perspectives (<i>Metaconferencing: discovering people / viewpoint networks in conferences</i> , 1980). This contributed to the methodology subsequently outlined in the study by Stafford Beer (<i>Beyond Dispute: the invention of team syntegety</i> , 1994)	The current organization of the 55th Meeting of the International Society for the Systems Sciences (ISSS) , together with the International Symposium for Knowledge and Systems Sciences (Hull, 2011) with the theme: <i>All together now - working across disciplines: people, principles and practice</i> . The programme notes: These complex 'messy' issues require acknowledgement and commitment to the advantages of transdisciplinary research and practice while also exploring and debating the problems experienced by the people involved in this research, and the issues inherent in the development of the theory and practice of our approaches.

The current ISSS programme appropriately cites [Kenneth Boulding](#) (*Skeleton of Science*, 1956) regarding the need for increasingly complex methods and approaches for managing ever-increasing levels of complex systems. It also cites [Julie Klein](#) (*Interdisciplinarity: history, theory, and practice*, 1990) regarding the need for "a subtle restructuring of knowledge", changing "the way we think about the way we think". However it then notes that:

... after all these years, although intuitively it may be recognized that more than any single discipline is needed to address complex systems, there is still ambiguity about the principles and processes of transdisciplinary systemic working and the capabilities and skills needed to do so.

Of greater relevance to the following argument is the failure at the ISSS event itself to apply self-reflexive, self-organizing procedures, building on the efforts of Beer and his colleagues in 1979. How might educational initiatives -- understood generically -- be reframed (*Enacting Transformative Integral Thinking through Playful Elegance*, 2010)?

Questionable implications of "higher": The assumption challenged here is that associated with the cognitive implications deriving from "higher" in the educational process -- and even from "e" in the *educare* of its etymological origin. As with the role of metaphor discussed above, the question is whether, effectively embedded in "higher" education, there is a particular geometric or topological framing which is inadequate to the challenges of the times and the needs of those expected to engage with them.

As stressed by Lakoff and Johnson (1980) with respect to other terms having geometric implications, these impose a particular constraint on how education is imagined, "delivered" and "received". It is consistent with the "ladder" and "stair" metaphors through which access to greater "height" is framed -- notably challenged by feminist scholars (Carol Gilligan, *In a Different Voice: psychological theory and women's development*, 1982).

Especially interesting is the manner in which "ascent" is used with respect to increase in knowledge and insight, most notably with respect to wisdom and spiritual understanding -- and proximity to that represented by deity. The *Clues to 'Ascent' and 'Escape'* (2002) of traditions such as Christianity, Buddhism and Theosophy may then be explored to clarify the challenge of *Navigating Alternative Conceptual Realities* (2002). "Escape" is then related to escape from ignorance and from simplistic understandings of knowledge. The challenges of "noonautics" may then be compared with that of reaching "escape velocity" in astronautics (*Entering Alternative Realities - Astronautics vs Noonautics: isomorphism between launching aerospace vehicles and launching vehicles of awareness*, 2002).

Unexplored potential of "meta": Whilst "higher" may indeed enable the fruitful ordering of certain insights, the question is whether -- especially through its exclusive/elitist connotations -- it effectively inhibits other patterns of connectivity. These may be vital -- if not essential -- to comprehension, remembering, and to the wider communication of meaning. It is appropriate to note that the "higher" framing is echoed in the terminology used in the descriptors of "high council", "high priest", etc -- possibly reinforcing their inadequacies. Given the emphasis placed by Aboriginal Australians on an unusual cognitive relationship with the landscape, it is questionable whether this is totally obscured by the implications of "high degree" in the title of the study by A. P. Elkin (*Aboriginal Men of High Degree*, 1993). The implications of "meta" in such contexts are more clearly emphasized in the compilation of Darrell A. Posey (*Cultural and Spiritual Values of Biodiversity*, 1999)

Of greater relevance in these times is whether what is framed as "high" enables the individual and collective response for which there would seem to be a need. Has "higher" enabled the emergence of the "new thinking" and "paradigm shifts" for which many call? (cf *World Center for New Thinking*; Edward de Bono, *New Thinking for the New Millennium*, 2000; Denise Breton and Christopher Largent, *The Paradigm Conspiracy: why our social systems violate human potential and how we can change them*, Hazelden, 1996)

The argument here is that education is effectively trapped in a "geometrical" straightjacket. This is not to deny the merits of the particular geometry widely favoured but rather to point to other geometrical and topological perspectives which may be preferable for some or in some circumstances. **It is then this capacity to shift between such configurations which is a vital skill**, inadequately enabled at present. Ironically this is partially illustrated by so-called "transformer" toys -- capable of being variously reconfigured.

The point is made here by contrasting "higher" with "meta" in relation to education -- as well as calling into question the implications of "e" in the etymological inheritance of education. In that sense "meta-education" is "about":

- the geometry of connectivity, communication and learning (discussed [below](#))
- reframing the unidirectional sense of "higher" -- which notably reinforces the contested notion that teachers have nothing to learn from students.
- the manner in which ideas, values and insight circulate, rather than being unidirectionally "conveyed" (*Potential Misuse of the Conveyor Metaphor*, 2007; *Enabling Moral Currency Circulation*, 2010; *Circulation of the Light: essential metaphor of global sustainability?*, 2010)
- challenging conventional understanding of where insight "comes from", as highlighted by George Lakoff and Rafael Nunez (*Where Mathematics Comes From: how the embodied mind brings mathematics into being*, 2001)
- the processes of elicitation of insight and creative imagination
- insights into the cognitive processes of "flow" as developed by Mihály Csikszentmihályi (*Creativity: flow and the psychology of discovery and invention*, 1996)
- [multiple intelligences](#) and the variety of cognitive styles (*Systems of Categories Distinguishing Cultural Biases*, 1993)
- polysensorial considerations (*Strategic Challenge of Polysensorial Knowledge: bringing the "elephant" into "focus"*, 2008)
- [critical thinking](#)

Such a check list is not to deny that such factors may feature variously in different schools of education and be understood as essential to "higher education". Use of "meta-education" offers a shift in emphasis to frame the following arguments more appropriately. In this sense "meta-education" might be understood as a fruitful complementary to "higher education" -- a complement highlighting the possibility of problematic dynamics similar to those between conventional medicine -- questionably guaranteed by qualified authority -- and its complementary forms, readily deprecated as "quackery". The paradoxical nature of this complementarity is clarified separately in the argument justifying the unusual typography of the title of this document (*¿ Defining the objective ∞ Refining the subjective ?! Explaining reality ∞ Embodying realization*, 2011).

In the spirit of this argument it might be appropriate to compare conventional forms of well-grounded education through a metaphor of ground-based animals (such as mammals) in contrast with air-based animals (such as birds). This is an appropriate prelude to the following recognition of the urgent need for the speed and range exemplified by the latter.

Problematic implication of "meta" as "better": It is widely accepted that "higher" education is better than "lower" -- notably as in the progression from "lower school" to "high school". This distinction is readily associated with "bad education" vs "good education" -- to the disadvantage of many. There is also the association of "height" with "right", namely the sense in which "higher" implies wider perspectives which must necessarily be "right" in comparison with any "lower" perspective. Acquiring a "higher education" is then understood as a means of occupying the "high ground" with the strategic advantage that implies. This is consistent with the positioning of strategic buildings, especially traditional fortresses and monasteries, on higher ground.

This comparison suggests that the "higher" the education, the greater the denial of issues "below" -- as best exemplified by both the the unchallenged rise in the level national debt and avoidance of the implications of population increase on resource overshoot.

The argument here is that there is a sense in which it is the "height" of education currently privileged which is itself a problem -- exemplified by the lack of "communication" between skyscrapers in an urban environment. The pattern of the argument for "meta" has long been developed in the opposition between "hierarchy" (emphasizing the dimension of height) and "network" (emphasizing connectivity of some form). The problematic aspects of "height" are of course echoed to a degree in the significance attached to "centrality" in a network -- now reflected in the preoccupation of individuals with the number of their "friends" (on Facebook) or of their "followers" (on Twitter).

Rather than enter into such a polarized dynamic, the argument here could use a musical metaphor to distinguish "higher" and "lower" as being on a musical scale of several octaves. The value of "higher" might indeed be challenged as corresponding to the limited capacity of certain "voices" (alto, etc) in contrast with "lower" "voices" (base, etc). It is however a "meta" framing which attributes value to both according to circumstances and through appropriate composition. Such a framing contrasts with the pathetic quality of discourse between the foci of alternative strategies of governance (*All Blacks of Davos vs All Greens of Porto Alegre: reframing global strategic discord through polyphony?* 2007).

The concern with respect to "meta-education" is whether it is able to reframe such preoccupations in relation to knowledge. Rather than understanding "metacognition" as "better cognition", it is a question of how it can be recognized as a mode of cognition with a significant function. This may well enable other more conventional modes of cognition in the absence of "higher education" (or where the latter is especially restrictive and inflexible). Pejoratively, with respect to the quest for ever "higher" as emblematic of excellence in education, might it be asked whether global governance is dangerously afflicted with a fashionable predilection for intellectual equivalents of soprano, mezzo-soprano, or contralto voices -- even to the point of creating "castrati"?

The quest for viable "meta-education" may indeed imply a degree of paradox, to the extent that it is understood as a means of understanding "less and less about more and more" -- rather than knowing "more and more about less and less" (as is characteristic of "higher education" and its necessary specialization).

"Meta" as problematic intellectual property: It is appropriate to note the degree to which both "higher" and "meta" have been unfortunately framed as intellectual property, if only by implication.

In the case of "higher education", much is of course made of the certification process associated with the institutions issuing "recognized" qualifications -- and possibly specially accredited for that purpose. The implication is then that "higher education" of any significance cannot be obtained otherwise. This is especially problematic for those in situations having no access to the "higher education" so defined. However this then precludes recognition of the quality of education that people may indeed acquire through other processes. Especially problematic is that the nature of "higher education" can then only be recognized through paper certification, with that from a "better" institution implying that the knowledge thereby acquired is "higher". Curiously there is no certification process for "maturity" or "wisdom" -- to the extent that they are even recognized from the perspective of "higher education".

In the case of "meta-education", the term has already been associated with various initiatives (and web domain names), possibly through use of "meta" as an acronym for a particular approach to education. Especially relevant is its use by [Neuro-Linguistic Programming](#) (NLP) initiatives, as with [META-NLP](#) (Neuro Linguistic Programming for Education). It is indeed the case that many of the preoccupations of NLP are well-echoed by what might be associated with an emergent understanding of "meta-education". Especially interesting in this context is the neologism "metacation" (Sid Jacobson, *Meta-Cation: education about education with Neuro-Linguistic Programming*, 2001).

Although all the various initiatives making such use of "meta" promote insights into aspects of what might come to be considered "meta-education". A concern is the possibility, in a competitive environment, that such associations preclude the free exploration of its potential, as previously discussed (*Future Coping Strategies: beyond the constraints of proprietary metaphors*, 1992). Curiously, as with "higher education", there are traces of the pattern by which "meta education" may be claimed as the "property" of some to the exclusion of others -- as is evident with [college and university rankings](#) distinguishing the relative "height" of higher education institutions and "centres of excellence" -- to the exclusion of other areas and modalities for the acquisition of "meta-insight".

It is significant that the website of the [UNESCO Institute for Lifelong Learning](#) does not as yet indicate any references to "meta-education" -- a pattern following its earlier tardy uptake of concepts of interdisciplinarity and transdisciplinarity, and despite its unique mandate in that respect.

Metaphors through which to reframe education

The development of this argument, as above, explicitly associates "meta-education" with the acquisition of skills in the use of "metaphor".

It has been argued that metaphor offers a vehicle for traversing the boundaries typically reinforced by the categories of conventional higher education (*Metaphors as Transdisciplinary Vehicles of the Future*, 1991). Metaphors offer the ideal vehicle for responding to the challenges fruitfully articulated in the early collection of studies compiled by the OECD Centre for Educational Research and Innovation (*Interdisciplinarity; problems of teaching and research in universities*, 1972).

The argument can be developed further by emphasizing the relevance to "education as its own metaphor", which enables access to a "pattern that connects", and as being relevant to the emergent sense of identity of the learner, as suggested by the following:

- **being a metaphor:** as Kenneth Boulding, author of *Image* (1956), teasingly puts it:
"Our consciousness of the unity of self in the middle of a vast complexity of images or material structures is at least a suitable metaphor for the unity of group, organization, department, discipline or science. If personification is a metaphor, let us not despise metaphors -- we might be one ourselves" (*Ecodynamics; a new theory of social evolution*, 1978).
- **"we are our own metaphor"**, as remarked by Gregory Bateson:
"One reason why poetry is important for finding out about the world is because in poetry a set of relationships get mapped onto a level of diversity in us that we don't ordinarily have access to. We bring it out in poetry. We can give to each other in poetry the access to a set of relationships in the other person and in the world that we're not usually conscious of in ourselves. So we need poetry as knowledge about the world and about ourselves, because of this mapping from complexity to complexity." (cited by Mary Catherine Bateson, *Our Own Metaphor: a personal account of a conference on the effects of conscious purpose on human adaptation*. 1972, pp. 288-289)
- **pattern that connects:** In the quest for such a pattern through education, it is useful to recall another argument of Gregory Bateson:
"The pattern which connects is a meta-pattern. It is a pattern of patterns. It is that meta-pattern which defines the vast generalization that, indeed, it is patterns which connect." And it is from this perspective that he then warns: "Break the pattern which connects the items of learning and you necessarily destroy all quality." (*Mind and Nature; a necessary unity*, 1979, pp. 8-11).

To the extent that education is itself its own metaphor, as implied by Bateson's argument, it is within this context that it is useful to note the preoccupation with the nature of the metaphors through which reform of education is proposed, as argued by Audrey Watters (*Sputnik, DARPA, Rosa Parks Moments: metaphors we reform education by*. *The Huffington Post*, 12 February 2011):

I won't lie. I shudder when I hear President Obama talk about the challenges we face in education as a "Sputnik moment." I'm not pleased that the new education technology agency he's proposing -- ARPA-ED -- deliberately echoes the name of DARPA. That's a matter of politics, of course -- my politics. And it's a matter of historical interpretation. These metaphors point to a specific moment in history when we faced challenges in education and innovation, but one, it's worth noting, that was then framed in terms of competition with a foreign threat. And to echo George Lakoff and Mark Johnson, metaphors matter. The metaphors we use shape how we conceive of problems and by extension conceive of solutions.

Quest for hyperconnectivity

At this time of writing it is appropriate to note the coincidental themed issues of popular science magazines variously concerned with "boosting" intelligence (Linda S. Gottfredson, *Intelligence: Boosting brainpower*, *New Scientist*, 4 July 2011; Douglas Fox, *The Limits of Intelligence*, *Scientific American*, July 2011). Features of the quest for ultra-intelligence are summarized by Nigel Seel (*Ultra-Intelligence*, *ScienceFiction.com*, 20 June 2011). Fox indicates the physical constraints on why humans can probably not get much smarter, whether by increasing: brain size, interconnectedness, signalling speed, or density of neuron packing. A previous issue of its sister publication focused on insights of particular relevance to "meta-education" (Shelley Carson, *The Unleashed Mind: why creative people are eccentric*, *Scientific American Mind*, May/June 2011, pp. 22-29)

"Delivery" of education: The case for meta-education is made here in a context in which the delivery systems of higher education are much challenged or non-existent -- at a time when there is desperate need for rapid and imaginative responses to emerging situations. The conventional expectation that needs can only be met by appropriate investment in the long cycle of educating teachers, building institutions, offering sets of courses leading to appropriate qualifications -- thereby supposedly enabling application of those insights in practice -- is now readily to be recognized as demonstrably impractical and as such dangerously naive. The assumption that sufficient leaders can be appropriately trained in this way, as a means of bypassing such constraints, is also highly questionable in practice.

Web-based delivery: The shift in process to a new, and as yet ill-defined, understanding of education is clearly recognizable in the manner in which data, information, knowledge and insight are "moved" and articulated through the internet. The process is variously contested by criticism such as the following:

- as trivial:
- as unsubstantiated
- as unauthorised
- as infringing intellectual copyright
- as encouraging plagiarism and derivative thinking
- as reinforcing limited attention span

- as subject to manipulation, censorship and grooming by vested interests

Criticism is perhaps most sharply focused by the case of social networking in general and Twitter in particular. However, briefly stated, the tragedy for intergovernmental programmes, long-deployed through the United Nations and its agencies, is that as a communication mode Twitter has acquired greater visibility, relevance and uptake over a couple of years than those institutions were either able to envisage or to enable over decades. More challenging, each of the social networking initiatives -- massively used by "we the peoples" -- has been instigated by individuals without calling on governmental or intergovernmental support. Ironically many official communication initiatives and media now enable interfaces with these social networking facilities.

That modality of rapid connectivity constitutes effective communication -- enabling a degree of enhanced comprehension. The question here is in what way that is then to be understood as "education", whether individual or collective. Collective response to recent crises has been notably enabled by informal use of internet facilities, and by social networking facilities, in ways which highlight the desperate inadequacies of official responses to the emerging dynamics of society. (oil spill ***)

There are of course useful criticisms of the political implications of this innovation (*Evgeny Morozov, The Net Delusion: the dark side of internet freedom*, 2011). Concerns have been expressed at the as yet poorly recognized psychosocial effects of dependence on the internet and the problematic vulnerability to grooming by vested interests for commercial or political purposes (*Nicholas Carr, The Shallows: what the internet is doing to our brains*, 2010; *Eli Pariser, The Filter Bubble: what the internet is hiding from you*, 2011).

Implicit constraints of "higher" education: It is in such a context that the question must be asked as to the meaning to be attached to the "higher education" which has clearly been a primary requirement for positions in official institutions. How is that to be compared with the "higher education" through which people and groups rapidly learn to use internet facilities? It is of course the case that "higher education" rarely claims to teach the skills which best enable effective use of the internet. Such learning -- learning how to learn -- is acquired otherwise, possibly intuitively, encouraged by video gaming and other computer applications. (Donald N. Michael, *On Learning to Plan - And Planning to Learn*, 1997)

In a disaster-prone global society, rather than questionable implications of a much-challenged "higher education" accessible only to the few in its more sophisticated forms, does the notion of "meta-education" better hold the urgent "streetwise" needs of a knowledge society?

"Higher education" as conventionally understood is typically, if not necessarily, discipline-bound. It is much challenged by other ways of knowing (especially when considered to be "unauthorised") and makes no pretence to capacities to act outside its specialized disciplinary boundaries. Attempts to do so are deprecated within the discipline and its associated profession. Claims to "interdisciplinarity" are more often than not exercises in tokenism justified by a focus on a highly specific structured situation. The point is devastatingly made by the integrative quality of purportedly interdisciplinary works -- possibly appropriately deprecated by the German reference to the "synthesis" provided solely by the physical binding (*Buchbindersynthese*).

Urgent need for nimbleness: "Meta-education" might be said to be characterized by nimbleness of response to rapidly evolving situations, exploiting whatever knowledge can be rapidly discovered to be appropriate. It is best characterized by the ability to ensure connectivity to highlight patterns across domains of knowledge. It is best celebrated by quotes such as the following:

- **John Keats:** "negative capability", namely the capacity to be "in uncertainties, mysteries, doubts, without any irritable reaching after fact and reason" (1817).
- **George Santayana:** *Those who cannot remember the past are condemned to repeat it*

The possibility of **connectivity** is complemented in meta-education by presentation such as significantly to enhance **comprehensibility**, **memorability** and **communicability**. In contrast to the time-consuming "linear" elaborations characteristic of higher education texts, meta-education must necessarily quest for reconfigurations of knowledge and insight into memorable and readily digestible form. The requirement is for "**grokkability**" -- a notion typically inspired by science fiction (*Authentic Grokking: Emergence of Homo conjugens*, 2003). In contrast with higher education, it makes ready use of other senses -- as in the latest forms of marketing -- potentially offering a degree of **synaesthesia**, with the cognitive challenge that implies (Richard E. Cytowic, *Synesthesia: phenomenology and neuropsychology -- a review of current knowledge*, 1995).

Whilst multi-media has been used in support of "higher education", this is essentially deprecated -- as well-exemplified by the contents of academic journals, often challenged even to include static images. Meta-education is significantly enabled by multi-media and its dynamic qualities -- even strongly dependent upon them -- understood as vehicles for augmented modes of cognition enabling comprehension by those variously challenged and biased.

The argument can be developed by stressing the implied "hyperconnectivity" both in terms of complexity and rate of comprehension in a time-stressed society (*Hyperaction through Hypercomprehension and Hyperdrive -- necessary complement to proliferation of hypermedia in hypersociety*, 2006).

Reframing connectivity through metaphor

Cognitive toolkit: The challenge may then be framed in terms of the number and requisite variety of metaphors appropriate to "meta-education". Simply put, using a metaphor, with what kind of cognitive "**toolkit**" could people be usefully endowed -- if the "tools" are understood in terms of metaphors? This is another way of thinking about the conventional notion of a skill set -- applied in this case to survival, articulated through cognitive modalities. An early approach to this was articulated in terms of "conceptual aids" (*Development of Transdisciplinary Conceptual Aids*, 1970).

The argument is that metaphorical tools enable acquisition of any required skill set, if only in enabling recognition of the kinds of skills

required -- which others (in a team) may possess or know how to acquire. In this sense meta-education enables subtle forms of team participation and leadership (*The Future of Leadership: reframing the unknown*, 1994; *Unknown Undoing: challenge of incomprehensibility of systemic neglect*, 2008). By contrast, higher education typically reinforces traditional, much-challenged patterns of elitist leadership.

This framing is especially appropriate in considering the needs of those with the most restricted access to education, where educational resources are extremely limited (if not entirely absent) -- as in (permanent) refugee camps. Under those conditions even the amount of time for any educational process may be very limited. This may well be compounded, as in urban slum areas, by a high degree of attention deficiency. What immediately useful "tools" can be provided in minutes and through what means? What is a cognitive toolkit analogue to a saw, a hammer, a screw driver, pliers, etc?

Given the widespread appeal of ball games, how does manipulation of a ball activate cognitive skills, as separately explored (*Understanding Sustainable Dialogue: the secret within Bucky's Ball*, 1996)? Given their direct appeal, what vital cognitive skills are acquired through the variety of sports? Given the valued metaphors derived from football, can the comparative advantage of those of other sports be identified?

Fables and myths: One way of thinking about such tools and their provision is through traditional [sets of fables](#) or sets of myths. Many of these imply valuable insights -- however readily they may be deprecated from the perspective of higher education. Any such set of fables may effectively constitute the collective learning of the community over centuries -- the pool of resources on which to draw in response to emergent conditions and challenges, as separately discussed (*Exemplary fables of proportionate response*, 2006). Classic examples include those of [Mullah Nasruddin \[more\]](#), well-known throughout the Middle East.

Examples of fabulists , and sets of relevant fables
<ul style="list-style-type: none">• Buddhism: Jataka Tales• China: The Dragon's Tale: and Other Animal Fables of the Chinese Zodiac• France: Fifty Fables of La Fontaine by Jean De La Fontaine• Greece: Aesop's Fables [index] -- plus morals [1 2 3 4 selected]• Hindu: Panchatantra by Bidpai, illustrating principles of political science [more more]• India: Narayanas Hitopadesha of Friendly Counsel• Islam: Kalilah wa-Dimnah, a book of political instruction• Islam: Luqman Bin 'Ad [more more]• Italy: Discorsi degli animali by Agnolo Firenzuola• Japan: Kodansha Nihongo Folktales• Judaism: Fables of a Jewish Aesop: From the Fox Fables of Berechiah ha-Nakdan• Poland: Fables and Parables of Ignacy Krasicki• Russia: Ivan Krylov

As yet to be discovered is whether such sets of tales indeed offer, at least implicitly, an adequate cognitive toolkit with which to deal with life's circumstances -- as they may indeed purport to do. As a traditional source of education in many communities, how might "higher education" be distinguished from "meta-education" following exposure to them?

How is such education to be compared with that of [Russell L. Ackoff](#) (*Ackoff's Fables: Irreverent Reflections on Business and Bureaucracy*, 1991) or that compiled by V. S. M. de Guinzbourg (*Wit and Wisdom of the United Nations: proverbs and apothegms on diplomacy*, 1961)? More of a challenge is the nature of the "meta-education" offered by exposure to a set of Zen [koans](#) -- especially the classic set of 48 in the [Mumonkan](#).

What "connectivity" do such sets imply and enable? Given the systems perspective of Ackoff, what cognitive map would emerge from combining such insights, as suggested by the work of [Edward de Bono](#) (*Atlas of Management Thinking*, 1981)? Are there more fruitful ways of ordering such sets to increase their memorability?

Rudolf Schmitt (*Systematic Metaphor Analysis as a Method of Qualitative Research. The Qualitative Report*, 10, 2, June 2005, pp. 358-394)

This was after I became aware that particular metaphorical concepts describing help and change in difficult life situations did not appear within the context of special social educational support for individuals and families. It was indeed possible to reconstruct nine models, which for example conceptualise psycho-social help in images of education ("he still has to learn that ..."; "first he has to do his homework, then ..."; and "I have tried to teach him that ...").

Enabling sets of metaphors: The call for a paradigm shift in response to the challenges of the times has occasionally been expressed in terms of the quest for a "new metaphor" -- possibly a transformative metaphor for the 21st century. For example, a symposium of the wise, to celebrate the sesquicentennial of Boston University (Lance Morrow, [Metaphors of The World, Unite!, Time](#), 16 Oct. 1989), selected a Tessellation as the metaphor that best captured the spirit of the times.

Here, as with "toolkit", the argument is for a set of metaphors to be used according to circumstances. The emphasis is then on the capacity to switch between metaphors -- between the ways in which circumstances can be advantageously framed. The quest is therefore for fruitful sets. Especially important is the "art" of combining moves and sequences in patterns responsive to an opponent -- as with [katas](#).

Individual martial arts offer interesting possibilities in their recognition of sets of moves -- as with aikido, judo and the like. In the case of swordsmanship, the cognitive implications have been traditionally articulated in [The Book of Five Rings](#) -- much valued with respect to

strategic thinking. This and related possibilities are discussed separately (***)

Reflecting a traditional interpretation of dance, a set of patterns in dance has been related to the challenges of environmental education by Alison Laurie Neilson (*Disrupting Privilege, Identity, and Meaning: a reflexive dance of environmental education*, 2006).

The possibility of bypassing conventional verbal articulation is usefully highlighted by the use of coloured rods (Georges Cuisenaire and Caleb Gattegno, *Numbers in Colour*, 1954; Caleb Gattegno, *Words in Colour*, 1962; John Mullen, *Cuisenaire Rods in the Language Classroom*, *Les Cahiers de l'APLIUT*, XVI, 2, décembre 1996). The structural use of "rods" also offers potential for lifestyle design (*Organization and Lifestyle Design: characteristics of a nonverbal structural language*, 1978).

Especially significant in an environmentally-challenged world is the traditional use of nature itself as a source of sets of metaphors, as separately discussed (*Enabling Governance through the Dynamics of Nature: exemplified by cognitive implication of vortices and helicoidal flow*, 2010). Current interest in **biomimicry**, as a means of learning from nature, is indicative of possibilities. Use of the features and processes of nature is also fundamental to traditional concept systems, such as the Chinese *Ba Gua* and the related *Wu Xing* system -- both understood as mnemonic devices. In contrast to a common translation of *Wu Xing* as Five Elements, a further point is made through recognition that preferred translations emphasize their dynamics as "movements", "phases" or "steps".

Imaginal education through mining civilizational knowledge

A strong case for deriving insights from the metaphors embedded in the insights of a wide range of cultures has been made by Susantha Goonatilake (*Toward a Global Science: mining civilizational knowledge*, 1999) as separately discussed (*Enhancing the Quality of Knowing through Integration of East-West Metaphors*, 2000). A case can also be made for the application of the approach to the artefacts engendered by technology as well as to a re-interpretation of the significance of habitually defined categories, as tentatively outlined (*Principles of Re-reading and Rapplication*, 2001).

The quest for fruitful metaphors, and their use, can be framed in terms of imaginal education as separately discussed (*Imaginal Education: game playing, science fiction, language, art and world-making*, 2003). Science fiction and fantasy are increasingly celebrated in blockbuster movies and interactive games. They point to the possibility of radical cognitive shifts as in exploration of the cognitive implications of "timeship" design (*Timeship: Conception, Technology, Design, Embodiment and Operation*, 2003; *Embodying a Timeship vs. Empowering a Spaceship*, 2003). With respect to the use of metaphor in facilitating "navigation" of knowledge space, reference was made there to the science fiction scenario explored by a number of writers.

The scenario focuses on the challenge of comprehending high degrees of complexity calling for decision-making under operational conditions (as is the case of global management). The problem described is that of piloting or navigating a spacecraft through "hyperspace" or "sub-space", as imagined in the light of recent advances in theoretical physics and mathematics.

Because of the inherent complexity of such environments, writers have suggested that pilots and navigators might choose appropriate metaphors through which to perceive and order their task in relation to qualitative features of that complexity -- for example, flying like a bird, windsurfing, swimming like a fish, tunneling like a mole, etc. With technological enhancement, the mass of relevant navigational data derived from various arrays of sensors (and otherwise completely unmanageable) is then channelled to the pilot in the form of appropriate sensory inputs to the nerve synapses corresponding to his "wings" or his "fins". Perception through the chosen metaphor is assisted by appropriate displays, presumably combining both graphics and sound. The pilot switches between metaphors according to the nature of the hyperspace terrain.

Such speculations stimulate imagination concerning a possible marriage between metaphor and artificial intelligence in relation to governance. Current initiatives to personalize the responses to search engine requests are an indication of a shift towards such facilities.

The possibility of making such navigational choices is again reminiscent of "shapeshifting" as mentioned above (*En-minding the Extended Body: enactive engagement in conceptual shapeshifting and deep ecology*, 2003). It also recalls the fundamental issues of **apophysis** and **unsaying** (*Being What You Want: problematic kataphatic identity vs. potential of apophatic identity?* 2008).

Mnemonic holding patterns for the dynamics of connectivity

It is curious that the aspirations of religion, science and philosophy -- to embody their particular forms of connectivity -- no longer attract and hold the imagination to the degree evident in the recent explosion of web-facilitated social networking and its association with the connectivity offered by music. Hopes for the transcendental, transformative unity implied by religion have lost their credibility in the face of the track record of interfaith discourse and the conflicts enabled by religious belief. Similarly the track record of interdisciplinarity and transdisciplinarity in response to strategic complexity have called into question the relevance in practice of all that has been suggested by the integrative potential of mathematical sophistication.

What is education for -- whether "higher" or "meta" -- and to what extent is that outcome enabled by "higher" education? Does it enable the operacy required for cognitive survival and thrival?

Dynamics of connectivity: Through what frameworks is the excitement of connectivity to be articulated as a fundamental attractor?

The question is highlighted by comparison of "psychosocial energy" with conventional preoccupations with energy (*Reframing Sustainable Sources of Energy for the Future: the vital role of psychosocial variants*, 2006). How might it be elicited (*Massive Elicitation of Psychosocial Energy: requisite technology for collective enlightenment*, 2011)? How do such dynamics relate to the implications of a widely-remarked sense of isolation and polarization, as separately discussed (*Dynamically Gated Conceptual Communities: emergent patterns of isolation within knowledge society*, 2004; *Psychosocial Energy from Polarization -- within a cyclic pattern of enantiodromia*, 2007)?

Given the subtlety of the attractor, what is the nature of the engagement with the associated "enlightenment"? This may be variously articulated through metaphoric descriptors such as:

- "magic", as in meetings and creative representation (*Focus Subtleties: meeting magic towards transformative conferencing and dialogue*, 1984; *Magic, Miracles and Image-building*, 1993; *Magic Carpets as Psychoactive System Diagrams*, 2010)
- "fun", as in the engagement in humour and playfulness (*Humour and Play-Fullness: essential integrative processes in governance, religion and transdisciplinarity*, 2005)
- evocative aesthetics (*Enacting Transformative Integral Thinking through Playful Elegance*, 2010; *Poetry-making and Policy-making Arranging a Marriage between Beauty and the Beast*, 1993)
- engagement with archetypal myth (*Relevance of Mythopoeic Insights to Global Challenges*, 2009)
- creativity (*Embodiment of Identity in Conscious Creativity*, 2011)
- evocative questions

Enabling development through geometry and topology: "Higher education" is best characterized "geometrically" by a nested hierarchy of topics, or a curriculum matrix of courses, notably designed to enable linear career pathways. "Meta-education" is more appropriately characterized by "curved geometry" -- perhaps a geodesic dome of insights, a torus, or even a Klein bottle (*Engaging with Globality -- through cognitive lines, circlets, crowns or holes*, 2009; *Geometry of Thinking for Sustainable Global Governance*, 2009). Such education has implications for any emergent sense of identity (*Geometry, Topology and Dynamics of Identity: cognitive implication in fundamental strategic questions and dilemmas*, 2009).

To the extent that "globality" holds an intuitive sense of the nature of the container for those magical psychosocial dynamics, the riches of geometry offer a degree of guidance to "meta-education" (*Metaphorical Geometry in Quest of Globality -- in response to global governance challenges*, 2009; *Topology of Valuing psychodynamics of collective engagement with polyhedral value configurations*, 2008). From that perspective, conventional "higher education" may be caricatured as based on "flat-pack thinking" when the challenge is one of global configuration into higher dimensions (*Global configuration of insights from "flat-pack" conventional system mapping*, 2011).

- *Triangulation of Incommensurable Concepts for Global Configuration* (2011)
- *Patterning Archetypal Templates of Emergent Order: implications of diamond faceting for enlightening dialogue* (2002)
- *Spherical Configuration of Categories -- to reflect systemic patterns of environmental checks and balances* (1994)
- *Polyhedral Empowerment of Networks through Symmetry: psycho-social implications for organization and global governance* (2008)

Especially intriguing is the possibility that "globality", as understood and reinforced conventionally by "higher education", obscures subtler and more paradoxical intuitions of greater relevance, as carried by sphericity of higher dimensionality (*Intercourse with Globality through Enacting a Klein bottle: cognitive implication in a polysensorial "lens"*, 2009; *Sustaining a Community of Strange Loops: comprehension and engagement through aesthetic ring transformation*, 2010). Such geometry offers templates for subtler forms of "meta-education" of relevance to self-reflexive organization (*Consciously Self-reflexive Global Initiatives: Renaissance zones, complex adaptive systems, and third order organizations*, 2007).

Perhaps even more intriguing are the insights which may be associated with forms of symmetry and complexity of higher order -- were access to them to be appropriately enabled (*Dynamics of Symmetry Group Theorizing: comprehension of psycho-social implication*, 2008; *Psycho-social Significance of the Mandelbrot Set: a sustainable boundary between chaos and order*, 2005)

This is also consistent with the design quest of Christopher Alexander for a geometrical approach to harmony (*Harmony-Seeking Computations: a science of non-classical dynamics based on the progressive evolution of the larger whole*, *International Journal for Unconventional Computing (IJUC)*, 2009), as separately discussed (*Harmony-Comprehension and Wholeness-Engendering: eliciting psychosocial transformational principles from design*, 2010).

Designing cognitive containers: Beyond the specific possibilities of geometry in suggesting the design of a "cognitive container" appropriate to the dynamics of potentiality, there is a more generic concern with "container design" and the associated "re-cognition". This is fruitfully highlighted by the process of discovery of the most elegantly, integrative form currently known to mathematics -- termed the **Monster Group**. Especially significant from a perspective of "higher education" were the counter-intuitive approaches to that discovery, requiring the imaginative skills of "meta-education" in the recognition of "correspondences" -- and hence the nickname "moonshine theory", as separately discussed (*Theories of Correspondences -- and potential equivalences between them in correlative thinking*, 2007). It remains to be discovered what subtler qualities of thinking forms such that, or any of the "exceptional simple Lie groups" (E8). can enable (*Potential Psychosocial Significance of Monstrous Moonshine: an exceptional form of symmetry as a Rosetta stone for cognitive frameworks*, 2007).

Various containers, as metaphors, can be used to explore cognitive dynamics -- through metaphors interrelated and ordered thereby:

- **fusion reactor:** as *separately discussed*, the long alchemical tradition developed an understanding of the *athanor* (as furnace) or *vas* (as vessel). Of the latter, Carl Jung indicates:

Although an instrument, it nevertheless has peculiar connections with the *prima materia* as well as with the *lapis*, so it is no mere piece of apparatus. For the alchemists the vessel is something truly marvelous: a *vas mirabile*... One naturally thinks of this vessel as a sort of retort or flask; but one soon learns that this is an inadequate conception since the vessel is more a mystical idea, a true symbol like all the central ideas of alchemy. (*The Collected Works of C. G. Jung*, 1989. 14, p. 251).

In this light, current efforts to design nuclear fusion reactor may be used as a metaphor to explore the design principles for

cognitive fusion as a form of meta-education (*Enactivating a Cognitive Fusion Reactor: Imaginal Transformation of Energy Resourcing (ITER-8)*, 2006; *Cognitive Fusion through Myth and Symbol making: archetypal dimensions*, 2006). What enlightening form of synthesis might emerge from such fusion? How might this enable new forms of psychosocial energy (*Massive Elicitation of Psychosocial Energy: requisite technology for collective enlightenment*, 2011)?

- **"wizdomes"**: current development of websites as cognitive containers of various forms suggests the possibility of exploring other potentials enabled by the many emerging applications (*Transforming Static Websites into Mobile "Wizdomes": enabling change through intertwining dynamic and configurative metaphors*, 2007)
- **periodic table**: the [periodic table of chemical elements](#) has been variously recognized as a fundamental container for ordering the natural elements, especially through the initiative of [Edward Haskell](#) to generalize it to encompass psychosocial categories (*Generalization of the structure of Mendeleev's periodic table*, 1972). That approach has been used in a *Functional Classification in an Integrative Matrix of Human Preoccupations* (1982).

The approach might be further developed with respect to ordering education, ways of knowing, and as a "periodic table of cognitive skills", as variously argued:

- *Periodic Pattern of Human Knowing: implication of the Periodic Table as metaphor of elementary order* (2009)
- *Periodic Pattern of Human Life: the Periodic Table as a metaphor of lifelong learning* (2009). This suggests the possibility of a richer patterning of the stages of life and the contrasting cognitive modalities associated with those stages
- *Towards a Periodic Table of Ways of Knowing -- in the light of metaphors of mathematics* (2009). This suggests that human cognitive investment in mathematics may imply forms of insight of greater subtlety and complexity which may only be progressively recognized
- *Tuning a Periodic Table of Religions, Epistemologies and Spirituality -- including the sciences and other belief systems* (2007). By relating the challenging of ordering such a table to the process of musical tuning, this places an emphasis on the use of another sense in recognizing any emergent harmony. As noted above, meta-education is then potentially associated with how such a musical instrument is played -- rather than the conventional focus on the progression from "lower" to "higher" elements in a given group within the table (potentially understood as an [information silo](#), encouraging so-called "silo thinking").

An advantage of such a periodic-table container is the manner in which it potentially gives explicit recognition to a minimal, essential set of metaphors -- emphasizing the requisite variety for cognitive survival -- whilst enabling recognition of engagement with insights and modalities of greater subtlety. a periodic table notably provides an ordering framework for the diversity of cognitive style and intelligences with an implication of their potential development (*Systems of Categories Distinguishing Cultural Biases*, 1993).

- **Fibonacci spiral / Golden spiral**: This progression is widely recognized in the [nautilus](#) and its shell. Appropriate to this argument is the use of the nautilus as a symbol of the learning process. In the case of its adoption by the [The New Zealand Curriculum Framework](#), it is stated:

In real life, the nautilus is a marine animal with a spiral shell. The shell has as many as thirty chambers lined with nacre (mother-of-pearl). The nautilus creates a new chamber as it outgrows each existing one, the successive chambers forming what is known as a [logarithmic spiral](#). This kind of spiral appears elsewhere in nature, for example, in sunflower and cauliflower heads, cyclones, and spiral galaxies. Physician, writer, and poet Oliver Wendell Holmes (1809-94) saw the spiral shell of the nautilus as a symbol of intellectual and spiritual growth. He suggested that people outgrew their protective shells and discarded them as they became no longer necessary: "One's mind, once stretched by a new idea, never regains its original dimensions." It is as a metaphor for growth that the nautilus is used as a symbol for the New Zealand Curriculum.

The further possibilities of using the [Fibonacci spiral](#) as a container to order the relationship between a succession of "learning contexts" have been variously explored, notably in relation to the cognitive implications of the Chinese magic square patterns:

- *Construction of Fibonacci spiral as providing an open-ended integrative framework* (2010)
- *Succession of dynamic "game-playing arenas"* (2010)
- *Designing Global Self-governance for the Future: patterns of dynamic integration of the netherworld* (2010). This extends the educational focus, through the challenge of comprehension, to engage with the challenges of governance, as separately discussed (*Tao of Engagement -- Weaponised Interactions and Beyond Fibonacci's magic carpet of games to be played for sustainable global governance*, 2010)

The spiral can be fruitfully used to relate various patterns of Chinese insights, themselves individually and uniquely understood through metaphor:

- *9-fold Magic Square Pattern of Tao Te Ching Insights: experimentally associated with the 81 insights of the T'ai Hsüan Ching* (2006)
- *Sustainability through Magically Dancing Patterns 8x8, 9x9, 19x19 -- I Ching, Tao Te Ching / T'ai Hsüan Ching, Wéiqi (Go)* (2008)

Such explorations point to the possibility of new forms of cognitive hyperconnectivity (*Hyperspace Clues to the Psychology of the Pattern that Connects*, 2003)

De-signing education for the future: To the extent that education is indeed its own metaphor, how it enables those variously implicated to re-imagine its nature as part of that process is potentially of great relevance. More generally this has implications for the imaginative governance for which the times would appear to be calling (*Imagining the Real Challenge and Realizing the Imaginal Pathway of Sustainable Transformation*, 2007; *Innovative Global Management through Metaphor*, 1989).

The metaphor of design is frequently used as indicative of appropriate engagement with the future -- and in this case with the future of education. A particular danger is that it can be understood as simply equivalent to re-arranging the deckchairs on *R.M.S. Titanic*. More problematic is that is conceived as a process of "conceptual gerrymandering" as previously discussed (*Conceptual gerrymandering and definitional game-playing*, 2002; *Conceptual gerrymandering*, 2004).

The question of whether a process of "de-signing" is fundamental to "meta-education" is highlighted by an earlier discussion (*Definitional Boundary Games and De-signing the 21st Century*, 1995):

A comparison has been made between French and Japanese cooking in the following terms. The most eminent French chef is known by what he does to the food. He is recognized by the tastes he adds to it in the form of sauces -- in which his hand is to be experienced at every turn. By contrast a Japanese chef is known by the impossibility of distinguishing his hand in the food that is offered. His work is to reduce the interface between the eater and the food to the strictest minimum -- allowing the flavours of the food to emerge of their accord. The question is whether the designers of the 21st century are to be of the first kind or of the second.

Designing can be understood as removing the significance of the underlying experience of nature. In this way architects and planners have eliminated the experience of nature. Essentially they are of the French school, and the influence of French planning after the Revolution is not incidental to the recent history of urban planning. In this way it may be understood as de-signifying.

However design may also be understood as removing the architectural graffiti imposed by architects and planners on nature. Production of graffiti is a way for some to impose their tag or sign on any available surface. In this way de-signing may be understood as the removal of such defacement, namely of the artificial signs imposed upon nature rendering it invisible. The 21st century will undoubtedly witness the battle between these two schools of thought -- and presumably there will be others. Whilst nature may be affected by this process, it will adapt in its own way. This may not be to our liking, and we may choose to claim that it is denatured or dead. But even if the human race is survived by the rats and the cockroaches living in a wilderness of devastated megalopolises, they will continue to be a manifestation of nature.

The fundamental question is whether the requisite "meta-education" is signed and sign-posted -- with their various implications for establishing intellectual property rights and authoritative indications of appropriate (career) pathways. Of potentially more fruitful implication is the *enactivist* argument of such as *Francisco Varela* (*Laying down a path in walking*. In: W. Thompson (Ed.), *Gaia: a way of knowing*, 1987; *Laying Down a Path in Walking: essays on enactive cognition*, 1997). This understanding is consistent with the paradoxes of the embodied mind explored by cognitive psychology (Francisco Varela, et al. *The Embodied Mind: cognitive science and human experience*, 1991; George Lakoff and Mark Johnson, *Philosophy in the Flesh: the embodied mind and its challenge to western thought*, 1999).

Rather than "design" as it is readily institutionalised, the hands-on creativity implied by the metaphor of weaving offers a wider range of implications (*Interweaving Thematic Threads and Learning Pathways: noonautics, magic carpets and wizdomes*, 2010). Indications regarding "noonautics", "magic carpets" and "wizdomes" have been offered above.

Using the physical universe as a metaphor for the knowledge universe is especially helpful in relation to its exploration through education. Of particular relevance is any comparison of a "constellation" as conventionally defined from Earth with the quite different relationship between the stars so patterned. The relationship between elements of knowledge as conventionally defined by "higher education" may be equally illusory -- calling for the situational reframing characteristic of "meta-education". Given the wonder and excitement evoked by astronautics, there is a case for enabling the equivalent with respect to "noonautics", as separately discussed (*Noonautics: four modes of travelling and navigating the knowledge "universe"?* 2006).

Given the excitement widely evoked by "cyberspace", and the meanings and associations it has acquired, this may be fruitfully related both to understandings of the "noosphere" articulated by Teilhard de Chardin and to the mysterious songlines of indigenous cultures, such as those of Australia (*From Information Highways to Songlines of the Noosphere: global configuration of hypertext pathways as a prerequisite for meaningful collective transformation*, 1996).

- Travelling "songlines" to engender the knowledge universe
- Songlines as "elven pathways" through the knowledge universe?

<p>Experimental use of a single polyhedron as a mnemonic container to hold the 64 conditions of change identified by the Chinese <i>Book of Changes</i> (<i>Yi Jing</i>) (alternative representations constructed with the <i>Stella Polyhedron Navigator</i> using the drilled truncated cube)</p>

belief) or readily subject to denial as a "private matter". Curiously they may be excused as "human" -- appropriately implying that the conventional frameworks articulated by "higher education" are then "unhuman" to some degree. The extent of these modes of engagement with reality can then be construed as signalling inadequacies in the frameworks offered by "higher education". The point is well made by Michael Brooks (*Free Radicals: the secret anarchy of science*, 2011): *Science and those who practise it are careful to portray themselves as logical, responsible, objective, rational -- in a nutshell, unhuman* (Lab Rats, *New Scientist*, 9 July 2011).

Larger context: The point is further emphasized by the challenge to such frameworks of "externalities". When recognized, as in economics, these clarify the systemic incomprehensiveness of the relevant disciplines. The various forms of "break-out" behaviour suggest a (possibly desperate) attempt to engage with externalities and with the "abundance of life", or "fullness of life" (*Existential Embodiment of Externalities: radical cognitive engagement with environmental categories and disciplines*, 2009). This is a preoccupation of various authors:

- David Abram (*The Spell of the Sensuous: perception and language in a more-than-human world*, 1997)
- Gregory Bateson (*Mind and Nature; a necessary unity*, 1979)
- Paul Feyerabend (*Conquest of Abundance: a tale of abstraction versus the richness of being*, 1999)
- Sallie McFague (*Life Abundant: Rethinking Theology and Economy for a Planet in Peril*, 2000)
- Steven M. Rosen (*Topologies of the Flesh: a multidimensional exploration of the lifeworld*, 2006)
- Henryk Skolimowski (*The Participatory Mind: a new theory of knowledge and of the universe*, 1995)

As noted above, aspects of this have been evoked by George Lakoff and Mark Johnson (*Philosophy in the Flesh: The embodied mind and its challenge to western thought*, 1999) and by Francisco Varela (*Laying Down a Path in Walking: essays on enactive cognition*, 1997). The challenging dynamics are consistent with any cognitive engagement with "otherness" (*Reframing the Dynamics of Engaging with Otherness*, 2011). This may be understood as requiring a form of cognitive "shapeshifting" (*En-minding the Extended Body: enactive engagement in conceptual shapeshifting and deep ecology*, 2003).

"Institutionalisation": A careful distinction is required between:

- **"university":** as the epitome and culmination of higher education, but with its only too evident challenges with respect to exacerbation of "silo thinking" and its total failure as a context for interdisciplinarity and transdisciplinarity. Any fruitful implication of "uni" of relevance to the times has been lost, with the probability that such institutions will replicate, through any "dark age" to come, the pathway of monasteries through the "dark ages" of the past. Fruitful insights into the significance of the much-favoured slogan "unity in diversity" have not been forthcoming.
- **reframing "university" by "qualification"** of potential "meta-educational" significance:
 - *Brahma Kumaris World Spiritual University*: A monastic, renunciate, new religious movement teaching a form of Raja Yoga meditation
 - *Gaia University*: A unique un-institution for higher learning. We offer access to accredited degrees and diplomas arising from your work in personal and planetary transformation. Through action learning you pursue a pathway of your own design - in the location of your choice - while supported by a global network of skilled advisors and mentors.
 - *Maharishi University of Management*: Formerly the Maharishi International University, offering a consciousness-based education that includes practice of the Transcendental Meditation technique. Degree programs are offered in the arts, sciences, business, and the humanities.
 - *Transcend Peace University*: An all-online university offering inter-disciplinary courses designed to cover issues pertaining to peace and development studies, emphasizing solution-oriented approaches
 - *University for Peace*: Established, with the approval of the UN, to provide humanity with an international institution of higher education for peace and with the aim of promoting among all human beings the spirit of understanding, tolerance and peaceful coexistence.
 - *World University*: Dedicated to education in esoteric, spiritual, and non-traditional subjects. All courses and programs are offered via distance learning. Indicates that there is no simple answer to a definition of such a university, whose services reach out into many nations and cultures, and anyone who has a simple answer is not fully considering the vast ramifications of man's total knowledge as exemplified by the terms "world" and "university".
 - *University of Earth*: Conceived as a collective initiative based on a profound shift in understanding of the process of lifelong education and the environments that sustain it. It is a symbiotic combination of the following emphases:
 - a university about the Earth and the Land: academic study, resource management -- as with a rural university
 - a university for People of the Land: reflecting concerns of indigenous people, wilderness people, deep ecologists -- as with an ecostery
 - a university of planet Earth as a whole: reflecting the diversity of the globe, symbolizing the Earth as a whole
 - a university made of earth: constructed with earth, using local skills, and blending with the local environment as a grounding of understanding
 - the Earth as a university of life and learning: the Earth as curriculum, living as learning, embodying knowledge of the Earth, as partially exemplified by biomimicry
 - an emerging image of a potential university: an emerging archetype; an implicit, potential framework; embodying the future; enriching the present with the future
 - a framework for the diversity of present dreams: enabling a holistic conceptual framework; interrelating conflicting dreams; recognizing mutually irrelevant concerns; discovering richer frameworks; embodying polarities and paradoxes

- **"metaversity"** explicated as a potential context for "meta-education":
 - *Metaversity*: Useful significance has been attributed to this term through the initiative from 2008 of [Zeno Franco](#) (*The Metaversity Project: a gathering place for transdisciplinary researchers*). The concept of a metaversity is described as being fluid, meaning different things in different contexts. The word can simply become the next buzz word in higher education, or it could become something much more meaningful and powerful. The lowest common denominator meaning of "metaversity" simply suggests one form or another of distance learning. More complex meanings include university systems that create a presence in virtual environments, such as Second Life.

As Franco notes, from this perspective there is no way that a university can create a metaversity. It is not a single distance learning system, nor is it simply a VR presence. The metaversity is an epiphenomenon that occurs dynamically as a student attempts to overcome the limitations of a single educational organization - the student creates an "instance" of the metaversity that is highly personalized, evolving, and is designed to overcome the limitations of working within any single institution of higher education.

- *Metaverse*: Understood as the collective online shared space, created by the convergence of virtually enhanced physical reality and physically persistent virtual space, including the sum of all virtual worlds, augmented reality, and the internet. The educational implications have been notably articulated by Chris Collins (*Looking to the Future: higher education in the metaverse*, *EDUCAUSE Review*, 43, 5, September/October 2008)

"Employment": An especially pertinent concern is how "meta-education" might enable those severely challenged by unemployment -- even despite "higher education". This raises issues of how "employment" appropriate to the person's future might be reframed through "meta-education" as separately discussed (*Engagement: 14 Contrasting concepts of meaningful employment*, 1996; *Being Employed by the Future: reframing the immediate challenge of sustainable community*, 1996; *Sustainable Occupation beyond the "Economic Rationale"*, 1998). Particularly interesting is the possibility of reframing "job" from the current notion of a commodity to be "got" (*In Quest of a Job vs Engendering Employment: escaping economic disempowerment through enabling metaphors and software*, 2009)

Engaging with the "underworld": Conventional "higher education" may be caricatured as preoccupied with what can be "said" in a society in which considerable significance is associated with much that is, for various reasons, "unsaid" and "unsayable" (*Global Strategic Implications of the Unsaid: from myth-making towards a wisdom society*, 2003; *Varieties of the Unsaid in sustaining psycho-social community*, 2003). Efforts may be made to map this shadowy realm in relation to strategic issues (*Mapping the Global Underground*, 2010) and to the vulnerability of civilization (*Mind Map of Global Civilizational Collapse*, 2011), in the light of arguments of [John Ralston Saul](#) (*The Unconscious Civilization*, 1995).

As a feature of "meta-education", the archetypal challenge of providing schema through with to engage with the "netherworld" merits consideration (*Designing Global Self-governance for the Future: patterns of dynamic integration of the netherworld*, 2010). The cognitive paradoxes may be fruitfully framed by metaphor in the light of a common experience (*Snoring of The Other: a politically relevant psycho-spiritual metaphor?* 2006).

Engaging with time: Education implies a degree of engagement with time, however time may be fruitfully conceived. The alienating contemporary relation to time has been identified by [Jeremy Rifkin](#) (*Time Wars: the primary conflict in human history*, 1987). For the individual, and for the collective, it is less a question of the "future of education" but rather of how, through the learning process, the significance of the engagement with time is developed and embodied (*Engaging Macrohistory through the Present Moment*, 2004; *The Isdom of the Wisdom Society: embodying time as the heartland of humanity*, 2003; *Ungovernability of Sustainable Global Democracy? Towards engaging appropriately with time*, 2011). This reframing may be fruitfully inspired by the challenging speculations of physics. Of special interest is the possible of progressively associating identity with cyclicity (*Emergence of Cyclical Psycho-social Identity: sustainability as "psycically" defined*, 2007). Particularly relevant are the explorations of [Douglas Hofstadter](#) (*Gödel, Escher, Bach: an eternal golden braid*, 1979; *I Am a Strange Loop*, 2007). With respect to meta-education in practice, they reframe the challenge of eliciting confidence in community (*Sustaining a Community of Strange Loops: comprehension and engagement through aesthetic ring transformation*, 2010).

Enabling language: A case can be made for the role of music in enabling forms of "meta-education" -- especially given its vital role in society. A striking example is offered by the adaptation of dance patterns to sustainable education by [Alison Laurie Neilson](#) (*Disrupting Privilege, Identity, and Meaning: a reflexive dance of environmental education*, 2006). A more general case can be made for its relevance to matters of global concern (*A Singable Earth Charter, EU Constitution or Global Ethic?* 2006).

One approach to understanding the "lost language" of pattern-shifting in such a process reality can be obtained from insights into the 4,000 year-old chanted hymns of the *Rg Veda* of the Indian tradition (as discussed [elsewhere](#)). A very powerful exploration of this work by a philosopher, [Antonio de Nicolas](#), using the non-Boolean logic of quantum mechanics, opens up valuable approaches to integration. The unique feature of the approach is that it is grounded in tone and the shifting relationships between tone. It is through the pattern of musical tones that the significance of the *Rg Veda* is to be found:

Therefore, from a linguistic and cultural perspective, we have to be aware that we are dealing with a language where tonal and arithmetical relations establish the epistemological invariances... Language grounded in music is grounded thereby on context dependency; any tone can have any possible relation to other tones, and the shift from one tone to another, which alone makes melody possible, is a shift in perspective which the singer himself embodies. Any perspective (tone) must be "sacrificed" for a new one to come into being; the song is a radical activity which requires innovation while maintaining continuity, and the "world" is the creation of the singer, who shares its dimensions with the song. ([Antonio de Nicolas](#), *Meditations through the Rg Veda*, 1978, p. 57)

Games as a vehicle for "meta-education": Several lines of development frame the game environment as a context of richer learning, especially in the light of [transactional games](#) (*Cardioid Attractor Fundamental to Sustainability: 8 transactional games forming the heart of sustainable relationship*, 2005):

- online, multi-user gaming in virtual worlds: Reference is made to this with respect to the "metaverse". It has a degree of relevance to challenges of governance (*Playfully Changing the Prevailing Climate of Opinion: Climate change as focal metaphor of effective global governance*, 2005)
- the case skillfully argued by [James P. Carse](#) (*Finite and Infinite Games: a vision of life as play and possibility*, 1987)
- the range of "transformational games" and [educative games](#), notably those developed by intentional communities, as with the *Transformation Game* of the Findhorn Foundation, and the *Game of Life* developed by Damanhur (including a computer-based variant known as Super Risk, or *Risiko*)
- the *Glass Bead Game* (1943), as imagined by Nobel Laureate [Hermann Hesse](#), implies many aspects of the nature of "meta-education"

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