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Imaging, Imagining Knowledge in Higher Education Curricula: New Visions and Troubled

Thresholds

That there's a danger... that we are going to come at higher education not only in an instrumental way but, in a crude way, miss its potentiality and undermine its possibilities for human development and for the development of the wider society. (Barnett in 'Imagining the University — a critical dialogue' with *Teaching in Higher Education* Editors 1999)

My mind is full of images: of the curriculum as properly a parcours course with obstacles to learn to scramble over skilfully rather than fences at which painfully to fall; of higher education as shining a white light on the student as prism, who thereafter radiates all the colours of the rainbow; of reverse cone or inverse corkscrew curricula; of knowledge acquisition and damage in Plato's *Republic* Sun, Line and Cave, Milton's *Paradise Lost* and Deleuze and Guattari's *A Thousand Plateaus*. All examples from two recent colloquia: the Society for Research in Higher Education's Theory Network 'New Visions' Symposium and the 4th International Threshold Concepts Conference; all illuminations of our way of seeing and thinking: our *theoria* (both our theory and the ground on which we stand to see and be seen); all making us focus, at this time of deregulated and open learning and multi-million dollar and euro open data hubs and portals, on what *university* knowledge-making is and should be. And all challenging the way we imagine, and image, knowledge and its incorporation and creation in university curricula.

What linked the Theory Network and the Threshold Concepts conferences was a pre-occupation with the visualisation and modelling of knowledge and university knowledge-making: the first looking to set up 'New Visions' and the second everywhere concerned with 'threshold concepts': a foundational image which posits and visualises the discipline as having, and the student necessarily progressing through, various portals.

I came away from the conferences with a strong sense that the models, images and allegories we use in Higher Education are fundamental to our '*theoria*' theory - our way of looking and presenting ourselves and our theory - our abstract[ed][ing] model of what we do. For, we use them as if they are not 'likenesses', metaphors, 'as ifs' but as concrete. As educators we constantly embody and reify:

‘aligned curriculum’ is a double metaphor: curriculum is a course, as in horse racing; it connotes peer competition and an intended finishing line; ‘alignment’ suggests images of operations and activities which can be, seen to be and judged on having been, ‘brought into line’. ‘Alignment’ contrasts with the ‘webs’ of data, science, social contact and interactivity with which we work and in which we sometimes feel trapped. It is as true today as when Ron Barnett said it to *Teaching in Higher Education* Editors in 1999, that we need imaginative models if we are to resist denuding and undermining ways of, literally, seeing the university.

Envisioning Knowledge

Whether in Open Science, digital humanities, disciplinary knowledge construction or data analysis, the visual turn – argument from imaging - is everywhere evident. At the very least we think, plan and communicate with images: ‘curriculum’ has the students’ progress along a set track; modules can be built up; knowledge is structured and accreted or, in the influential model of modernity, liquid; disciplines can be plotted along hard-soft and pure-applied axes and their cultural capital similarly mapped. This was brought home to me as I had been assigned a Threshold Concept Pecha Kucha rather than a paper presentation slot: I had had to turn my 30 minute paper – a carefully-constructed, eloquent argument about digital co-construction of meaning - into 20 specially-created collaged images to form a virtually self-standing, associative, visual argument of collocation and superimposition.

Image sequences, as I so brutally discovered, form an argument independent of verbal commentary: as long proposed by ‘Writing Purposefully in Art and Design’ (Melles and Lockheart 2012).

Threshold Concepts is a unified epistemological and pedagogic model, proposing both the way that knowledge is structured in a discipline and the way the curriculum should be designed to best help the student to grasp, engage with and embed that knowledge. Threshold Concepts 4 again explored the implications and challenges of this central model; the SRHE’s Theory Network’s symposium ranged far and wide in its New Visions of the university and the structures of knowledge they suggest or demand.

Threshold Concepts in an open, interdisciplinary and digital age

As a researcher of disciplinary processes, who argues for teaching-informed research - a provocative term: disciplinary agendas being set not by researchers but by those concerned in shaping transformative disciplinary processes, such as teaching, curriculum design, assessment, academic writing - I have long been concerned with Threshold Concepts research. Its theory comes out of as well as informs those vital processes of curriculum design and the modelling of the relationship of teaching, learning and assessment. Threshold Concept theory is built upon its central analogy: that of the curriculum as having progressive 'gated' learning spaces where knowledge is acquired and made within the shelter of a disciplinary conceptual understanding, an episteme (Perkins 2006), a way of knowing. When the time comes to move on, to let go of that reassuring epistemological model, the student is seen as in a liminal space (Perkins 1999) across which she must necessarily and possibly painfully move as she approaches the threshold, passage through which will dismantle her current working understanding and offer a more complex or more comprehensive explanatory construct with which to work. All the iconic threshold images show a beckoning sun-filled beyond; the theory has it that once the threshold is crossed there is no way back to the former way of understanding as, after a period of confusion, she starts to see 'otherwise', working under the new conceptual structure. But the process is necessarily disorienting and disturbing: liminality is a transformative state that engages existing questionings and renders them problematic and fluid; a suspended state in which attempts at understanding can sound inauthentic, when liminality leads to mimicry. For going over the threshold is a time of loss and uncertainty, personal as well as academic: the student can 'lose her voice'.

Although not unconnected to other metacognitive pedagogic models, eg those of Vygotsky, (cf Zone of Proximal Development), TCs are a fully worked out model: 'Threshold Concepts are integrative, transformative, irreversible, bounded, re-constitutive, discursive, troublesome' (Meyer and Land 2006). They are the 'jewels in the curriculum' holding-environment, tolerating confusion: the crucial portals to disciplinary understanding. (From the start TC conferences have worked with rich imagery: I remember a fine discussion about Vygotsky and scaffolding learning, proposing that the more attractive metaphor should be that of supporting burgeoning plants: trellising, rather!)

The first phase of Threshold Concepts research and outreach, the first conferences in Glasgow 2006 and Ontario, 2008, and the first two books (Meyer and Land 2006 and Land, Meyer and Smith 2008) concentrated on the establishment of TCs in academic disciplines and their operationalization. Eg:

- Pure Maths – ‘complex number’
- Literary Studies – ‘signification, deconstruction, ethical reading’
- Economics – ‘opportunity cost’
- Computer Science – ‘Y and recursion’
- Exercise Physiology – ‘metabolism’
- Law – ‘precedence’
- Accounting – ‘depreciation’
- Engineering – ‘reactive power’
- Health Science – ‘care’
- Geology – ‘geologic time’

Student Learning and Knowledge-structures: attending to the particular

Invigorating in the early days was that TC's, like the Scholarship of Teaching and Learning, was a call for the revitalising and re-thinking of student learning as a whole and in/through the particular. The particular was the attention to the disciplinary structure of knowledge from the learners' point of view; validation of the ups and downs, progress and reversals in learners' journeys through the structures of disciplinary epistemology. It stressed the difficulties of encountering new knowledges and the disruption that progressive re-framings of disciplinary knowledge, long since mastered by the teacher, can cause. It also put disciplinary teachers at the heart of a discourse sometimes appropriated by educational specialists: that of curriculum design. So, sceptical though some were of the status of individual TCs, and concerned that all kinds of disciplinary knowledge domain – whether hard or soft, pure or applied (in the seminal Becher/Biglan model) – were being treated as the same, no one could doubt the importance of TC conferences and proceedings.

The foundational image is of sunlight beckoning through a wide threshold castle gate; this, the 4th conference, was somewhat of a consensual affair, looking to ramifications and implications of the model rather than mounting challenges to it. (With the exception of Delany, who took advantage and three times the allotted time to attack TC Theory as: ‘The Emperor’s New Concept: Vague, Postmodern, and Unfalsifiable’ which united the audience...in favour of TCs!)

Previous conferences *have* raised questions, eg. about the liminal phase, likened to tribal *rites de passage*: a time and place of being lost. And about the very image of threshold concepts: beckoning archways representing progressive structures of knowledge, painfully acquired and even more painfully let go. Different disciplines have argued about whether their knowledge is structured like this: organised into explanatory paradigms which constrict as the student develops ‘disciplinary ways of thinking’. And whether disciplinary knowledge structures *are* progressive and permanently transformatory, such that the student cannot go back to old ways of thinking and the teacher, herself long through the threshold, cannot help. Is disciplinary knowledge-acquisition really a series of practices like riding a bike, such that once acquired is it impossible to go back to instability? And learning practices that, unlike writing practices, are not recursive?

The original conferences explored two related propositions: that disciplines have epistemic thresholds and that students approaching those thresholds encounter *or make* troublesome knowledge. (I italicise ‘or make’ because in Perkins original formulation, the knowledge made this side of/in the lack of the next disciplinary conceptual framing is potentially troublesome to the discipline: knowledge made outwith the discipline’s current understanding. There is even the suggestion that the next great Kuhnian revolution, like the irreversible paradigm shift from Newtonian to Einsteinian physics, may come from such troublesome knowledge made by students.) But troublesome knowledge in recent conferences has been interpreted as knowledge which is troublesome for the student to acquire; to equate to a somewhat similar US theory also presented here: ‘Decoding the Disciplines’ (Pace and Middendorf 2004), which have ‘bottlenecks’ which ‘are simply the “stuck places” that annoy a given instructor most’.

The focus of this conference was on presenting and discussing the international as well as multi-domain ramifications of TCs: attracting interest from and extending invitations to vocational, professional, teachers in the creative and cultural industries and multidisciplinary academics, academic developers and teacher-educators. This conference had dedicated strands throughout for Professional Development and Interdisciplinary TCs; presenters proposed a wide variety of processes and structures as well as concepts:

- *experiential knowledge acquisition in Higher Education actor training
- * coalescence in the caring professions
- * Multidisciplinary Professional Development in Christian Leadership
- * Reflection in Neonatology
- * Criticality and Uncertainty as interdisciplinary TCs
- * Diversity and social justice for transformational change in Teacher preparation

The sheer range of interpretations of a discipline, vocation or profession's knowledge structures was fascinating; however, there is a difference between the academic and other domains in terms of where knowledge is made. Academic developers tend to see TCs as a facilitating model: enabling the acquisition and demonstration of knowledge – often to a qualifying body - whereas teachers focus on student learning: students' individuation and *transformation* of knowledge.

Patrick Carmichael's keynote tackled this issue directly. 'From this Curriculum to that which is to Come: Threshold Concepts, Complexity and Change' looked back to a phrase in Ray Land's keynote about liminality – that disturbing, disorienting and painful place - as a place of emergence and TCs as of particular importance in times and places of 'emergent practices'. For, as Carmichael reflected, whereas the TC model came out of a stable disciplinary structure with curricula based on known territory, many academics now work in a very different landscape. Indeed, many are using TCs to try to get some stability in this time of flux (his observation that even a solid subject like accounting now has elements of creativity, on a day of news of 'creative accounting', raised a hollow

laugh). So TCs are moving from helping to map territories to creating structures in, what both symposia referred to as Deleuzian, striated areas, such as ‘connected dance’.

The vibrant discussions and interest was generated as much by the diversity of presenters as of case studies – every type, every level of teaching situation; professional, international, interdisciplinary, practice-based...: the use of ‘TCs as a heuristic device in an ill-structured discipline’ to renew the Australian university curriculum for youth work education (Cooper); ‘learning-to-search’ in library and information science research (Tucker et al). Or the Royal College of Surgeons’ presentation on Cyberpsychology; the impact of emerging technology on human behaviour (Aiken and Berry) – these last not unusual in having co-presenters from different countries or continents.

Threshold Concepts seem indeed to be themselves a site of emergence, to be welcoming to those teaching in new, un- or under-theorised areas, to provide a forum for those thinking about teaching in new domains.

Images and Metaphors: Pilgrim’s Progress and Connected Dance

I was one of 37 contributors assigned Pecha Kuchas - separately projected slideshows of 20 largely self-explanatory slides. This constraint, compelling swiftly-moving visualisation of argument, produced some memorable images: ‘Separating the Chaff from the Wheat in Assessment’, ‘From Filling Buckets to Lighting Fires’, ‘Dracula’s threshold’, ‘Confronting the postmodern dilemma: ‘If a tree falls in a forest, and no one is there to hear it, does it make any sound?’; ‘The Sun Also Rises’; ‘Now I Know Why I Have Been Knocking My Head Against a Brick Wall: Doctoral Candidates and Stuck Places’.

Two Pecha Kucha speakers used the opportunity to model and problematize TC theory: speakers from Graz University of Technology drew models of Threshold-, Anchor-, Foundational-, Central-, Core- and Key Concepts while, in a luminous paper, Dermot Shinnery-Kennedy, after considering spiral, trumpet and other curricula, proposed a graphical representation for a pyramidically-structured prismatic curriculum, with light penetrating ‘faults’ which affects the learner in her journey differently.

Like the Liminal State and Threshold Concepts model itself, this last worked at both an epistemological and pedagogic level, as about both HE knowers and the knowledge. Such vivid and compelling images are more than heuristic devices, stimulating us to imagine our curricula differently: they bring in the students as oppressed or liberated by our curricula. They pick up the human side to the learning journey – stuckness, uncertainty, feeling excluded - that liminality and thresholds entail. Glynis Cousin's keynote presentation was full of images of students in liminal places: on a stairwell, lost on campus. They were vivid illustrations of the ontological aspect of TCs – liminality disturbs the learner's self as well as her learning trajectory.

Rather than the curriculum designed to produce 'exit velocity' in students, liminality imagines and accepts the learners' experiences (Patrick Carmichael pointed out that John Bunyan had anticipated and adumbrated the learning journey in his *Pilgrim's Progress*: the Slough of Despond, the Wicket Gate, the Strait and Narrow path and the Hill of Difficulty...thresholds, liminal spaces. At the start he has a book but 'knows not what it means' (sic).

It what seemed a parable of the wish to control the learners progress often seen in Instructional Designers, while the original edition of the Pilgrim's journey is one of experience and wanderings, by the second edition provided an instructive map of the journey, imposing linearity and unity on the Pilgrim 'rather than experience a curriculum which, like an Ikea store, is constructed to ensure that the traveller has to go past every product: modelling a curriculum offering multiple experiences, a curriculum of discovery – of seeing if rather than seeing that.' (Carmichael 2012)

The conference thus finished with Pilgrim's Progress and Connected Dance...

'New Visions' - Spatial Imagery, Structuring, and Controlling, Knowledge

These extended, imagistic, meaning-rich presentations were preceded by two that exemplified the Visual Turn, looking at spatial imagery in and of the curriculum: Spatial Cognition - mental reconstruction and manipulation of visual forms - as itself a multidisciplinary TC, critical for science,

design and theatre (Boggs), and 'Seeing Deeply in Space and Through Time' in earth and other sciences as a true interdisciplinary TC involving change, patterns, complexity, uncertainty and integration(O'Beirne-Ryan).

The sheer complexity of this knowledge system, offering both interdisciplinary TCs and visual and cognitive modelling, bringing us back to how we envision our knowledges. It broke open some of our long-held images: of the curriculum as a series of 'data/content packages' (in my Pecha Kucha represented by Pink Floyd's 'bricks in the wall') and Becher's four-cell matrix of disciplinary knowledges, hard/soft and pure/applied (Neumann and Becher 2002).

A disciplinary researcher, I have long been fascinated by Plato's epistemological and pedagogical allegories. The *Republic's* Sun, Line and Cave are still profoundly challenging as both imaging a hierarchy of knowledge-making faculties and mapping it onto both a metaphysical *and pedagogical* schema: the Cave pictures the future Guardian escaping from a primitive cinema into the near blinding sunlight, his difficulty first of discriminating objects and then of persuading the chained inhabitants to follow him into the light, leaving behind their expertise about image-sequences. All of which I was reminded of in the Pecha Kuchas: where 20 powerpoint slides handed to the conference organiser for a remorseless 20second timelapse slideshow were displayed behind the speaker in a huge, dark lecture theatre, displacing us presenters from authoritatively-voiced podium presenters to commentators, small and near invisible. (Just like Plato's Cave, where the literally unenlightened sit chained looking at images projected onto the cave wall and, to keep themselves from losing the will to live, play guessing games [filling in an evaluation questionnaire?] about order and qualities of projections!)

So, the visualisation and control of knowledge – ever important for the resistance of instrumentality and self-limitation in the university - were in the front of my mind as I went to the SRHE Theory Network Symposium, 'Structuring Knowledge: New visions of higher education'. Perhaps even more important as we go into a world of *uncontrolled*, deregulated crowd-sourced data and open science; a

world suspicious of the control of knowledge by commercially-minded and profit-seeking publishers or even by disciplinary gatekeepers. It seems that control of knowledge, so central to Plato's *Republic*, where access to higher knowledge was contained and controlled by the Ruling Elite within the 10 year higher education programme, has been challenged as never before.

However, along with Open Science there is Open Learning - open and progressive learning which draws informal learners into open courses, including MOOCs (Massive Online Open Courses) (Sharples et al 2012): open and informal as learning might be it is anything but unstructured; any new vision of higher education has to design appropriate structures to draw in and draw together both open knowledge-making and open learning.

Having constructed a visual argument about knowledge construction in an open knowledge environment, with images going from a chained library to a linked open data cloud and from a peer-reviewed journal to a crowd-sourced 'Big data' Open Science database, I was looking both for the SRHE's new visions and how those visions were presented and communicated. But, hoping to operate like Ron Barnett, whose keynote was called 'Head in the Clouds, Feet on the Ground', also to see how imagination-provoking models of knowledge and knowledge-making could fit with our open curriculum and learning design ideas.

'Theory' is a challenging term, suggesting an abstracting structure that shapes our disciplinary knowledge-making and our teaching, shapes the 'paradigm' which Kuhn defined as providing both the problems to be solved and the method of solving them (Kuhn 1962). Theory is problematically situated now we no longer have recourse to all-explaining 'grand narrative'; gender, queer and identity studies have followed Lacan – who influentially posited the gaze as both constructing, and the property of, the person looked at (Lacan 2006) - in exploring 'theory', *theoria*, looking, both as representing a model of the paradigm but also constructing a position from which to look. So this theory network event had both to set up and exemplify the new visions and also theory itself.

I was curious as to how the 'New Visions' would be communicated. Three out of the five world figures featured in SRHE'S symposium – Ron Barnett, Gert Biestl and Michael Young – in fact used

no images: their visions were adumbrated in words from the lectern and on their at times densely texted powerpoints. And though the fifth, Tina Besley, showed as her new visions examples of creative campuses, for the others the task was primarily an abstracting and discursal one. Their epistemological discourse was everywhere diagrammatic: levels and hierarchies, spheres and planes, webs and clusters, polarities and structures. The fourth, Michael Peters, included several compelling visuals in his 67 powerpoints – representations of Linked Open Data Cloud, the Comprehensive Knowledge Archive Network ‘the world’s leading open-source data portal platform’ and the most intriguing, Infochimps’ Big Data Infrastructure Made Simple (all Peters 2012). But these were illustrations to an argument about open science not open science learning; the language of hubs, networks, portals makes plain that these may be epistemological models but they have no pedagogy: these are visions of knowledge (? or data?) collected outside the university. More, the points on the Network of Scientific Knowledge are of results and observations, not of structured, validated and most of all contextualised knowledge; despite the extensive resources being invested, validation-after-data-dissemination rather than by an academic community is deeply problematic.

All the speakers felt at ease with influential but challenging schemas: Ron Barnett’s opening presentation, ‘Structuring Knowledge in an Age of Non-Structure’, continually drew imaginative dichotomies: structure/ fuzziness; particularity/ universality; fragmentation/ coherence; openness/ closure. His was a lucidly-structured series of propositions about, eg, the learning process as a matter of Bernsteinian re- and re-re-contextualisation of knowledge (the university as the site of recontextualisation in a curriculum which the student then re-recontextualises which is then re-re-recontextualised in the public domain).

This is where imagination comes in, Barnett suggests: an importantly airy and insubstantial connecting element, breaking open the ‘knowledge-packages’ which, it is generally supposed ‘can be identified in advance and segmented into bona fide curriculum packages appropriated by the student so as to form a coherent educational experience’. Barnett proposed that student learning is more to do with appropriating and revaluing ‘ethno-epistemic assemblages’ – more complex and more fuzzy than knowledge-packets and drawing together, as Barnett so often does, the development both of

knowledge and student identity. He considers both epistemological and ontological dimensions of a schema fused by the mediating spark of the imagination.

This was an exemplary presentation of educational theory at a time when theorising itself is a problematic activity (as abstract/ing rather than experiential - a charge Barnett spent some time refuting - and as Mode 1 philosophising at a time of contested, disparate, local rather than Grand narratives). This is to take theory in a different sense to that of positivist science (theory as the paradigm's explanatory model) or of logico-linguistic epistemology (theory as the product of systematic induction of principles from hypotheses, tested and validated by deduction) to something more akin to queer theory: *'theoria'* as a way of looking and of controlling self-representation.

His argument was dense, specialist and challenging: slides bullet-pointing the key terms and steps in the argument which led to an inspiring leap from epistemology to imagination. For this, he drew heuristics: suggesting four de-forms of imagination: ideological, utopian, fantastic and self-indulgent and four levels of knowledges: adding a fourth, 'imagination in and of the world', to Bhaskar's 'empirical', 'actual', and 'real' levels of knowledge (Bhaskar 2008).

Here Barnett sounded like the philosopher he is: this structure of argument – levels, dimensions, hierarchies – is the familiar logico-linguistic arguments of analytic philosophy. However, both colloquia were gatherings of educationalists and Barnett's language of four levels of knowledge and Imaginative University irresistibly brings to mind Plato's utopian educational system. For the *Republic's* metaphysical analogies include the Line, which depicts the Guardian's epistemological development from discriminating representations to models and from the material to ideal world. Although the Line's different sections distinguish types of knowledge and correlated cognitions, the purpose of the analogy is to validate the Guardian's progress and, like Threshold Concepts, to describe the structures that underpin the Guardians' education. Not simply schemas of knowledge or discrimination of 'knowledge-packets', the analogy serves to illustrate the pedagogic and moral usefulness of the faculties progressively to be developed.

Barnett went beyond hierarchies and heuristics, looking to operate like his students, with ‘head in the clouds and feet on the ground’, on a fourth level (or, rather it came to seem, sphere or plane) of knowledge and imagination – ‘ontological realism, in and of the world, which gives rise to new conceptualisations of the ways in which the world falls short of its possibilities’. Students do and should operate on this plane: the imaginative university enables them to see and reveal the world differently, to negotiate the encounter with and initiation into the ‘symbolic forms that structure the strangeness of Higher Education’.

Dichotomies and Poetic Paradox

Image and imagination were key terms for Barnett, whose subsequent book, *Imagining the University* insists that although ‘the range of ideas of the university in public circulation is exceedingly narrow... imaginative array of ideas of the university... are seldom heard and ...the debate is hopelessly impoverished’. Barnett complained that he is often seen as abstracting rather than, as he sees it, as like a poet necessarily and creatively using rule-based form and structure imaginatively to refashion real-world observation: we educationalists also should be poets rather than systematisers. The creation of poetry is as rigorous and attentive to rules and structure as philosophy and we, like poets, must attend minutely to particulars in order to formulate new conceptualisations of reality.

This reminded me of the image-rich sayings of the ancient Greek philosophers, on the cusp of ‘logic’-based Socratic inquiry but retaining poetic roots. The 6th century BCE philosopher-poet-teacher Heraclitus used paradoxes to suggest – not dictate, nb – metaphysical and cosmic structures and used images to appeal to sense and experience:

God is day-night, winter-summer, war-peace, satiety-hunger, and it alters just as when it is mixed with incense it is named according to the aroma of each. (DK22B67)

(Here God, like Barnett’s imagination, is the essence that adds to and distinguishes opposite substances.)

The symposium continually visualised knowledge systems in terms of dichotomies: structure||fluidity; particularity||universality; fragmentary||coherent; network||cloud; emergent || accretive; relational ||codified knowledge. Barnett challenged us to grapple with ideas by paradoxical and creative argument; his epistemology, marrying experience and reason - striation and smoothness; ontology and epistemology, head and feet, clouds and ground, symbols and structures, furrows and nomads, structure and system, knowledge and experience...Deleuze and Guattari! - brought such Sophistic teaching to mind. For Barnett, like the pre-Socratics, moves on from drawing dichotomies (black/white odd/even: never the twain shall meet) to looking to polarities, which tend in opposite directions; his epistemology of imagination suggested that, like Heraclitus,

There is a harmony in the bending back, as in the case of the bow and the lyre (DKB51)

It is the countertension that produces motion, in the arrow, and harmony, in the resonating string; it is the very action of trying to bring together opposites or contradictions that moves our and our students' thinking forward: imagination creates knowledge out of polarities, dichotomies, paradoxes. By pairing opposite forces vital energy is productively released; by pairing opposite arguments intellectual maturity is gained, realising that a narrative may or must have a counter-narrative. This countertension allows for a countervailing forcefield - of the creative imagination – in which the student may fruitfully operate. The pedagogic intention is to induce a progression like Perry's sequence of positions of epistemological growth, from right/wrong dualism to relativism to independent commitment within relativism (Perry 1981).

Running through Barnett's argument was everywhere a more fluid imagery than that of the levels, structures, dichotomies of logico-linguistic epistemology: it was he who influentially brought the imagery of Baumann's 'liquid modernity', which denies the language of 'solid', 'deposited', accre[di]ted knowledge and Bernstein's knowledge-packets, into the Philosophy of Education (Barnett 2004). Throughout the Symposium, in addition to the schemas - Bhaskar and Bernstein and more - were ready and easy references to the vocabulary of the Visual Turn: to Deleuze and Guattari's all-informing, it seems, metaphors and models: their suggestive 'rhizomes' (a tangled root mass),

‘nomads’ (who do not cultivate settled terrain) and ‘smooth and striated space’ as metaphors of knowledge and knowledge-makers, without reference or explanation.

Nomads ‘follow... customary paths... from one point to another... the in-between has taken on ...a direction of its own..

Smooth space consists of disorganized matter and tends to provoke a sensual or tactical response rather than a starkly rational method of operation (Deleuze and Guattari 380) .

Such permissive and riddling terms were used as if self-explanatory which they certainly are not, however resonant and suggestive. (Every re-reading of Deleuze and Guattari’s seminal *A Thousand Plateaus: Capitalism and Schizophrenia* reminds me of how and why they admired *Alice through the Looking Glass*; the distinction between striated v smooth space is explained by reference to the sea, which has gone through a sequence of smooth and striated cycles!)

Footnote To anyone who feels similarly bemused, I warmly commend the beautiful explanatory images of ‘Deleuzian Space: Smooth and Striated’

<http://fs2009.files.wordpress.com/2010/11/smoothstriated.pdf>

Open and Closed Knowledges

The questions which followed Barnett’s paper focused on implementation and practical consequences of the vision and discussed: dystopias as well as eu- and ou-topias. He committed himself to learning as a transformative process: ‘not what the knowledge is but what is the problem that the knowledge is used for’. And the remainder of the symposium was mainly concerned with this – with the reach, political and social context and boundaries of knowledge. Barnett’s swirls of knowledge were, rather mapped: hubs, networks and distributed systems. Peters’ illustrations, appropriately for a *Network* event, showed text and models about Open-science’s peer-to-peer distributed knowledge systems: the rich-text, highly interactive, user-generated Open Science Economy has seen linear models of knowledge production give way to more diffuse, open-ended, decentralized, and serendipitous knowledge processes based on open innovation and technology. (Cf the transformatory ‘Science as an

open enterprise', the Royal Society Science Policy Centre report 02/12). The political and social challenge is to 'take back the creative commons': to use the open-data movement, diffuse, decentralised distributed knowledge and learning systems and the rich possibilities of open publishing to create a user-generated, open epistemology. Peer-to-peer knowledge production is radicalised, providing new points of exchange with non-academics and end users. New architectures, new core algorithms, portal-based gateways involve amateur with professional scientists into a social mode of open knowledge production to solve global problems.

While many of us were vociferous in supporting open publishing – paid for from venture-capitalised academic publishers' multi-billion pound profit (*The Economist* Apr.14th 2012) - we were concerned at a seeming conflation of open-access with uncontextualised, unreviewed dissemination. Both discussion and Biestl's paper questioned how such open-knowledge creation should be validated? (A terrific argument ensued about the logical-positivist verification through falsifiability (Popper 1959) of scientific knowledge; contra Latour and Woolgar's social construction of scientific knowledge.)

Sitting in the first Oxford college to admit women, 'founded in 1878 to change Oxford University and to change the world as it was then', raised questions about the university's location, sic, in this brave, new, open, diffuse world. Central, peripheral, in the outer darkness?

Are the New Visions asked for of knowledge systems or of the university as mediator, creator and teacher of knowledge? Is the theory under investigation, finally, ethical, pedagogic or epistemological?

A Transformative Vision

Ray Land, the founder champion of TCs and liminality, started this conference with a profound and challengingly complex model of what happens to the student in the 'black box' liminal state:

'difficulty papers' can pick up the student approaching the threshold and the transformed learning will be evident on the far side but what happens between is difficult to observe or analyse. In his account of the sign-, signifier/signified-changing experience - here visualised as a going through a tunnel - he

modelled a transformative pedagogy which puts the student experience at the heart of this epistemology.

He also showed why TC's basal image - of the disciplinary learning journey as involving having to negotiate conceptual gateways over liminal and difficult spaces - is so rich. Each conference has attracted teachers intrigued into looking at their curricula through 'TC' eyes. Unlike 'Bottlenecks', which seem simple to identify and remediate, TCs challenge the academic to, to go back to Barnett, use her imagination. For TCs, like Plato's Cave, form a multifaceted and multi-level model: of the student's experiences of pain, challenge and aspiration; distinguishing 'what is' (the nature of reality) and 'what is perceived' (the nature of cognition); distinguishing pedagogy (what and how the student is led to grasp knowledge) and epistemology (knowledge structures; what that knowledge is of), and raising the question at the very heart of all we do: what is education for?

I went to these symposia asking: what is Educational Theory good as, good for? As '*theoria*': to find a viewing place, an angle from which to see complexity and to be seen as occupying? As a paradigm: a Kuhnian (discipline-controlled/ing blueprint) or suggestive structuring of knowledge? As allegory: a multidimensional model in which to find association- and recognition-led meanings? A complex structuring of our pedagogy and epistemology for us to appropriate as our own scaffolding, trellising, Zone of Proximal Development? Perhaps any or all of those, provided the presenter understands clearly the purpose and status of the images on her PPTs: didactic or inspirational? Imagination-stimulating model or blueprint?

Or, finally, as vision: we, as well as students, need to see a beckoning light leading us through troublesomeness over and through the threshold...

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