# **Creative Glide Space**

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Chapter in *Navigating the Unknown: The Creative Process in Contemporary Performing Arts*, C Bannerman (ed), Middlesex University Press, 2006 (see <a href="www.mdx.ac.uk/rescen">www.mdx.ac.uk/rescen</a>)

Things should be made as simple as possible – but not more so. Albert Einstein

Nobel science laureate Richard Feynman once remarked that 'it does no harm to the mystery to understand a little about it'. He was talking about the universe, and about how reassuringly inadequate our theories are in the face of its enormous complexity. Romantic sensibilities need not worry: the wonder is not impugned by a few human thoughts. And so it must be with creativity. There are a few creative people who fear that thinking about their creative process will make it fall apart. Happily not in ResCen, where an interest in understanding creativity lives happily alongside a variety of highly creative and successful careers.

In this essay, I want to wander between generalities and specifics: to look at the wonderful variety of questions and practices that live under the umbrella of creativity, as well as looking for some commonalities. For example, creativity is different in different domains. To be creative as a mathematician is not the same thing as to be a creative product designer or choreographer. Within a domain, equally creative individuals work in very different ways. And even within one person, there are many facets and phases to the creative process that require the creator to change gear, and adopt different mind-sets. My question is: can we bring any order to this variety, without becoming so abstract that our theories offer no purchase on creation in real life? Can the stories of the ResCen artists be woven together into a story about creativity that is somewhat more differentiated than the usual theoretical ones, whilst also being generalisable enough to offer a useful framework for others. And does this story tell us anything about how other people might be helped to cultivate their own 'creative mentality'?

### Right grain thinking

One of the problems with talking about creativity is getting the grain right. To be useful, we need to be able to talk at a level that is neither too fine nor too coarse. Too fine, and we can get bogged down in the details of individual habits and experiences that may be fascinating as biography, but which are too idiosyncratic to help other people, either pragmatically or conceptually. Schiller claimed he could only write well on a desk full of rotting apples – but the smell of cider almost certainly won't do it for you. Too coarse a grain, on the other hand, and all kinds of interesting and helpful things can slip through the net.

The very word 'creativity' can be unhelpful, too coarse-grained, if it suggests that there is a single (albeit mysterious) mental faculty or substance that underlies creative performance (and which different people might have been given different 'amounts' of, rather like the discredited notion of 'intelligence'). Such a presuppositions can lead us simply to look out for a few special individuals who have 'got it', and to ignore the extent to which 'creativity' might be composed of a collection of 'habits of mind' that everyone could be capable of developing. Just as a fitness trainer needs to be able to decompose the concept of fitness into its ingredients – stamina, flexibility, strength, body-mass index and so on – in order to think about how to enhance it, so we need to treat creativity not as a rare and exotic mental ability that stands apart from normal cognition, but as a particular orchestration of our mental capabilities.

It is also much more productive, as well as accurate, to take 'creativity' as pointing to a nest of complementary questions that require different kinds of answers, and which therefore cannot be collapsed into a single 'theory of creativity'. 'How does the mind produce fresh ideas?' is not the same kind of question as 'How are products and performances publicly judged to be 'creative'?' Answers to the first – the question which I am going to focus on in this chapter – requires the psychological languages of cognition and emotion; rationality and intuition, conscious and unconscious. Tackling the second requires a sociological vocabulary of gate-keepers and opinion-formers, influence and power. Other questions include 'Do people differ in their creative potential?', 'Can 'creativity' be measured?', 'Are there identifiable phases to a creative project?', and 'Do different domains afford or demand different kinds of creativity?' Though answers to these may employ overlapping terminology, they cannot be reduced to a single formulation. I am going to restrict my focus here to the more psychological aspects of creativity. Let me get into this, however, by saying something about how the creative process varied with the job in hand.

'Do different domains afford or demand different *kinds* of creativity?' It seems pretty obvious that they do; and therefore that any generalised picture of the creative process will have to vary according to the domain we are observing. A gadget designer's creativity, for example,

has to result in an object that 'works', and what 'works' means is different from what it means for a wallpaper designer or a window-dresser. A creative scientific theory has to withstand tests of a very different kind from those that are applied by the jury that meets annually to award the Turner Prize for contemporary art, or the Whitbread Prize for literature. And the anticipation of these tests has to be built into the working methods and the mental processes of the creator. Experimental scientists are often guided, as their empirical programme develops, by intuitive judgements, for example; but their claims will get short shrift from their scientific peers if they cannot turn 'Seems right to me' into a more robust and logical chain of justification.

Even within the domain of the creative arts, the differences are as interesting as the similarities. Poets and sculptors craft objects for contemplation. Barring deadlines for books or shows, they have all the time they need to ruminate and tinker. And though their sense of audience may well influence the way they think, and shape the final form of their poem or sculpture, they have little control over the way any 'audience' actually engages. The composer or playwright, on the other hand, works in a more clearly-defined two-phase domain, where the creativity and character of any production or performance of their work plays a much stronger role in mediating between the original creator and their eventual audience. The dramatist or the composer may be involved directly in the production of their work, but even if they are not, a wide vocabulary of notations and instructions are available to them through which to attempt to guide and constrain any performance. Their creativity involved anticipating and working with the process of interpretation of their chords or sentences in a way that the painter or novelist's may not. And we could go further, and explore the worlds of the choreographer or the jazz composer, where no lasting 'object' may exist at all, other than records of particular performances. And on to the pianist and the dancer themselves, who exercise one kind of creativity in rehearsal, and another in the moment of live performance.

Attempts to map domain-specific creativity may be hard, as variations between individual creative people within a domain may well swamp, in practice, any generalisations we might be trying to make between domains. Some composers may be very conscious of how they hear the notes in their mind's ear, and see the concert hall, and the musicians playing in their mind's eye as they compose; others may be unaware of any such process. Some jazz numbers, or comedy 'improvisations', turn out to have been very tightly scripted and rehearsed. Some writers have every paragraph designed before they start to write; others have a scruffy page of notes, and let the book or the chapter unfold (surprisingly) as they go along. To every generalisation, there will probably be a creative counter-example; so we need to proceed with caution!

We might do well to remember, too, that 'creativity' is not even the special domain of domain specialists: scientists, mathematicians, authors, actors and so on. Many of the same processes and considerations that apply to 'Creativity with a Big C' also apply in many more mundane contexts. Hairdressing, cooking (e.g. doing something inventive with left-overs), imaginative running off the ball in football, a witty contribution to 'the craic', a made-up bedtime story, a garden design, a website, a DJ's segue between two tracks...all these deserve to be called 'creative' too. Anything that is both satisfying and surprising is creative, whether it makes the baby laugh, stops the tap dripping, or delights the heart, if it does so in a way that makes sense only in retrospect. We might want to keep half an eye, as we ruminate over the creative process, on any wider everyday-life implications or applications that may emerge.

#### The life-course of creative projects

Another complication we need to attend to – if our account of creativity is not to be over-simplified – is that the creator may need to be 'many people' over the life-course of a creative project. Their 'frame of mind' may need to change, as they move between different phases of creative activity.

There have been models of the creative process that have attempted to get a handle on this variability, but some of the best-known have again fallen into the trap of being too coarse-grain and/or too prescriptive. One of the best known, usually attributed to Graham Wallas in his 1926 book *The Art of Thought*, divides the creative project into four stages which he called preparation, incubation, illumination and verification (Wallas 1926). Preparation involved hard thinking and data collection. Incubation involved admitting (conscious) defeat, and (as the poet Amy Lowell (1952) put it) posting the seemingly intractable problem into the unconscious, like a letter into a pillar box, where some other, more inscrutable, process was supposed to take over. In the third stage, illumination, some kind of an 'answer', burst into consciousness 'out of the blue'. And in the final stage, verification, conscious thought processes were again engaged to check the validity of this inspiration, and polish it for public consumption. Though this model is still often trotted out by creativity pundits, it misrepresents some aspects of creativity, and misses out much that is of interest.

It will be immediately obvious that this 'model' is more suited to some kinds of creative project than others: in particular, those where there is a well-defined 'problem', the solution to which hangs on a single 'insight' that cannot be arrived at through rational problem-solving. The literature of creativity has endlessly recycled stories of this kind, mostly, as you would expect, deriving from science and mathematics. The French mathematician Henri Poincaré was famously supposed to have received a solution to a vexing problem, without any warning, as he was stepping on to a bus in Caen. The German chemist Friedrich Kékulé was equally famously said to have discovered the cyclical nature of the benzene ring by dozing in

front of the fire, and 'seeing' the flames turn into writhing snakes, one of which conveniently coiled round and bit its own tail. It turns out that we have reason to doubt both these apocryphal stories, but they have helped to draw attention to the interplay of 'controlled' and 'uncontrolled' cognition, in contributing to creativity. Scientific understanding of this interplay has (as you would have hoped) moved on in the last 80 years, and we are now able to tell a more sophisticated story about the mind's differing 'modes of attention', and how they support creative mental processes.

A second problem with the Wallas model is that it offers us only a linear, uni-directional view of creativity. First you think; then you incubate; then you receive inspiration; and finally you think again. That simply sequence is not true even of mathematicians, let alone of creative artists, designers and others. We do not delay using our intuition until we have hit a rational road-block; we do not stop thinking once we start incubating; and we do not stop 'intuiting' once we start on the process of 'verification'. The evidence of careful observers such as the ResCen associates, is that rational and 'irrational' processes interweave in a much more subtle fashion across the whole life-span of a creative project. Let me develop the Wallas model a little, to make this fluidity more apparent (while remembering my own cautions about not getting too lost in details either).

A creative project, whether it be scientific, artistic or practical, often starts from a small seed. And the less rational mind enters here, right at the beginning, for such 'seeds' are often, at the time, inexplicably poignant. A young scientist notes a small aberration embedded in miles of printout from a radio telescope. Instead of writing it off as 'noise', her curiosity is piqued, and three years later her ground-breaking paper is published. Henry James' dinner companion makes a casual remark that he recognises as 'one of those stray suggestions or vague echoes at the touch of which the novelist's imagination winces, as at the prick of some sharp point', and eventually it flowers as a brilliant short-story, 'The Spoils of Poynton' (James 1952). The young Clive James (no relation), creating songs for his Cambridge friend Pete Atkin, gives him the couplet: 'I've seen a girl hold back her hair to light a cigarette; And it's things like that a man like me can't easily forget'. In this case, the poignant observation that inspired the song remains visible within it, though often it may dissolve and proliferate into something quite different. Italo Calvino sums up this germination process, when he writes: 'In devising a story, the first things that comes to my mind is an image that for some reason strikes me as charged with meaning, even if I cannot formulate this meaning in discursive or conceptual terms' (Calvino 1988). A dance begins with a single fascinating gesture; a sonata with a musical phrase that won't leave the composer alone.

Often creative people capture and preserve these seeds in their note-books or sketch-pads. They may have hundreds of such aperçus stored away, most of which lie dormant, and many of which will never germinate at all. But a few come back to haunt them, and may start to act as a focus – the centre of a gravitational field, perhaps – which attracts other observations and thoughts to it. These create a floating nebula of ideas and possibilities in the mind that might at some point solidify into a clearer project that moves from the back to the front of the creator's mind. Into this provisional structure of seeds and serendipity, more deliberate thought processes may begin to weave. 'Would this work for a show or a commission that is coming up?' 'Maybe it could form the overture to that other piece I'm working on?' Perhaps a snappy title comes to mind, and this begins to drive cognition and cogitation in a more purposeful way. Problems emerge: 'I'd love to be able to use that figure, but I can't quite see where it fits', or 'This is beginning to sound too much like that piece I did last year'. Hard thinking, bits of accumulated craft knowledge and skill, and reverie slide into each other, sometimes in the space of a minute; sometimes with slower rhythms and periodicities. And sometimes the whole process hits the buffers, and it seems as if no resolution of the emerging difficulties will be possible.

If that impasse is reached, then may come a period of 'incubation', in which the charged problem is slid once more to the back of the mind, where it remains only in the peripheral vision of the mind's eye. Scientific studies of creativity suggest that such 'incubation' is only effective if you have worked to the point where you experience a genuine impasse (Claxton 1997, Seifert et al 1995). Premature capitulation won't do it. Only if you have really explored and exhausted all the more obvious possibilities will the unconscious come to your aid. And even then, it is not a mechanical process, nor is it all-or-nothing. The impasse may relate to the whole conception, or only to one snag in the corner. And you may pull the project back into the forefront of consciousness from time to time, and work on it deliberately for a while, before 'giving up' and letting it drift away again. It seems that incubation can weave in and out of more tightly-focused cognition, in a way that is more flexible and subtle than Wallas would have had us believe.

Even if the impasse is genuine, inspiration does not always come. As Amy Lowell puts is: 'The subconscious...is a most temperamental ally. Often he will strike work at some critical point and not another word is to be got out of him' (Lowell 1952). But if it does come, it is as likely to be vague or tentative as it is to be in the form of a cataclysmic reorganisation of thought. The ways in which possibilities emerge from the unconscious into consciousness are many and varied. Sometimes they come visually, as *images*, as they did, apocryphally, for Kékulé. Sometimes they appear as a fully-formed verbal *thought*, and sometimes as a phrase that – like the seed of an idea – feels pregnant with fruitful possibility, but is not yet quite ready to offer up its insight literally and explicitly. Such *inklings* can be as important, in the long run, as a blinding insight. Creators, both scientific, artistic and practical, sometimes use the language of *aesthetics* to describe the creative possibilities that occur to them.

Mathematicians can trust the feeling that a proof is 'elegant' or even 'beautiful'. And sometimes incubation results in *promptings* or *hunches*: urges to move, to follow one path rather than another, though one couldn't say why. As Nobel Science Laureate Michael Brown put it, musing over the crucial series of experiments that led to his breakthrough: 'As we did our work, we felt at times that there was almost a hand guiding us. Because we would go from one step to the next, and somehow we would know which was the right way to go; and I really can't tell you how we knew that' (Fensham and Marton 1992)

Sometimes a creative intuition comes as a physical feeling - as it did for the witch in Macbeth, and also for the poet A.E. Housman. In his essay 'The name and nature of poetry', Housman describes a request to 'define poetry' he had received from an eager young American PhD student. 'I replied that I could no more define poetry than a terrier could define a rat, but that I thought we both recognised the object by the [physical] symptoms which it provokes in us.' He goes on to explain that 'experience has taught me, when I am shaving of a morning, to keep watch over my thoughts, because, if a line of poetry strays into my mind, my skin bristles so that the razor ceases to act' (Housman 1933).

Creative people seem to have many ways in which they can stimulate and encourage the generation of insights and ideas. Once the 'problem' is charged, and parked on the edge of the mind, its gravitational field can attract stray thoughts and experiences, and bend them to its own shape. Not being able to discover the solution to a creative impasse deliberately, a possible solution, if it can be encouraged to appear by chance, may thus be appropriated and its potential to fill the bill recognised. Playing, messing about, free associating, improvising can all be ways of creating experiences and connections that stand a chance of being appropriated in this way. And if all the plausible avenues have been exhausted, then one can let oneself go a little dreamy, a little wild, and search in regions that lie further away from the epicentre of common sense, but yet not so far that they escape the gravitational pull of the problem.

Finally, we should note that the 'verification' phase is not adequately described solely as a return to critical, analytical hard-headedness. For some of the ResCen artists, as for many others, the conscious process of selecting and assessing ideas weaves in and out of their generation, as if there were a separate part of the mind, active at the same time as the generative part, monitoring and commenting on the creative process as it goes along. And this voice can be both gentle and critical; both rational and intuitive. Much attention has been paid to the destructive effect on creativity of having a voice that is superficially critical and quickly dismissive – and this had led, in techniques like 'brain-storming' for example, to a deliberate attempt to inhibit or postpone the operation of that voice. It is this strategy of apartheid, perhaps, that has tended to exaggerate the discontinuity between the illumination and

verification stages. But if 'the voice' is quieter, more supportive and more patient, it can profitably be allowed to coexist with a receptivity to creative generation. It may manifest only as a feeling of 'rightness' or 'wrongness' that accompanies ideas or intuitions as the bubble into consciousness: a feeling of glee or excitement on the one hand, or of deflation or dissatisfaction on the other. Creative people seem to differ in how strong this voice is; how reliable or accurate it is; and how much they have learned to trust it. For some, it is a vital touchstone of progress, to be heeded and respected. For others, it is a much less reliable ally: one to be treated with suspicion, or even banished completely.

As I say, these 'stages' of the creative journey are neither clear-cut nor sequential. Creativity is a non-linear process. New 'seeds' may be germinating right throughout the life-course of a creative project, sometimes being able to be incorporated in the developing draft; sometimes having (regretfully) to be held over for another day. Moves or passages that had seemed brilliant at the time may find themselves under the knife, as a sense of the whole theory, or the complete score, becomes clearer, and reflective attention moves back and forth between the detail and the overall composition. Occasionally the feeling of rightness or wrongness may change quite late in the day. As you muse over what you hoped was a 'final draft', so a feeling of inconvenient dissatisfaction may grow too strong to ignore, leading to the reorganisation, shelving or even abandonment of the whole project.

There is one other way in which the Wallas picture of creativity misrepresents the reality, and that is in the virtual exclusion of the social world. The image of the solitary genius, wracking his (usually his, in this mythology) brains, pacing restlessly in his lonely garret, and then being hit by a blinding flash of insight that cracks the case or the problem wide open, unleashing a frenzy of activity in which the insight is turned into a breakthrough paper or a beautiful sonata, is untrue to the facts in many ways, not least in the way it airbrushes out other people (John-Steiner 2000). Conversations with creative people reveal just how essential and ubiquitous such interactions are – and also how much people differ in how and when they make use of other people. Some like to discuss the seeds of their projects early, though often only with selected others who are trustworthy, sympathetic and/or knowledgeable about what the creator is trying to do. Others feel that even that much disclosure is too much, threatening to expose the small shoot of an idea to a frost that might nip it in the bud; or to require, in the attempt to articulate it, a degree of clarity or fixity that would inhibit or skew its subsequent development. Creative people seem to know when to go for a walk by themselves; when to shuffle incognito round a rival's exhibition; when to think out loud with one trusted friend; and when (if at all) to expose the project to the more vigorous rough-and-tumble of a dinner-party conversation.

American playwright Tony Kushner, 'author' (his quotes) of the hit play 'Angels in America', describes the intricate and unceasing role that more than two dozen other people played in the creation of 'his' drama: so much so that it is actually a gross misrepresentation for him to claim authorship – hence the scare quotation marks (Kushner 1993). He muses on the deeper reasons why this perennial misrepresentation is so common, and fingers the cultural myths of heroic individualism and possessive capitalism. The creator not only has to 'create', but also to be positioned in a social drama. 'In the modern era, it isn't enough to write; you must also Be a Writer and play your part as the protagonist in a cautionary narrative in which you will fail or triumph, be 'in' or 'out', hot or cold...' And if creative products constitute cultural capital, then ownership has to be assigned, so that bank transfers can be properly directed, and Oscars awarded. To acknowledge that the 'author' was actually a shifting constellation of people is inconvenient, and threatening to the myths.

## The glide space of creativity

What emerges from these more detailed insights into the creative process, as we try to make some sense of them, is a focus not on a set of well-defined and linearly arranged stages, nor on individual differences in some hypothetical 'quality', but on a number of dimensions along which people may vary. Some of these variations are idiosyncratic, and perfectly functional for the individual (and his or her cloud of creative associates). Other kinds of variation are more within individuals, as they move thorough different phases of the creative process, and come at it in differing ways. Let me focus, in the space I have left, on the latter, and offer the idea of a three-dimensional mental 'space' that offers a variety of 'states of mind' that are appropriate to different times and tasks within the overall creative project. These three dimensions are essentially three different ways in which attention may vary.

If we continue to focus on the individual, I am suggesting that part of their creative success lies in their ability to move fluidly around in this three-dimensional creative space. Sure, we can identify a rough overall trajectory that runs from the finding of a seed, to its elaboration into a creative project or possibility, to the dynamic interweaving of impasses and solutions, to the crafting of a product or a performance. But at a finer grain, we can see the creator's mind gliding, at different rates and rhythms, between different states within that attentional space. Let me describe the dimensions of this 'space' in a little more detail, and locate some of the more important states of mind, that the creator needs access to, within it.<sup>1</sup>

The first dimension refers to the intensity and *focus* of attention. At one end of the spectrum we find highly focused, targeted states of attention that tend to be purpose-driven and analytical. There is a problem in mind, and an implicit sense of what might count as 'relevant' to its solution, which guides the deployment of attention. At the other end live states of mind that are relaxed, holistic and receptive. In this mode, we are more open to whatever pops up;

more willing just to see what life has to offer. In terms of brain-waves, the former correspond to the relatively high levels of cortical arousal that appear in electroencephalogram (EEG) traces as so-called beta waves. The latter correspond to the lower-frequency alpha or theta waves.

The second dimension concerns the general *direction* of attention: whether we are looking primarily *outward*, at information arriving at the senses; or *inward*, at thoughts, images or intuitions that seem to arise from within the mind. These, of course, are not exclusive. In the middle of this dimension we can imagine a resonant state of mind in which attention and imagination (for example) are continuously feeding into and off each other. And the final dimension is the *social* one. Are we functioning in *solitary* mode, as if our individual mindbrain system were sufficient unto itself; or in *sociable* mode, where we feel our mind-brain to be networked with other, similar systems? We can be at different points along this dimension regardless of whether there are other people physically around. In the former mode, we are more fixed and certain in our views, for example; in the latter, more permeable to others and more willing to see our own thoughts as tentative and evolving contributions to a wider, more collective endeayour.

As we glide around in this three-dimension attentional box (the 'crate' of creativity?), we can imagine ourselves at any one of the eight corners of the 'cube' (as shown in the table below). In concentrated, outward, solitary mode we are inspecting objects and information in the light of our current problems and concerns. In diffused, inward, sociable mode, we might find ourselves engaging in an open-minded reflective conversation with friends or colleagues, sharing personal feelings and ideas. In concentrated, outward sociable mode, on the other hand, we might be engaged in vigorous, critical group problem-solving, focusing on the details of the predicament, proposing and critiquing each other's putative solutions. And in diffused, inward, solitary mode, we might be hovering on the brink of sleep, idly watching the mind's ideas bubbling up and 'playing' with each other, with little or no sense of ego-control: spectating rather than directing.

## THE GLIDE SPACE OF CREATIVITY

#### The three dimension of attention

Focus	Direction	Interaction	Mental mode
Concentrated	Outward	Solitary	Scrutinising
Concentrated	Outward	Sociable	Group studying
Concentrated	Inward	Solitary	Hard thinking
Concentrated	Inward	Sociable	Arguing
Diffused	Outward	Solitary	Contemplating
Diffused	Outward	Sociable	Group chatting
Diffused	Inward	Solitary	Reverie / Dreaming
Diffused	Inward	Sociable	Dialogue / Reflective conversation

On this view, the ability that creators need, above all else, is flexibility. They need the capacity to move fluidly and appropriately between different mental modes, as different phases and aspects of the creative project present themselves. They need to be able to attend both to detail and to the 'big picture'. They need to be both spontaneous and methodical. They need to be sensitive both to the intuitive signals of 'rightness' and to the practicalities of producing a successful product or performance. (As Amy Lowell continues, from the earlier quotation about the unconscious going on strike, you have to have craft and talent enough to 'putty up the holes' that it has left behind). They need to be both receptive and proactive. They need to be able to think clearly and to dream. They need to be able to be both patient and purposeful. They need to be able to see how things are, and how they could be. They need to be able to play with material, letting it reveal its potentialities, and to mould it to their own will. The creative person, it seems, needs to be capable of being in many minds, sometimes simultaneously, and sometimes moving sequentially between them.

# So Can Creativity Be Learned?

It will be obvious, as I hinted earlier, that people differ in this fluency. We all, I suspect, have preferred or default areas of the space where we feel most comfortable. And we differ in where they are, and in how easy or hard we find it to work in different modes when the task

requires it. Some of us argue too much, attend to detail too much, space out too much, analyse too much or study too much. Indeed, there are quizzes that claim to tell you where your natural mental territory is to be found, and they are fun to do. But the question they often beg is: are these default zones habits, which can be changed, or predetermined personal 'styles', which we have to respect and learn how to work within? Are they a challenge to stretch and exercise the less familiar creative 'muscles', or an invitation simply to learn how to steer a wheel-chair?

As an educator, the purpose of trying to map out the creative process, and clarifying the dimensions along which people's creativity might vary, is for me never merely academic. The point is to be able to ask more precisely: so where is the wriggle room? What aspects of a creative mentality can be changed? What could be taught? And how can people support and stimulate the development of their own creativity? I don't think the ResCen project gives us all the answers to these questions. But it encourages me in the view I have been exploring, and in the belief that we can learn useful things about how creativity can be fostered.

[CHRIS – IF THERE IS ANYTHING IN THE BOOK ABOUT HOW THE RESCEN DISCUSSIONS HAVE CHANGED THE ARTISTS' WORKING PRACTICES OR HABITS OF MIND – PREFERABLY FOR THE BETTER - I'D LIKE TO CONCLUDE BY REFERRING TO IT...]

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#### Note

<sup>1</sup> This three-dimensional model has similarities to those of Hobson (1999) and Carter (2002). An earlier version of my model can be found in Claxton and Lucas (2004).