Imagination:
Exploring cognitive and metacognitive perspectives in relation to visual-arts education

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Abstract

In arts education, imagination is recognised as important, usually seen as a vital ingredient of arts experience, but it is less frequently defined. Grounded in arts-education practice, this thesis is a theoretical journey which prioritises 'imagination' as a focus, exploring it through paradigmatic lenses of: history, psychology and art. From within these perspectives, repeating themes, pertinent to visual-arts education, arise and are cohered towards a pragmatic understanding of imagination which empowers our approach to arts education.

Exploration reveals imagination as our ability to connect mental images towards the production of mental categories and the cohering of concepts, indicating that it is a fundamental aspect of cognition and metacognition. We see the dependent relationships between imagination and psychological development, everyday cognition and metacognition and how their inherent syncretistic processes are modelled in and can be enabled by conditions which are present in the visual arts. These conditions relate to the malleable nature of mental imagery, its necessity in cognition and its physical manifestation as art, to the hypothetical nature of knowledge construction and 'space' given to this and to the use of visual metaphor as a vehicle for imagination. The interpretation or creation of visual art in these conditions nurtures an iterative process of mental transformation, akin to metacognition, which can be personal and also socio-cultural.

The key implication is that by exercising our imaginations through the cognitive and metacognitive activity of art, we can improve our imagination generally. Imagination is fundamental to cognition, so developing imagination will develop better learning. The argument implies a practice-based need for increased understanding of imagination as cognitively fundamental and of *how* visual-arts education is well-placed to nurture this. In turn, this implies a need to address the status and implementation of visual-arts learning within education.

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Chapter 1. Introduction

1.1 Vignette: imagination and its place in arts-based education practice

Imagine an education practitioner who began her career with a Fine Art Degree, became Artist in Residence in a Primary School and then an Artist-educator in school and community settings. This practitioner was me. I went on to work in galleries and museums, using art and artefacts to inspire and support learning. Eventually my experiences and beliefs led to work managing a national programme for developing creativity in schools, in a political context in which this was valued as an essential component in preparing children for the future. I would argue, as would the majority of my colleagues across all of these roles that imagination is at the heart of arts-based learning. Many would go further and say that imagination is at the heart of learning itself and that by association; the arts have a valuable role, since they explicitly exemplify the development and application of imagination.

Throughout my vocational experience, I have heard imagination referred to countless times and in countless contexts as a 'given'. Imagination was a magical, marvellous thing which colleagues talked about with a twinkle in their eyes. When there was discussion about what constitutes creativity, imagination was a key ingredient: 'that's what it's all about in the end isn't it' said the Head of Learning from a large, contemporary art gallery.

In that art gallery, as an educator, I witnessed first-hand how children and young people were inspired or provoked into using their imagination. An exhibition related to the anniversary of Darwin's 'Origin of the Species' containing work by Mark Dion, Marcus Coates, Charles Avery and others, provided a means of instigating philosophical discussion about creationism and evolution (challenging topics by anyone's standards) amongst Year 8 children from two different schools. This might have been a more constrained and less productive process without the art, which provided a softer 'way in', based on hypothesis and supposition rather than fact and objective reasoning. The art seemed to open young people's minds to possibilities in their thinking and to subjective reasoning – a kind of transformation which I witnessed with many of the groups I worked with in response to this show ('A Duck for Mr. Darwin'). In particular, Avery's taxidermy piece, a one-armed snake (literally a snake with an arm), excited curiosity, produced questions and discussion which I facilitated using an adapted form of Philosophy for Children pedagogy, where drawing often replaced talk. Children and young people from year 8 to year 11 were deeply engaged in these experiences,

producing a diverse range of responses, often moral reflections and related to contemporary issues such as climate change and genetic engineering, all of which clearly involved 'stretching' their imagination to make connections between the work being experienced and the issues it suggested. This work took them to the higher orders of Bloom's taxonomy as they analysed, evaluated and created ideas, manifesting them in their own art. As well as stimulus and inspiration, the gallery space and the art itself seemed to offer them 'space' to explore and imagine.

This was quite literally the case with groups of primary school children who came to experience the Yoko Ono exhibition 'Between the Sky and my Head'. The physical experience which navigating the show and its large floor-based pieces offered to young children seemed to be particularly engaging for them, so that one of the ways we evaluated their experiences was to ask them to represent their feelings through movement, in the gallery space. The nature of the artworks, with their emphasis on peace and love, for some adults seemed naïve but for young children supported an enjoyable gallery learning experience and seemed to permeate the atmosphere of the sessions and talk within them. The all-white chess set 'Play it by Trust', 3 mounds of earth labelled 'Country A, B and C', Perspex maze 'Amaze' and army helmets filled with jigsaw pieces depicting pieces of sky were great to explore and think about within a very white and open space. Of course, Yoko Ono invites us to 'Imagine' and indeed the children did, writing wishes to tie to wish trees and working with practising artists to produce their own artwork.   The show seemed to set off their thoughts and ideas and again, provide a sense of freedom for this to happen, taking them out and away from everyday life, so that they could reflect on experience of it. The physical freedom of exploring the space seemed to be conducive to their cognitive freedom.

Another show which involved physical experience and exploration of space was Yoshitomo Nara's 'A-Z Project'. This was a more immersive experience in which children walked through and crawled into fairy-tale-like buildings constructed in the gallery space, surrounded by emotive, expressive, cartoon-like paintings of children. The show made the children think that this was a space for *them*. The exhibition formed a safe, enclosed world, full of interesting nooks and crannies which they could (metaphorically) own and explore.

Both the Nara and the Ono shows opened the children's minds in terms of what it is possible for art to be. In my experience at Baltic, young children always found this much easier to accept than adults, often more fixed in their ways, who would frequently prioritise technical skill, related to a capacity for realism, in the way that they valued art. Children related easily to the contemporary art on show, slipping into imaginative thinking and making with ease and not stopping to question why an artist would be making this kind of work. Yet, with imagination all around us, we did not define or evaluate this fully as part of the children's gallery experience. In explaining the thinking processes at work, describing imagination as a facet of creativity was always enough and definition stopped there. Indeed our concern at that time was with the process of creativity and we embarked on an 'Enquire' project using creative evaluation methods to evaluate creative thinking as part of this. In part, the evaluation process alerted me to the question of defining imagination, with artist practitioners and gallery educators passionately describing it as an outcome of gallery experiences but in different terms and often quite vaguely. That work lies at the root of my current wish to understand imagination because it remained mysterious, without a consensus as to what it is actually constituted by or how it operates.

When I moved on to a new role, managing part of a national programme for creative development, 'Creative Partnerships', the Programme director said 'We need to look for the magic...for the imagination in the projects we support'. In my role monitoring and quality controlling the projects, I went out to look for this magical imagination and often found what I thought to be 'it'. Unlike much of what I was looking for, imagination was never given assessment criteria. It was undefined, even in this context where the main focus was creative thinking. How did I know it was happening? Largely via an empathetic, gut feeling when I talked to children and teachers who were excited, motivated and keen to discuss their work. Afterwards, in discussion with colleagues, I found that they understood. Together, we relished the thought that because they had developed and used imagination, children would be far more engaged, active, flexible learners, with aspirations for their future.

Then things changed. Creative education was removed from the national agenda as a new government came to power, despite a large body of evidence in its favour. The word 'creativity' did not feature in the new government's education white paper (2010). I was made redundant but far worse, children and schools were deprived of the support

for developing creativity that they had been enjoying. For all its imperfections, I had personally witnessed the positive impacts of Creative Partnerships and other creative education projects on learning for children, often in socially and economically deprived contexts. I was incredibly frustrated. It was my belief that through creative learning opportunities, children could develop and apply their imagination in ways that would support their learning more generally and that the arts are well-placed to support imagination. Arts provision for children and young people was taking a serious blow as funding was cut. There was a need to stand up for the arts and imagination but could I stand up for something which I couldn't fully describe? I relished the 'magic' but understood the need for a rationalised perspective. I also wondered 'What is imagination'? Nobody seemed to have comprehensively answered this question in such a way as was appropriate to my practice in arts education.

1.2 The role of this paper

The intention of this thesis is to investigate the place and most effective use of arts-based pedagogy in developing imagination, under the premise that imagination is a beneficial and/or necessary aspect of learning, or indeed, the basis of learning. In order to explore this it is necessary to consider the place and nature of imagination in cognition. We need to know if, how and why imagination is a valuable learning asset and how it is related to the arts in order to argue the value and refine the practice of arts-based learning for supporting imagination. The pursuit of these goals opens up the need to establish exactly what is being considered. To discuss the key concepts of imagination, art and cognition in learning, it is necessary to try and define these terms, or describe my personal understanding in the context of this thesis. Part of the rationale for this thesis lies in the fact that existing definitions are not completely fit for purpose or have not been brought together appropriately or deeply enough in the context of arts-based education practice. As a suggested vehicle for developing imagination, arts-based practice is the end point of the paper. It is useful then to begin by introducing key concepts in order to establish a context for the deeper discussion which will follow and to illuminate my personal stance on which this work is based.

It is possible to rationalise various orderings of a discussion of the concepts of imagination, cognition and art and to get into 'chicken and egg' situations. As this thesis is ultimately concerned with improving practice and practice is the inspirational

starting point, I will begin here by relating art and imagination. This will lead into exploring imagination and cognition, touching on the different *kinds* of imagination implied through these relationships, so as to provide a set of initial categories which we can use in discussion of imagination via a number of lenses in the main body of this work. This sequence follows the development of the ideas which are the basis of this thesis, in the order that they have been experienced through my professional practice, beginning in arts and culture and moving towards education and education research. In the main body of this thesis I will work in a somewhat opposite direction, constructing a picture of the implications for arts-education practice by exploring the underlying functionality of imagination and cognition because my experiences have led me to believe that there is a need to reinforce arts-education practice with this understanding.

1.3 Outline of key concepts

1.3.1 *Art and imagination*

It has been argued that what largely defines art is its indefinability, being impossible to 'pin down' and ever changing in its nature. I agree with Weitz that 'The very expansive, adventurous character of art, its ever-present changes and novel creations, makes it logically impossible to ensure any set of defining principles.' (Weitz, 1956, p.32). This is apparent just by considering what has constituted 'art'. Even if we limit our data to consider just a small number of iconic examples of western, visual art, we can see that 'art' has meant different things at different times. It has been about worship and religion, about representation, social commentary or critique and emotional self-expression, amongst an in-exhaustive list of other things which differ over time and across cultures.

I would argue that what all art has in common is an attempt to come to terms with and consolidate or document a perspective on some aspect of the world we live in. It is relative to the culture which it is part of and expresses our attempts to understand or perhaps to have some mental control over the times and places in which we live. Dewey encourages us to see 'art as experience' (1934, 2005): the art itself is a result of the experiences of the artist and our own viewing and interpretation of the art an experience within which we draw on our own previous, personal experience. Art as experience signifies:

> *'...active and alert commerce with the world; at its height it signifies complete interpenetration of self and the world of objects and events...it affords our sole demonstration of a stability that is not stagnation but is rhythmic and developing.' (Dewey, 2005, p.18).*

We arrive at a consideration of art in which imagination is surely a necessary ingredient for constant interpretation or adaptation in response to the ever-changing world around us, helping us to think beyond our current situation or way of understanding. The beauty of art as a concept is its lack of a fixed state, since without this adaptability and urge for change it would have little purpose beyond aesthetics and decoration.

> *'With "art" its conditions of application can never be exhaustively enumerated since new cases can always be envisaged or created by artists, or even nature, which would call for a decision on someone's part to extend or to close the old or to invent a new concept.' (Weitz, 1956, p.32).*

Invention, change and conceptual ideas are in the nature of art and artists and in my own opinion are what separate art from 'craft' or skill. Even those works of art considered to be most 'representational' are actually*'re'*-presentational – they re-present an aspect of the world, via selected, edited and adorned subject matter. Even if the re-presentation is hyper-realistic, this is a conceptual choice the artist has made in the re-presentation of the subject; it is part of the artist's vision and is automatically socially and culturally reflective. I would argue that this is the case even where an artist is working unconsciously within a 'tradition' – the mode of re-presentation is always a reflection of culture, which is always changing. Fleming describes representation well:

> *'...when we look at Holbein's portrait of Henry the Eighth, the subject himself is of considerable significance but the painting is more than a transparent window to the real Henry the Eighth – it is in some way interpretative...Representation needs to be seen as "re-presenting", as transformational, as a process of meaning making, not as a simple process of making a copy.' (Fleming, 2012, p.25).*

In the context of my own practice at Baltic Centre for Contemporary Art, I experienced what might be described as a conscious and amplified form of re-

presentation in the work of the artist Vik Muniz. Muniz's careful selection of relevant materials (diamonds, ketchup, caviar, chocolate) serves to intensify the representation of iconic personas such as in his portrait of Alice Liddell, the niece of Lewis Carroll.

Figure 1.1 Alice Liddell. Vik Muniz
http://www.elcultural.com/galerias/galeria_de_imagenes/461/ARTE/Vik_Muniz_
mas_alla_de_la_fotografia

Muniz uses plastic toys as the material through which to re-present Alice to his contemporary audience and for me, it is as though we have to hunt through them and through time to find out who she is or was. Perhaps this image goes further than being a re-presentation of 'reality' and towards social commentary in relation to childhood experience, illustrating a further purpose for or mode of art making. Reflecting on my experiences of changing shows at Baltic, it is not difficult to find further modes, themes and emphases, from the dark and emotive film-making of Elizabeth Price, to the fantastical animations of Chiho Aoshima which invite us to consider possible futures, the dead-pan humour of David Shrigley or the aesthetic, environmental transformations of Daniel Burren – all are concerned somehow with presenting a cohered idea and (whether subtly or overtly), with 'meaning making'; a constructive activity which requires imagination, either to cohere cognitive and material elements which constitute the meaning or to develop a 'vision' for the work. It seems impossible to think of such creative invention without imagination, or, speaking very basically '...the cognitive capacity to bring before the mind what (an image) is not present to it' (Heath, 2008, p.117, after Hume), otherwise how could we envisage what has not yet come

into being? We glimpse the broader potential of this if we think about art in relation to identity, society and the wider world:

'In contradicting the established, or the given, art reaches out beyond what is established and leads those who are willing to risk transformations to the shaping of a social vision.' (Greene, 2000, p.30).

1.3.2 *Creative imagination*

It seems fairly 'normal' to see art and imagination as linked – the relationship is generally taken for granted if infrequently described. We often see art as the product or exemplification of imagination. Imagination tends to be linked to art in the form of 'creative imagination' (Khatena 1984) and as the key ingredient for originality. In the field of the arts and of creative and cultural education, this kind of creative originality is what is frequently thought of as largely constituting the cognitive process of imagining and is generally at the root of cognitive perspectives of the arts (e.g.; Efland 2002, Eisner 1981, Greene 2000, Khatena 1984, Robinson 2001). We begin to move towards a cognitive consideration of imagination and the arts. Eisner argues that:

'the arts are cognitive activities, guided by human intelligence, that make unique forms of meaning possible...our imaginative capacities – when coupled with an inclination toward play – allow us to examine and explore the possibilities of this information.' (Eisner, 1981, p.49)

Art is a new 'imagining' from within our culture, representing a change in the thinking of the artist and offering the possibility of sharing this transformation with its audience. I am curious as to whether added potential for such transformation lies in the use of *contemporary* art (art of our time). I concur with Wilson that:

'...contemporary artworks, artefacts from visual culture, and the theories, ideas and ideologies that surround them are of our time and they hold the possibility of informing us, more than art and artefacts of previous eras, about our contemporary lives, they probe and problematize contemporary society, and they raise issues pertaining to our values and our aspirations.' (Wilson, 2003, p.217)

I have seen the way that contemporary art connects to the life-experiences of its audience through its attention to current aspects of living. Additionally, there is an acceptance in contemporary art (theorized by Barthes in the essay 'Death of the Author' 1977) that interpretation is a 2 way process with the audience bringing as much to the art in the form of their own experiences as that which the artist has 'put out there', so to speak. This is an active and liberating relationship in which the audience is often able to find direct connections to their own experience. Contemporary art will be of special interest in considering implications for arts-based pedagogies towards the conclusion of this thesis.

1.3.3 *Kinds of imagination*

Of course there are other ways to see 'imagination' than as 'creative'. Perhaps we can distinguish types of imagination and place them on a sliding scale, with 'imaging' or recall via mental images at one end and 'fantasy' at the other. I introduce this basic scale here but expand the dimensions and discuss the applicability and cross-over of categories in greater detail later, since attempts to represent imagination in cognition are challenging, complex and contentious. For now, this sliding scale will serve as a starting point to frame subsequent discussion and I will return to it as we explore imagination through a series of 'lenses' in chapters 3, 4 and 5.

What is imagination?

Fantastical imagination: creating images which have never existed in real experience. To help us push at boundaries? E.g.; *the horse can talk, fly and be Minister for Education*

Creative imagination: combining and applying imagery with relative originality. E.g.; problem solving, making something new: *a black horse with a white star in the courtyard of your own castle*

Productive imagination: Combining imagery/mental representations from existing experiences. E.g.; connecting, categorising: *a black horse with a white star*

Imaging: bringing to mind what is not present but which exists in experience/has been perceived. E.g.; memory: *a horse*

Figure 1.2 A scale of imagination

One of many ways to define imagination is bringing to mind what is not actually present. Some (Paivio, 1973, Kosslyn et al 2010) but not all, (Pylshlyn, 1973, 1981) would argue that the basic unit of imagination is the 'mental image', the nature and use of which has been the subject of 'the imagery debate' (Tye, 1991). For now, let us accept that imagination consists of various manipulations of mental images. Let us also accept that, in imagining, we are recalling a mental image of something we have experienced through our senses, in order to support our thinking or create new images. Even at this point we are drawn into questioning about how we construct and apply mental imagery, about the sensory nature of mental images or otherwise and about the nature of the images themselves – are they fixed? Are they malleable? Do we *always* use them? We will return to this in chapter 5 but for now, at its most basic, imagination could be said to consist of 'imaging', simply recalling images to support our thinking. This is akin to pulling a document from a file to assist with a piece of work. We may then combine these files towards a purpose, so we will call this 'productive imagination'. We may need or choose to combine or manipulate these images in order to think of something new, or at least new to *us.* Due to this relative originality, we will call this third type 'creative imagination'. A step further might be to enter the world of fantasy, to imagine things never experienced in life and which could not actually exist (but which might be described or depicted) and we will call this 'fantastical imagination'. Perhaps we could exemplify the types of mental images in these 3 steps thus: as a horse (imaging), a black horse with a white star (productive imagination), a horse in the courtyard of a castle we have never seen or visited (creative imagination) and as a unicorn flying above the castle (fantastical imagination).

In our scenario creative imagination is defined by its connection to originality and new thoughts. This is based largely on the premise that creativity is connected to originality and has been defined as 'imaginative processes with outcomes that are original and of value.' (Robinson, 2001, p.118). In order to enter the realms of creativity, a person needs to make new connections among images. 'Creative insights often occur by making unusual connections, seeing analogies between ideas that have not been previously related.' (Robinson, 2001, p.135). These new connections might be new only to the person doing the thinking or may be more generally original, with the same being true of the 'value' of these ideas. There are implications here for ensuring that

each of us is equipped with what Broudy calls an 'allusionary base' (1987, p.23) of images on which to draw and with the abilities or circumstances which enable us to connect them. I suggest the potential of art experiences for enabling the development of these abilities. This will be explored in chapter 5 and in summary of this thesis and its implications for pedagogy.

1.3.4 *Imagination in cognition and metacognition*

While art and artists are generally thought of in connection with our category of creative imagination (see figure 1.5) our exploration of imagination in the context of learning needs to be broader. By taking a wide perspective, incorporating multiple lenses, we can consider the potential impact of visual art across our imaginative capacities, uncovering implications for pedagogy by constructing knowledge of how imagination actually works within our broader thinking and learning. What of the more basic aspects of imagination; of 'imaging' or bringing to mind what is not present? If we start to think of imagination in this way, we begin to wonder about the extent of it in our thinking. We need to consider the 'mechanisms' involved in how we process mental images: what is the nature of a mental image? How great a part do mental images play in our thought? How do they connect? What part do they play in our development? Can we nurture them in order to nurture our thought and if so, how?

Going further, we need to examine the relationship (if any) between imagination and metacognition (e.g. Flavell, 1979, Veenman and Elshout, 1999). Metacognition will be defined for discursive purposes in Chapter 4 but for now, it suffices to describe it as understanding and having strategies for supporting our own learning. It is a particularly poignant area for consideration because evidence suggests that developing metacognition in children is a strong predictor of educational success (Higgins, 2012). What part does imagination play in helping us to learn how to learn? Areas we might seek to explore are the role of imagination in reflection and our ability to 'see ourselves' as learners. What is the link here with 'consciousness', of being able to objectify the world around us so that we can *see* it and act appropriately, in the way that Freire describes: 'human beings emerge from the world, objectify it, and in so doing can understand it and transform it with their labour.' (Freire, 1970, p.106) It is difficult for an arts education practitioner *not* to make a connection with art when we consider this kind of objectification towards a transformation of understanding but

is there also a relationship here between imagination, metacognition and free-thought and if so, can we cohere and express it? Certainly, Hume (Treatise of Human Nature, 1739) argued that we need imagination simply to be able to accept that the world goes on around us when we are not there to see it, deducing that there is no rational reason to assume so. Equipped with the capacity for consciousness, do we need imagination in order to be metacognitively skilful (Veenman et al, 2004), to be able to take self-aware, appropriate action and move forward? Some might say that we move forward by imagining an end-point and that this transformation is imaginative rather than metacognitive. It may be that the relationship between imagination and metacognition is so close that ultimately, we need to ask: 'is metacognition just imagination?' This emphasis might simply dilute the usefulness of considering our learning as metacognition if imagination is ever-present throughout 'ordinary' cognition too? All of this is for further discussion through historical and psychological 'lenses' in Chapters 3 and 4. What is clear is that if the presence of metacognition is a predictor of success in learning, it is valuable to be able to describe its relationship with imagination. By association with metacognition, imagination may be able to share some of the credit for learning with the former attribute. This could raise the status of practice which nurtures imagination in education and of arts-based learning.

1.3.5 *'Magical' imagination*

We might also consider a counter argument; that imagination is not in fact part of our developed, cognitive capacity, but is in fact a natural 'talent'. I will argue that the need to 'prove the worth' of nurturing imagination is in part the result of embedded philosophical traditions originating with Plato, which see imagination generally as the enemy of reason, useful only when instilled with some kind of divine force, emanating directly from the deducible 'truth' or 'essence' of our existence. Such beliefs are in opposition (in part – the relationships are complex) with philosophies such as that of Aristotle, which lean towards a more integrated, constructive and cognitive perspective of imagination, inferring that imaginative behaviour is valuable but also, that it can be learned. While the idea of imagination as a 'gift' from the gods may sound illogical or like magical thinking, this idea is a pervading one, even in the supportive environment of creative and cultural education. From 2008 to 2010 CCE (Creativity Culture and Education) ran a major, state-funded, arts-based programme

designed to support young people to develop and succeed via the arts. This programme was called 'Find Your Talent' (http://www.findyourtalent.org/about).

Imagination is often seen as a 'gift' or a 'talent' which some of have and some of us don't: 'I'm just not creative at all...I have no imagination'. I described, at the start of this chapter, the way that myself and colleagues have talked about imagination as if it were some kind of enchantment, a magical quality at the heart of all that is good in learning.   While I would not seek to destroy the inspiration that this belief provides, I worry that it is a potentially damaging approach in the wrong circumstances and that we are currently in very much the 'wrong circumstances' for imagination and creativity in education, as noted more thoroughly elsewhere (e.g. Adams, 2013, Atkinson, 2011). I seek to argue for a cognitive/sensory approach and hope that making a small contribution towards a greater understanding of imagination in this way might help to increase the status of imagination, rather than diminish it by abolishing more mystical approaches to it. We need to understand how imagination supports our thinking and can be nurtured

> *'For if we think of imagination as a part of our intelligence, universally, then we must be ready to admit that, like the rest of human intelligence, it needs educating' (Warnock, 1976, p.202)*

At the end of the day, this thesis is largely concerned with the question of 'is imagination learnable?'   This will depend on the persuasiveness of a cognitive perspective.

1.4 *Implications for current arts-education*

If this thesis bears out that imagination is an important part of cognition and of learning and that art has a strong role to play in supporting this, there will be implications for policy which are at odds with current agendas. At the outset of writing this thesis we were in a context in which, since the establishment of a coalition government in 2011, we had seen the scrapping of a national, £multi-million programme which funded opportunities for 800,000 children in 2000 schools to engage in creative learning opportunities (for an overview see 'The Costs and Benefits of Creative Partnerships, CCE, 2010). The proposed 'cultural offer' of 5 hours of culture per week for every

child, vanished and now seems long forgotten and very utopian in such a dystopian, neoliberal environment. The HM Treasury spending round of 2013 demonstrated a reduction of 57.6% of the departmental, capital budget for culture, media and sport. This accompanied a 43% cut to Local Authority spending and a reduction of Arts Council funding of more than 35% (source:https://www.culturallearningalliance.org.uk). The cuts have worsened since and 'The total estimated spend in England and Wales on arts services for 2016/17 is projected to fall to £174,687,777: a reduction of £26 million (13%) on 2015/16.' (source: https://www.culturallearningalliance.org.uk)

While

> *'The government believes that cultural education forms an important part of a broad and balanced curriculum, and that children and young people should be provided with an engaging variety of cultural experiences throughout their time at school'*
> (https://www.gov.uk/government/publications/cultural-education)

the reality is that cultural organisations are struggling or disappearing all around us (see:https://www.theguardian.com/culture/2016/jan/13/one-in-five-regional-museums-at-least-part-closed-in-2015-says-report).   The National Society for Education in Art and Design's 2015-16 report provides a comprehensive insight into the state of art and learning, citing government policy which is concerned with addressing standards in English and Mathematics and the accordingly restructured curriculum as responsible for disadvantaging some children and young people in terms of arts education (p.3). Key findings of this report include that 'Learning opportunities in art, craft and design across all key stages have reduced significantly' (p.5), 'National Curriculum tests at key stage 2 have negatively impacted on the time allocated for art and design in primary schools' (p.5) and that 'Independent schools place much greater value on engagement with artworks and creative practitioners than state schools' (p.6) amongst a plethora of further, depressing results. We see in front of us the '…the effects of neoliberal education regimes stuffed to the gunnels with regulated, predetermined outcomes primarily designed for the reproduction of social class, maximizing advantage for the few rather than the many.' (Adams, 2013, p.254). While in full agreement with this, in preference to being overwhelmed by what

is for me an undoubtedly, deliberately oppressive force, I choose to fight it in the small way that I can, by cohering and developing knowledge and producing ideas.

1.5 Summary, response to vignette and justification of this study

The practice-based 'vignette' at the start of this chapter raised the issue that, in arts-education practice, we often praise imagination, seeing it as vital or fundamental to arts-based practices but also asked 'do we actually know what imagination is and how it works?'. I have introduced foundational ideas concerned with the inherently conceptual nature of art as a cognitive experience and considering this emphasis on cognition, have posited possible 'types' of imagination, providing a make-shift 'scale' for these, to enable discussion throughout the main body of this thesis. I have raised the issue of whether metacognition is in fact, just imagination and have questioned a 'magical' notion of imagination in light of the 'nature' not 'nurture' approach to psychological development which this implies. I have tried to 'set the scene' for current visual arts pedagogy through the introductory vignette, along with the description (2.3) of a fairly dire political environment for arts education, which affirms the importance of establishing a coherent perspective on imagination and its cognitive/metacognitive relationship with visual art.

Implicit in my description of arts-education practice which lacks a coherent verbalisation or definition of imagination is that we are unlikely to find a satisfactory answer from within the arts alone, after all, as visual artists, we often like the none-verbal aspects of our subject area, appreciating and becoming adept at using the advantages which this offers. In order to arrive at a thesis which is holistic enough to satisfy us within the arts (I see a fundamental characteristic of art as being its ability to embrace all kinds of thought) as well as credible enough to satisfy more social-scientific mind-sets, so that this work can contribute to knowledge which impacts on education practices, it is necessary to explore imagination from a range of theoretical perspectives. It seems that while there is no shortage of literature concerned with imagination, it is rarely (if ever) brought together in sufficient depth for consideration in regards to current art-education practice and that such a study can make an original contribution to the academic and practice-based fields of arts education.

In order to understand imagination in relation to arts education we need to take a historical perspective, including the origins and development of human imagination which might tell us something fundamental about human imagining as well as the philosophical roots and routes by which our ideas about imagination have come about and permeated our culture, so that we can understand, interrogate, accept or discard embedded ways of thinking. We need to take a psychological perspective, embracing scientific ways of thinking about thinking, in an attempt to pin down, name and describe imaginative processes, backed up with empirical understanding and related to the often tacit and none-verbalised experiences of imagination within art processes. This is not to say that one way of thinking is superior to the other but to suggest that there might be complementary potential in which the whole is greater than the parts. Finally, we will take an arts perspective, specifically, a visual arts perspective, trying to cohere connecting concepts from the historical and psychological perspectives within arts experiences. Ultimately, the emphasis is pragmatic in seeking to serve the needs of education practice and a relatively specific set of practitioners. I accept the impossibility of knowing all there is to know or including all there is to include from each perspective being covered, aiming instead to explore particularly influential theories to arrive at a general thesis from which areas of interest can be expanded on and interrogated in more depth beyond this piece of work.

Such a complex way of looking will benefit from some attention to structure and composition. From this point on, this thesis; a theoretical journey, based in and permeated by practice, will consist of a description of methodological approach followed by 3 chapters providing the perspectives on imagination described above. Each of these 3 chapters will begin with a vignette of practice-based experience, returned to and reflected upon as part of a summary at the chapter end. Within each chapter, the 'scale of imagination', (above), will be used as a consistent means of examining, contrasting and linking ideas about imagination within and across the 3 different fields of knowledge. Given that a key emphasis of this thesis is on visual art and it is concerned (in part) with a relationship between the visual and cognition, Chapters 3, 4, 5 and 6 (summary) will end with a visual summary of that chapter. Chapter 6, a summary and drawing together of the whole thesis which outlines implications for pedagogy, will end with a visual representation which seeks to embody the key findings of the thesis over-all. The nature of these visual representations will be discussed in Chapter 2 as part of my enquiry approach.

Chapter 2. Enquiry Approach

2.1 Vignette: theory in practice

My progression into arts and cultural education was via the route of being an artist educator who joined the learning teams within cultural organisations: a museums and galleries service, a contemporary art gallery, Creative Partnerships. With no formal training as a teacher and as someone planning and delivering learning and CPD programmes, I became frustrated at my lack of theoretical understanding around learning. While training was provided within the organisations I worked for, in terms of theory, it was very minimal, often emphasising practical techniques as opposed to theory. I was uncomfortable with providing learning experiences which seemed instinctively appropriate and produced positive, observable results but which, if pushed, I would not be able to fully explain or justify. I thought that by understanding the theory I could improve the practice. This resulted (with support from both the contemporary art gallery I worked for and from Newcastle University) in my undertaking study for my Doctorate in Education. Not all arts educators are able to do this, especially in the current climate, where funding and support is very limited. In undertaking this thesis my hope was that it would produce results suitable for knowledge exchange with arts and cultural organisations and schools. Having benefited from theoretical knowledge myself, I saw how this could improve practice elsewhere. This provided the challenge of identifying not only a suitable subject for research but also, a way of conducting it.

2.2 Enquiry Approach

This thesis is situated within a constructivist epistemology, originating in the belief that there is no objective, universal truth which can be discerned by humans. As humans we are implicitly restricted in our understanding by the limitations of our inescapable human perspective. While we might be able to identify generalities which *seem* 'true', this does not imply that they *are* true beyond human experience, or that they are true other than within our own perception, rather; it demonstrates that we have a need to impose order. My belief is that knowledge is not objective and found, it is subjective and made by humans through our experiential engagement with the universe, combined with our innate biological capacities. This perspective implies that humans are inherently creative beings who construct understandings in order to come to terms with and adapt to existence. A further implication relates to equality in the ownership of knowledge as a societal asset and the legitimacy of individual knowledge, given that:

'Constructivism…points up the unique experience of each of us. It suggests that each one's way of making sense of the world is as valid and worthy of respect as any other' (Crotty, 1998, p.58).

This is congruent with my belief that intrinsically, we are all learners. This necessitates the provision of opportunities for broad, inclusive, life-long education, so that each of us can make the most useful sense of the world we live in.

In keeping with a constructivist epistemology, this thesis is theoretically positioned within an interpretivist paradigm. 'The interpretivist approach…looks for culturally derived and historically situated interpretations of the social life-world.' (Crotty, 1998, p.67). This study sought to construct explicitly subjective understanding of imagination by interpreting and cohering interpretations of data from across different paradigm perspectives in order to construct concepts. These were related to visual arts education, yielding pedagogical implications for this practice and for education more broadly. Within this interpretive approach rigour was ensured by aligning constructive interpretations with professional practice contexts. This rigour was further reinforced by grounding the research in my own professional practice, so that theory was checked by experience. Through an interpretive approach I aimed to construct new understandings of imagination and its situation in visual arts education which can influence practice, in the belief that 'Practices are changed by the changing ways in which they are understood' (Carr and Kemmis, 1986, p.91).

Aiming to produce a coherent interpretation of imagination which can be used to develop education practice, the methodology applied needed to generate knowledge which is not generally used within the field. A pragmatic approach applied within the enquiry design enabled the construction of interpretations within and across paradigms within a reflective enquiry. For pragmatists like Dewey 'reflective thinking "impels to enquiry" through the search for knowledge beyond immediate, individual experience' (Baumfield, Hall and Wall, 2013, p.3). The researcher behaved much like a 'reflective practitioner' (Schon, 1983) seeking further knowledge, beyond personal experience, in reflection on practice, in order to cohere understanding and empower a moral purpose in regard to inclusive, high quality arts-education.

The incorporation of data from three different fields of knowledge and the pragmatic integration of concepts emerging from these was designed to enable the construction

of a robust concept of imagination. This should make a novel contribution to education practice by being informed by understandings from beyond that practice. Historically, pragmatism has been accused of a lack of criticality through a perception that it is too accommodating and tries to please everyone by incorporating every perspective (see Crotty, 1998, p.62, p.73). This thesis tried to ensure criticality through rich discussion, comparing theoretical assertions to practical experiences and across paradigmatic categories, in order to explicitly reject ideas which lacked integrity. A pragmatic approach allowed for the incorporation of different influences, so that, while not fully adopting a critical, Marxist stance, this enquiry was also influenced by Freire; generally, by his belief in emancipatory education but specifically by his description of constructive learning through problem solving which 'strives for the emergence of consciousness and critical intervention in reality.' (1970, p.62). Through a pragmatic approach this thesis aimed to arrive at an understanding which can be used to challenge the way that imagination and visual art is currently positioned in education.

2.3 Enquiry Design

It is my belief, based on experience as an artist and educator in the arts, that imaginative, visual art activities are largely cognitive and potentially, metacognitive. Working in arts and cultural education, imagination is often referred to but seldom described, with the description of its operation neglected in practice. This thesis sought to explore, cohere and define the concept of imagination in relation to cognition, metacognition and visual art. In so doing, it produced implications for practice in arts education and education generally.

2.3.1 *Research questions*

- What is imagination?
- What is its role in cognition and metacognition?
- How does it relate to visual art?
- What does a cognitive and metacognitive concept of imagination in relation to the visual arts imply for visual arts pedagogies and visual art in education?

2.3.2 *Structure*

This research took the form of a theoretical journey, related to practice, discussing the research questions (2.3.1) in relation to each of 3 paradigmatic perspectives: historical, psychological and artistic. The historical paradigm explored evolutionary and philosophical understandings of imagination in order to establish how we have arrived at a contemporary understanding of it. The psychological paradigm explored imagination as cognition and metacognition and its place in development. In the paradigm of art this thesis explored the relationship between imagination and the visual, discussing how visual arts processes of interpretation and making are related to imagination. As the permitted length of this thesis limited space for discussion, we identified and discussed the most influential theories, accepting that many avenues of thought must be left unexplored for now. The physical structure of this thesis was described in Chapter 1(1.5).

2.3.3 *Rigour, warrant and trustworthiness*

The rigour and warrant of the research lies in its closeness to practice in being conducted by a practitioner in the research area, with continual and structured reference to and reflection on practice, employing some of the techniques of that practice. Rigour, as 'the extent to which a piece of research meets the requirements of its paradigm' (Baumfield et al. 2013, p.26) was ensured by the regular comparison of theories and their implications with practice, with opportunities for this built into the structure of the thesis through practice-based vignettes and sections for reflective summary. Rigour was also be ensured through the production of a set of implications for practice, grounded in detailed description of the emergent concepts they relate to and asserted through personal knowledge and experience of the practices being considered. The use of visual reporting methods and the use of visual methods towards the construction of interpretive concepts (see 2.3.4) provide rigour by using visual and visual artistic approaches which reflect practices in the visual arts education community and in education research. Visual approaches were used to ensure the rigorous consideration and construction of theoretical concepts (Crilly et al. 2006, p.345) and the resulting diagrams and imagery were designed to help to provide warrant for a potential audience which is likely to be visually literate and have visual preferences. The warrant of the research lies in its execution by an arts-education practitioner with many years of experience. Warrant was also ensured by checking

emergent findings against vignettes of practice and by continually relating discussion to practice in general.

Trustworthiness was considered through the criteria of dependability, credibility, transferability and confirmability (Bryman, 2008, p.34). Dependability arose from the production of constructive narrative, a structured approach and the explicit referencing of sources. Credibility was ensured by providing thorough, structured arguments towards the production of conclusions and implications, with these arguments related across paradigms and summarised consistently in relation to paradigmatic perspectives in each chapter, building towards a concluding summary which relates summary to summary in an auditable structure. The use of peer reviewed and classical literature as data further added to credibility. Transferability was enabled through 'thick description' (Cohen et al. 2008, p.137), which generated trustworthiness through the breadth, depth and clarity of discussion. Readers can trace the course of arguments and their source in order to assess whether the arguments apply in their own contexts. The relation of discussion and findings to practice, mean that the research is appropriate for transfer within the contexts of its intended recipients. Confirmability and problems of bias were addressed through an open approach in which the author stated personal opinions and stance as such and was overt about sources.

2.3.4 *Methods*

A qualitative method, analogous with a 'grounded theory' approach (e.g.; Cohen et al. 2008, p.491, Bryman, 2008, p.541), more often applied to the interpretation of participant generated data, was applied inductively to the collection and analysis of data which consisted of theoretical literature. Theory emerged from the identification and cohering of theoretical categories from the data, in conjunction with the interpretive capacity of the researcher. Core, emergent categories were then expressed as narrative discussion. Visual and art-based research methods were used towards the generation and communication of emergent theory. Situated within an interpretivist epistemology, the method originated in a stance which disputes '…any inference that theory pre-exists the process of analysis and needs only to be excised from its "ground"', rather, the method applied sought 'to develop, build, imagine and create the stories that constitute "working theories"' (Frankham et al. 2013, p.97).

2.3.5 *Data collection*

Literature, related to paradigmatic perspectives of imagination, constituted data for this desk-based research. Literature was sourced via Newcastle University Library's and Durham University Library's online search facilities, providing access to a comprehensive range of bibliographical databases spanning the paradigmatic range of this study. Care was taken to ensure that literature included had been peer reviewed (excepting historical references) and considered contextually in terms of historical, paradigmatic, social, cultural and political relevance. Where used, electronic resources were checked for recent activity and updates to ensure their relevance. Publications produced in the last 30 years were generally selected as providing up to date knowledge in this relatively slow-moving research area. As the research topic was deliberately broad, with little specifically related coverage available and with the research intention being to incorporate data from different paradigms, each with a unique context for what constitutes relevant literature, it was also necessary to include older and very old literature, especially in relation to historical and philosophical perspectives. Data includes classical texts and 'classic' or influential commentaries on key areas of the thesis. Theoretically influential commentaries were identified through the data, drawn from repeated references in peer reviewed publications which qualified the significance and legitimacy of 'key' literature.

In selecting literature in association with the paradigmatic chapters of the thesis, the following questions were asked: what is known about this area? What concepts and theories are relevant to this area? Are there any significant controversies? Are there any inconsistencies in findings related to this area? Are there any unanswered questions, relating to the research questions in this thesis, in this area? (after Bryman, 2008, p.81)

Theoretical sampling (Cohen et al. 2008, p.492) enabled data to be collected on an iterative basis, with one piece of reading informing the selection of another, in order to saturate emergent categories towards the robust development of core theories, grounded in the data but interpreted and developed by the researcher. The 'process of data collection is controlled by the emerging theory' (Glaser and Strauss in Cohen et al., 2008, p.492). Initial searches were based on paradigmatic areas identified as relevant to this thesis. New avenues of exploration emerged from these initial searches in an organic approach to identifying relevant data. This iterative searching was

bounded by the condition that data is relative to the paradigmatic areas identified and related to the research questions.

2.3.6 *Data analysis*

Data was inductively coded towards the 'systematic generation of theory from data' (Glaser, 1996 in Cohen et al. 2008, p.491) in a 'comprehensive, creative and recursive' (Frankham et al. 2013, p.97) process of theory-building, in which the data 'pattern themselves' (Cohen et al. 2008, p.491) through the interpretive approach of the researcher. Practically speaking, data (scripts) were read, then chunks of categorised text were lifted into word documents in order for the researcher to 'recursively visit and zigzag between ideas, concepts and bridges that help us to see things in new ways.' (Frankham et al. 2013, p.97). Processes similar to but more organic and recursive than Open, Axial and Selective Coding were applied (Cohen et al. 2008, p.493). A version of 'Open coding' (Cohen et al. 2008, p.493) was applied to selected areas of text which were then cut and pasted together into categories. A process close to 'Axial coding' (Ibid) was used to relate text to text within a category and from category to category. A 'selective coding' (Ibid) process was almost automatic as core categories became obvious and went on to form the backbone of narrative lines of discussion, supported by related categories and sub-categories which had been identified. Across the course of the research, constant comparison (Ibid) was used to compare emerging categories of data with established categories. Theoretical modifications were made in response to the emergence of new categories, the increased or diminished significance of existing categories and newly implied relationships between categories as a result of these. The comparison of data and emergent categories across three paradigms within this grounded theory approach resulted in conceptual triangulation. This helped to ensure the emergence of a cohesive theory through a rigorous and systematic process of analysis, interpreted through and reinforced by explicit reference to practitioner experience and stance, which gains strength and warrant from its foundations in a range of temporal, cultural and paradigmatic perspectives.

The coding process, particularly at the axial and selective stages and in its transformation into narrative, was supported by visual and art-based research methods. ''Visual research methods' are methods which use visual materials of some kind as part of the process of generating evidence in order to explore research

questions' (Rose, 2014, p.3). In this research, visual methods were employed by the researcher to support concept generation. Maps, scribbles, drawings and paintings were used as a visual means of relating and cohering coded data into theoretical models, with the visual process enabling the verbal (Figure 2.1). This might be described as 'graphic ideation' or 'visually talking to oneself' (Crilly et al. 2006, p.344). This process enabled 'complex, intangible and non-linear concepts' (McKim, 1980, p.124) to be considered more rigorously.

The personal application of graphic ideation, as opposed to using it to elicit responses from participants, goes *some* way towards what might be classified as arts-based research, which can 'address issues inaccessible to verbal analysis' (McNiff, 2013, p.xiii). Importantly for the researcher of this thesis, McNiff describes the way that artists involved with adapting their knowledge to professional practice…

> *'…often question the gap that exists between artistic knowing…and current academic definitions of research. They ask, why not use my art as research since this is what brought me to this work in the first place?'* (Ibid).

Based in the social sciences as opposed to the arts and working within the parameters of what is permitted for submission within this thesis, the visual research methods employed are pragmatic, lying somewhere between visual methods in education and a restrained version of art-based methods as they are applied in data analysis. The intention is that this pragmatic combination reflects the approaches of the educational stakeholders of the thesis (in art, art education and education) so that it has integrity and warrant in the context of those practices

Figure 2.1 Examples of visual methods used in coding

2.3.7 *Generation and presentation of theory*

An analytical process involving graphic ideation was intended to lead to the thorough construction of theories suggested by the data. Graphic ideation allowed for the re-examination of problems which arose in the generation of theory 'Thus, the inconsistencies and imprecision of early ideas are revealed because your inability to prepare a "meaningful diagram is the result of gaps in your original thought process"' (Enrick in Crilly et al., 2006, p.345). Graphic ideation interlaced with verbal discussion led to the construction of visual and textual communication of the emergent theory as graphic communication and written narrative. Graphic communication, such as diagrams, can clarify concepts and support the process of 'visually talking to others' (McKim, 1980, p.123). This thesis used diagrams to complement narrative description where they made it easier to understand, aiming to satisfactorily define the narrative theory. By 'diagram' what is meant is '…a visual representation that shares the properties of written text and representational images, but cannot be reduced to either' (Blackwell, 2001, Ch.1). In using diagrams, the aim was to exploit the special potential of the visual in supporting understanding, in line with the conceptual content of the enquiry. Diagrams (see appendix A, p.243) had a specific function in this:

> *'Unlike other visual artefacts, diagrams may depict subject matter ranging from the conceptual to the physical by adopting various degrees of graphic abstraction. This affords an overview of the topic that is unavailable by other means and elicits unique contributions accordingly.' (Crilly et al. 2006, p.342).*

As well as diagrams, a drawing was included at the end of each chapter as a 'Visual re-presentation'. This was not intended to function in the same way as a diagram by providing and clarifying information. Instead, these drawings shifted towards becoming artistic imagery, employing metaphor and a selective use of text to provide an image which is more evocative than informative. The intention was to leave 'space'; for the viewer to add their own interpretations to the subject area, guided by the image and the narrative text which it relates to, in order to provoke the construction of new, personal meanings. This is in keeping with the conceptual focus on imagination within this thesis (the method grew as theory emerged from the data so that the research helped to feed aspects of the method).

2.3.8 *Ethical approach*

This thesis is inherently ethical in its intention to produce theory which can be used to improve practice and educational opportunity. The thesis is intended to have a wider ethical responsibility, with researchers having 'responsibility to those not participating in the research process.' (Gorard & Cook, 2007, p.315). In discussion of practice settings, care was taken to anonymise individuals, groups and schools. Artists and images were credited and referenced where art images are used. In having established routes to trustworthiness, the method of enquiry which was applied is ethical in reaching rigorous conclusions which can be applied to practice with confidence that they serve the best interests of individual learners.

2.4 Reflection on vignette

Infused with the ethical approach and methods described above, this thesis provides a source for use in sharing and infusing theoretical insights in arts education practice.

Chapter 3. Imagination: a historical perspective

3.1 Vignette: teaching art, craft and design with primary PGCE students

In my HE teaching practice I work with primary and secondary art, craft and design PGCE students as well as other education professionals. We discuss concepts associated with the current national curriculum for art such as 'Great Art and Artists', as well as looking at the history of art in education. I find that asking students what is 'Great' art, yields a comparable response to asking them 'what is imagination?' There is a sense that they know what the 'standard' answer is or what is implied by the questions but are often reluctant to provide answers because they know that really, it is not so simple. Their unease is increased as we attempt to arrive at agreed definitions of the terms, instead coming to the conclusion that while there may be some degree of coherence and consensus, the answers are somewhat subjective and tend to disintegrate when interrogated from another angle. What is disconcerting is the limit of the extent to which these issues have been previously exposed; particularly in light of the extremely limited amounts of time which some of these teachers are allocated in terms of their preparation to teach art. The primary teachers I work with are allocated only 2 days for this. Most of them have had no previous experience with art and instantly tell me that they are 'not artistic', 'not creative' and have 'no imagination'. This results in a severe lack of confidence in teaching art. Curriculum guidance is minimal to say the least when compared to guidance for literacy and numeracy. The danger is that these teachers don't feel equipped to teach art when they begin their practice and that therefore, children aren't taught art well or indeed much at all. If the premise of this thesis is correct, the implication is that they will miss out on critical experiences which support the development of their imagination.

Some might say that the government's terminology of 'Great Art and Artists' is helpful in narrowing the definition of art so that the subject is made teachable. I would say that this is tantamount to not actually representing the subject at all and is a danger to free thought, threatening the development of innovative, resilient individuals who are equipped for life in a challenging and uncertain world. The implied parameters restrict thinking about art to a very narrow cannon which is likely to rule out art and artists not yet fully 'established', instead focussing on old, accepted ideas which are likely to be consumed rather than questioned. A passive reception of accepted concepts is implied. In not yet being fully subsumed into art history, contemporary art and artists (and here I mean this to include anyone who wishes to be considered as such as opposed to only those accepted by the 'art world') may be the ones who are pushing

the boundaries of our thought and culture and enabling us to develop more thoughtful and relevant approaches to life. Such a prescriptive approach of 'Great' art seems detrimental to the teaching of both art and, through this, imagination.

Issues arising in discussion with students around imagination often centre around the notion of imagination and creativity as innate, as a 'gift' or as 'talent'. This is not generally negatively expressed or looked down on but rather, is held up as 'special' and is admired. Embedded within this is also the implication that it did not have to be worked for but is in fact a 'blessing'. I use this semi-religious language deliberately because the concept of imagination which many students posit is one of it being 'God-given' or at least somehow innate (they might not necessarily believe in god). It is only when I ask whether being great at physics or maths is a 'gift' or is learned that many students perceive the difference they attach to art and imagination as subject areas which depend on innate abilities. Through discussion, they usually concede that it is possible to learn in all subject areas and that genetic factors are in play across the board. Hopefully, this helps them to see that art and imagination must be supported and nurtured too.

Art, and imagination through art are challenging subjects to teach in that there are a lack of 'right answers', a lot of subjectivity involved and perhaps it is in the nature of art that, as soon as it becomes defined or classified, it is time for it to move on (that is, if we see art as being concerned with ideas as well as with practical skill, a further issue arising through my teaching practice and compounded by current curricular approaches). The interwoven nature of art and imagination with general culture and context poses many problems for us in coming to understand it and the understanding lies to a large degree in understanding this difficulty; however, this is almost impossible to comprehend if you have little personal experience of arts and culture. This is something I must contend with in my teaching practice. What is the way forward?

Rather than upholding a restrictive, prescriptive and none-representational perspective of art and imagination which acts to restrict the imagination, perhaps it is better to take an approach more akin to 'grounded theory' and to seek out recurring themes? The point is that it is necessary to interrogate our concepts of imagination (which I relate here to questions concerning art teaching practices but perhaps this perspective should be inverted so that we see approaches to imagination underpinning approaches

to art) in order to teach art and imagination in any meaningful way.   Prior to my own art education which has included art school, art practice and many years of gallery visits, my naïve, vague and unarticulated understanding was that historically, human ability to make art was somehow sequentially progressive and proceeded in a straight line from basic, to good, to great, in a succession of ever-improving art 'movements'. This is still the way that student teachers with no experience seem to conceive of it, (though many would say that the 'progression' stops with modernism and the rejection of mimetic representation) particularly because they relate art to technical skill and presume that if someone does not paint or sculpt in a realistic style, transforming formless matter magically into recognisable objects, it is because they can't, rather than because of a sophisticated, conceptual, decision making process. It is easy to demonstrate this mistake using Picasso as an example, showing the realistic works he made as a teenager, contrasting this with his abstract work and discussing the reasons why he moved away from earlier, classical approaches. We can then move on to looking at contemporary art through gallery experiences at Baltic, where students have been able to directly experience work by the likes of Jim Shaw and Susan Phillipsz, whose work enables us to think more deeply about artistic processes and the deliberate choices which artists make to convey meaning.

It is equally or more important to reveal the lack of successive progression in approaches we have taken historically to imagination itself and how these materialise in contemporary culture, attitudes and are reflected in/generated by art itself. If art and imagination are as closely linked as we often assume, it is probably safe to say that we may make inaccurate assumptions about imagination as well as art and perhaps for similar, socio-cultural and historic reasons. There is no simple picture; our idea of imagination is subjective, often dualistic and laden with cultural, philosophical influences. If we know what these are, then perhaps we can develop informed opinions about imagination and art. In terms of my own teaching and research practice, I need to know the background in regard to our conceptualisation of imagination so that I can at least outline the complexity of the topic and highlight some major themes. I would like to be able to challenge our sometimes superficial concepts of imagination in the way that I am able to challenge our superficial concepts of art. I am led towards an age-old idea: we need to know where we came from to know where we could and should be going. What is there to know about how our understandings of imagination have developed, what are the implications and how can they be addressed?

3.2 Rationale for a historical exploration

A historical overview is needed in order to understand the foundations for our understanding of and approach to imagination. It would be impossible and irrelevant to cover every aspect of this fully – the literature is extensive and generally focuses on specific, contextual approaches to imagination, rather than seeking to interrogate ideological conceptions through time in a way which ultimately relates to visual art education. We need to focus on the underlying concepts which persist in influencing our approach to imagination in learning. For this reason I will examine the history of imagination and of our understanding of it, through 2 different and compacted lenses: 'evolutionary and archaeological', covering the origins of our capacity to imagine and secondly, 'philosophical and psychological', covering the development of our understanding of our imagination (which has led to being able to hypothesise the first 'lens'). I will take a chronological approach to this exploration and then pull the strands together in order to begin to consider implications for contemporary understandings of imagination and the implications for visual arts education practice.

3.3 Evolutionary and archaeological concepts

3.3.1 *Transcendence*

A base concept which emerges from varying perspectives in the literature of imagination and which will emerge through this paper is that of self-transcendence; of being able to metaphorically 'leave' ourselves and our surroundings in order to take a different perspective. Perhaps this idea of moving beyond ourselves is the crux of what we think of as imagination, with a basic permutation of this being the 'ability to recall what is not actually present' (after Hume, Treatise of Human Nature) and a more extreme permutation being the generation of fantasy? In relatively recent times, Kant has discussed 'transcendental imagination' in depth (covered later in this thesis) but how did our ability to transcend our 'real' selves and situational circumstances originate? Was this advantageous in evolutionary terms or 'no more than an evolutionary spandrel' (Mithen, 2001, p.29)?

Most of us have the ability to imagine to a varying degree according to anatomical, genetic and experiential influences. Some of us appear to have greater capacity than others to take imagination to its limits, to go beyond the reconfiguration of everyday experience and to configure something new or something fantastical. Some would

argue that it is this ability or habit which is central to our experience as humans: '...the central problem of human consciousness depends on this ability to imagine.' (Bronowski, 1978, p.18). While acknowledging, as did Darwin, that many other animals possess imagination to some degree, 'we cannot doubt that all living members of our species have a capacity for imagination, and hence this is part of our genetic makeup.' (Mithen, 2001, p.28). In fact, Mithen, taking an evolutionary psychological approach, goes on to associate imagination as we might think of it only with our closest ancestors and present only in Homo Sapiens, suggesting its rarity and specialness. While the exact course of the development of our imagination remains unclear, (involving complex factors such as the development of modern human anatomy, neural mutation, social, environmental or demographic developments) we know that our capacity for making art occurred around 50,000 years ago and that by 30,000 years ago, 'modern humans were engaging in thoughts and behaviour of a radically different kind from that of Neanderthals and Early Humans.' (Mithen, 2001, p.48). Why do most of us have this ability for imagination? How and why did it evolve? Understanding this might help to provide a foundation for consideration of imagination in our learning.

Mithen (2001) and others (Bronowski, 1978, Donald 1991, Montell, 2002) discuss the advantages of imagination in terms of its pragmatic necessity in collaborative, social behaviour and in the initial absence of spoken language. Montell provides a compelling argument for developing imagination in order to withstand consciousness and fear of death.

> *'The essential difference between human brains and those of other animals, the difference which I believe led to other differences, lies in imagination: an adaptation which enabled humans to wrestle with the one set of problems which no other animal has had: a problem originating with human awareness of self, and then, some shrouded awareness of impending death of self...' (Montell, 2002, p.17).*

All of these arguments suggest that the evolution of imagination has played an essential role in our 'success' as a species and all of them acknowledge that imagination both produced and developed because of the appearance of human self-awareness. At some point we evolved the ability to look at ourselves and our world from outside the confines of immediate experience.

It is generally accepted by evolutionary psychologists and archaeologists that human brains evolved and enlarged at a prodigious rate about 1 million years ago (Bronowski, 1978, p.23, Mithen, 2001, p.48). Brain modifications included an increase in visual ability, greater density of brain cells, an increase in temporal lobe (associated with visual memory, integration and speech), and an increase in the frontal lobes (associated with the ability to initiate a task, be attentive, get it done). (Bronowski, 1978, p.23-25). At some point this development enabled self-awareness and the generation of self-concepts or theory of mind, using internally generated images (imagination in the basic form of bringing to mind what is not actually present) to coordinate action and provide flexible responses to unpredictable but critical events in our lives. This growth of self-awareness most likely began with Homo Erectus, with imagination as we know it evolving with Homo Sapiens (though new evidence emerges all of the time, with views of the imaginative capacity of Neanderthals being debated), as reflected in and analysed through archaeological finds:

> *'...there came a stage when big-brained, curious hominids, having practical tools but lacking those associated with mind, took an evolutionary pathway leading to human self-awareness and awareness of "other"... This perception of one's individual existence in space and time as separate and in potential opposition to other human existence and the rest of nature would become a driving force in the evolution of the human animal.' (Montell, 2002, p.8)*

Taking this evolutionary pathway may have led to language development since, according to Mithen '...having a theory of mind is probably essential to social complexity and most probably a pre-requisite for the evolution of language.' (2001, p.34). Self-awareness and imagination developed before we developed the ability for communication via speech and were dependent on the ability to manipulate mental images to represent aspects of our experience. It is difficult to imagine how we could develop verbal language would without the capacity to symbolise experience using mental imagery of some kind, which would surely need to emanate from sense impressions.

Our survival needs were to 'provide flexible responses to the unpredictable behaviour of food, friend, and foe' (Fraser, 1988, p.489). To do this we needed to be able to manipulate mental images of what was not immediately before us, to try out scenarios and make plans, visiting the past and the future in order to make our choices. The

rootedness of sensed experience as a basis for transcendence and for our creation of different 'realities' is discussed in Montell's theory of the development of self-awareness. We:

> '…willfully embellish sensed information, to perceive that which is not sensed, to deny that which is, to fantasize, to hallucinate, or to imagine things that have never existed and things that many never exist...for others [animals], these abilities would be impediments to survival.' (Montell, 2002, p.10)

So the question is, why would we do this and how is that these abilities are advantageous to us?

3.3.2 *Externalised imagination as art and culture*

Montell attributes our ability to distort reality and the evolutionary advantage of this to our need to cope with being conscious and fearful of death. In this scenario, having brought us self-awareness, imagination goes on to support us with the implications of this, acting as a survival mechanism.

> 'Individuals encumbered with fears for which precautions could not be taken would be less successful...an individual with such apprehension would be more hesitant in hunting big game, and less willing to take the necessary risks...Via stored images and symbolic expression of thought, apprehension of death could be ameliorated' (Montell, 2002, p.15)

If we accept this argument, it propels us towards an understanding of the development of early magical or religious artefacts and towards the production of art as part of that. We might now begin to contextualise art as a significant part of our evolution and a necessity for the survival of our species. Montell's argument seems fairly speculative, based on a rationalised interpretation of the available archaeological evidence which is (scientifically speaking) scant in comparison to that in other fields. Even if we might doubt the substantiality of the archaeological evidence base for Montell's suggestion, or indeed the 'rigour' of archaeological approaches from the perspective of the field of social science, we can probably accept that imagination is a means by which many modern humans cope with anxiety over death, the awesomeness of existence and our tiny place within the universe. Even the most seemingly simple and oldest found

examples of cave art, hand stencils in caves in Indonesia, could be interpreted in this way, in that they create a permanence of existence in the face of inevitable death.

Figure 3.1 Hand stencil: Indonesia, approx. 37,000BC
http://www.livescience.com/48199-worlds-oldest-cave-art-photos.html

While Montell's discussion makes sense to me personally and I accept that anxiety about the unknown workings of the universe might help account at least in some part for the emergence of art as a means of forming and depositing our ideas, I also accept that it leaves much room for doubt and alternate explanations. Mithen's theory, while still reliant on the interpretation of ancient and relatively scarce evidence, is convincing in that it is perhaps easy to relate to in a practical sense as human beings descended from those he describes. Mithen enables us to consider the usefulness of the act of making art in his discussion of our evolved ability to create fantasy. This pragmatic rationale for evolving imagination is largely associated with the need for understanding of and communication with others in the absence of spoken language. We needed a way to be able to consider what other people might be thinking, for example; in using tool production techniques: 'imagination of what an observed tool-maker was trying to achieve with each blow seems essential.' (Mithen, 2001, p.39). In order to collaborate in hunting or in colonisation we would need to envisage what others were thinking. Initially we may have used mime to communicate in collaborative activities like hunting before eventually progressing to more symbolic 'mythic' and then 'theoretic' culture (Donald, 1991) but even with mime, we needed to be able to hold images in our minds of how tools were made or of what other people would be likely to be doing as part of a collaborative activity. Without words, imagination (here, the recall and manipulation

of mental images) would have needed to work harder, contributing to the development of increasingly flexible thought. An implication of this *could* be that a prominent use of images in learning might nurture more flexible thinking within individual development and we will explore this further in Chapter 5.

So, in practical, collaborative situations, 'enhanced powers of imagination, especially with regard to future scenarios of behaviour, may have been at a particular selective advantage.' (Mithen, 2001, p.41). But why would fantasy be an advantage when it seems at odds with the natural laws with which we are 'pre-programmed', (for example, we are born with an innate acceptance of the law of gravity). This is '... quite logical; because such "rules" are inflexible, it makes little sense to spend time learning them, and doing so would risk fatal injury' (2001, p.30). Why can we break the rules and why do we often actually enjoy this activity?

> *'...ideas about monsters and supernatural beings have no natural home within the mind. The "trick" that humans learned was to create another home for such ideas – one in the physical world, in the form of a carving or a painting. Such images then acted as a cognitive anchor for the concept so that, within the presence of the image, the idea can be recalled, manipulated and shared.' (Mithen, 2001, p.49-50)*

We arrive at the idea that imagination enabled us to create an externalised home for ideas in the form of art and that this supported (and supports) our emotional and practical survival. Donald describes this ability as a key innovation in our development and as a 'hardware change in human cognitive structure.' (1991, p.17). In that his discussion focuses on our evolutionary need to counteract awareness of death, Montell provides a convincing, emotive reason for evolving imaginative fantasy while Mithen and Donald provide insight into the cognitive process of this. Our minds are set up to deal with natural laws, fantasy evolves as a by-product of cognitive flexibility which is somehow enabled as 'domain specific mentality' (Mithen, 2001, p.42) is over-ridden. While we can only speculate as to the reason that these 'adaptively essential' ways of thinking could be over-ridden, Mithen suspects that the

> *'…answer lies with the use of external supports to human thinking – the objects of art, the paintings, the rituals created after 50,000 years ago are not only products of a new way of thinking but also their source.' (2001, p.49)*

The externalised representations of our thinking play an essential role in formulating, manipulating and sharing our thoughts, also allowing us to over-ride existing categories. A useful metaphor for this process is that of providing a computer with a link to a network:

> *'The limitations of an individual computer become an increasingly secondary factor as the knowledge of the network develops...the properties of the network may be more important for understanding what the machine can do than the properties of the machine itself. In a similar way, the structuring effects of culture and technology on the individual human mind need to be taken into account.' (Donald, 1991, p.17)*

Herein lies the evolutionary advantage of 'external storage'. 'In a true network the resources of the system are shared, and the system functions as a unit larger than any of its individual components.' (Donald, 1991, p.310). I wonder if those of us fascinated by fantastical creations and with a delight in playing with or breaking natural laws or ordered systems in the act of making a piece of art, are ancestors of those humans for whom fantastical imagination was of a particular advantage due to the environments they lived in and the challenges they faced? A need to react to change occurs to me as a prime catalytic candidate in this scenario.

3.3.3 *Advantages of art and culture as externalised imagination*

Externalisation then, is key to developing imaginative thought, as is an external source of images, artefacts or symbolic representations from which to formulate, manipulate and share. Evolution produces culture and then culture produces evolution.

Figure 3.2 Evolution and culture: an iterative process

Having been a practising artist, I can relate to the need to externalise concepts and with the formation of concepts as connected intrinsically with external or sensed experience. This resonates deeply with Dewey's 'Art as Experience' (1934), which shall be brought into this discussion in Chapter 5 in order to consider more specifically the pedagogic implications of what seems like a deeply embedded aspect of our imaginative thought . This view of art enforces its potential as a catalyst in our learning, (which of course can be seen as small-scale, individual evolution). Art considered as an 'extension of mind' (Mithen, 2001, p.47) could provide exciting potential within pedagogy, particularly if we are able to understand the mental processes it unleashes. Donald describes how we use externalised symbolic storage as 'working memory', selecting and organizing

'...items according to some objective' and using 'the power of both the oral-narrative system and the visual symbolic systems to examine, process, rearrange, and invent...the thinker may be able to continue the thinking process to a degree without the ESS [external symbolic storage] being immediately present, but it is the external reference point to which the thinker must return.' (Donald, 1991, p.330)

An art gallery might offer a transactional space and symbolic repertoire for our thinking which Donald would describe as an 'external working memory field.' (ibid). Returning

to descriptions of work at Baltic Centre for Contemporary Art (1.1) it is easily possible to see the one armed snake and other works of art in the exhibition 'A Duck for Mr. Darwin' as providing such a transactional space and symbolic repertoire, curated in such a way as to enable us to consider fundamental aspects of our existence. In the past, our initial use of symbolic representation was often focused on considering our place in time and space. Once again, visual thinking is stressed:

> *'The human mind began to reflect upon the contents of its own representations, to modify and refine them. The shift was away from the immediate, pragmatic problem solving and reasoning, toward the application of these skills to the permanent symbolic representations contained in external memory sources...The earliest move in this direction was apparently in the form of visual thinking, especially evident in the construction of analog models of time and space.' (Donald, 1991, p.335).*

Perhaps Stonehenge is an obvious example of this use of imaginative, transcendent, externalised thought. Stonehenge 'allowed the storage and analysis, in an external device, of complex information.' (Donald, 1991, p.338). If we consider the symbolic nature and purpose of Stonehenge and compare it to those of an art gallery, of course there are differences but the similarities leave us with spaces in which we can 'leave' our immediate surroundings and think about the world in a different way. They are products of and fuel for our imagination.

3.3.4 *Summary and implications for pedagogy*

To condense and summarise; triggered by transcendent self-awareness which enabled us to think about our existence in the universe, we used mental images to find practical solutions to enable collaboration, emotional stability and survival. Mental images were the 'tools' which allowed us to manipulate, connect and juxtapose areas of thinking which were previously domain-specific. In order to innovate, we may have needed to push our thought further, possibly involving the breaking or denial of evolutionary, 'fixed- in' rules. At the very least this rule-breaking and stretching of our imaginations might have enabled us to think of possibilities beyond our normal realm of experience. Because these thoughts did not 'fit' with our innate, natural sense of order, it helped our individual and social thinking to place them outside of ourselves. By externalising our most radical thoughts in the form of art or artefacts, we enabled the further manipulation of ideas, generated social imagination and increased the

evolutionary success of the species. The necessity to externalize because of the lack of 'fit' fed the further generation of fantasy which may have been responsible for our success as a species in that it provided us with a broader, shared range of thought and the cognitive flexibility for extreme situations of survival and adaptation. This 'extra space' was a place to deal with our fears and combat the awesomeness of the greater universe. Some think that this is why it evolved.

Imagination enabled transcendence through its basic 'building block' permutation of image recall, it then enabled collaboration through the necessity to externalize its products and in turn this increased our capacity for imagination as a species. In a sense, imagination and creativity are powered by fear of not surviving or perhaps of being insignificant parts of a giant universe. No wonder it is said that we are creative when we are ill at ease, that we have a tradition of fairy tales and that there is such a market for Horror. We will discuss related ideas of tension and disequilibrium in chapters 4 and 5 from the perspectives of developmental psychology and artistic creativity.

The pedagogic implications already begin to emerge as the need to provide a space for or means of expression of imagined thought – art is clearly a strong candidate and historic vehicle for this. Perhaps we need to provide an environment which includes an element of pressure (as opposed to fear!) but which enables us to 'rise above' and contemplate ourselves and our world – an art gallery springs to mind as a kind of microcosm in which other humans have expressed their imagined thoughts as images which we are now free to manipulate, internalise and conceptualise. The gallery acts as a mini version of evolution as described by Mithen, in which the art on display generates the further evolution of imagination and of concepts, all of which is advantageous to us as humans because it enables our survival through flexible thought and creative adaptation. If the gallery is a contemporary art gallery, where the art expresses concepts associated with our everyday, current lives, perhaps this is an added advantage in that it will support us in manipulating concepts which have immediate relevance to our current 'survival' and help us to come to terms with the 'awesome' situations we face. They help us to exercise our ability for analogy and metaphor, which our none- art-making Neanderthal cousins did not have but which are perhaps 'the key to the modern mind and especially the modern imagination.' (Mithen, 2001, p.46).

3.4 *Philosophical and psychological concepts*

In considering the philosophical and psychological development of our understanding of imagination, I do not attempt to comprehensively map these developments, which would far exceed the boundaries of this thesis. Rather, I seek to locate and discuss key ideas which I see as having led directly to our understanding of and attitude to imagination in the context of current education practice. As outlined in chapter 1, in contemporary practice I perceive a split between the concept of imagination as related to 'giftedness' or 'talent', often related to art and creativity in a restricted sense, as opposed to imagination as a fundamental cognitive function, which permeates much, if not all of our thinking in relation to any subject matter. The following discussion seeks the root and composition of these branches of thought, conceptualising them as theories which repress or support the value of imagination and visual art in our broader cognition.

3.4.1 *Repressed Imagination: Plato's suspicion of imagery*

Plato lies at the root of a view of imagination which requires its relegation and suppression in our broader thought. Plato uses the terms 'imagination', 'images' and 'phantasies' (most frequently in the *Republic* and the *Sophist*). It can be difficult to interpret what exactly he is describing, since, for Plato, the material world is in itself just an image or shadow of a divine truth which we must seek out. His use of 'imagination' and related terms is perhaps far less restrictive than our contemporary applications to our mental capacity. It is hard to know when he is discussing mental images or images and 'phantasies' as aspects of the material world. Interpretations of Plato and resulting criticisms don't really take us towards a definite resolution of this (see Harp's 1937 critique of Bundy's 1922 discussion of The Imagination in Plato) but for our purposes, what is important is Plato's positioning of the imaginative in terms of reaching his divine truth. This puts imagination in a dangerous position in terms of its cognitive value.

The material world is an image of the 'truth' or of the world of essences or universal ideas. Our senses enable us to experience 'shadows on the wall of the cave', created as other people sharing our cave manipulate puppets in firelight and these become our reality. We must step outside in order to understand the limitations of our perspective

and perceive divine or essential truths about the universe, as revealed ion the sunlight outside (the allegory of the cave, in *Republic*, VII).

> *'From the beginning people like this have never managed, whether on their own or with the help by others, to see anything besides the shadows that are [continually] projected on the wall opposite them by the glow of the fire' (Plato, Republic, VII).*

Presumably Plato must have reasoned that the metaphor which he created to demonstrate his theory is an uncovering of a divine truth, as opposed to mere 'imitation', dependent on the flickering shadows on the cave wall, such as that produced by poets, which is '... only a kind of play or sport, and the tragic and epic poets are imitators in the highest degree?' (Plato, Republic, VII).
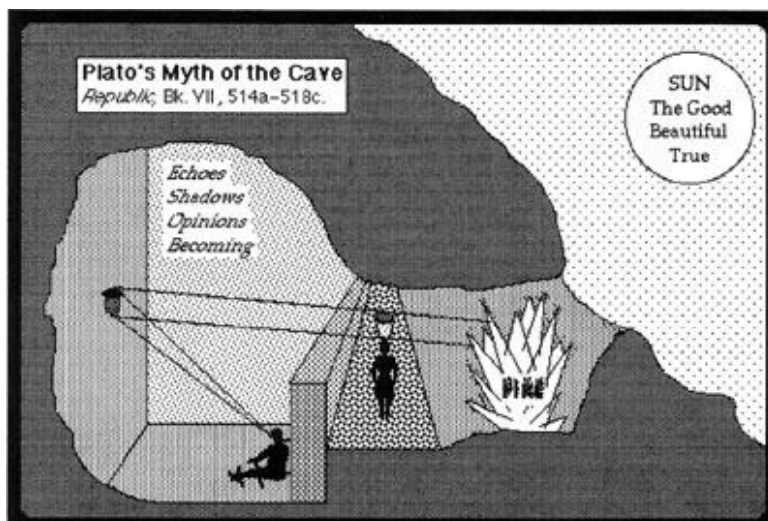
Figure 3.3 Plato's Allegory of the Cave

While acknowledging imagination as a cognitive faculty, he positioned it as the lowest order of his system, described using the image of the 'divided line' (Republic, VI) which continues with, in ascending order, belief, understanding and then reasoning.

Realm	Proximity to divine truth	Proximity to material world	Cognitive faculty	Type of Knowing	Corresponding forms
Intelligible/ knowledge	Towards	Away	Reason/ intellection (noesis)	WHY first principles	Form or Idea
	Away	Towards	Understanding/ discursive thinking (dianoia)	WHAT hypothetical method	Mathematical objects
Visible/ opinions	Towards	Away	Belief (pistis)	HOW Useful, correct opinions without reasons	Living things
	Away	Towards	Imagining/ conjecture (eikasia)	GUESS	Images, shadows, reflections

Table 3.1 Model of Plato's 'divided line' metaphor, influenced by Bundy (1934, p.368) and Johnson (1987, p.142)

The bottom ranking of imagination is largely due to its relationship with the material world – with the shadows on the cave wall as opposed to the actual realities of these shadows, as well as with its dependency on the physical senses. This is described as 'Platonic suspicion of imagination' (Johnson, 1987, p.142), in which imagination is not regarded as:

'...a genuine mode of knowledge...Knowledge, in this tradition, would involve grasping the unchangeable essence of a thing, and it would seem that images don't supply such essential knowledge. In fact, on this account, nothing in the physical world gives us real knowledge, since all perceptible objects are constantly changing, while their essences are fixed.' (Johnson, 1987, p.142)

It follows then that in considering art, 'high' or 'good' art will strive to represent the *essence* of the subject matter and 'lower' or 'bad' art will deal in the images, shadows and reflections which constitute the visible, physical realm in a subjective way. The visible realm is a poor reflection of the 'intelligible' realm, from which our 'souls' have emerged. 'To grasp such essences, therefore, it is necessary to jump to the 'intelligible' realm beyond the senses – to transcend all sensuous and imaginative cognition.' (Johnson, 1987, p.143). Plato states that the act of making poetry (and presumably other art forms) is a none-rational act, involving instead 'divine dispensation' (Plato,

Ion 534c). The poet 'is an airy thing, a winged and holy thing; and he cannot make poetry until he becomes inspired and goes out of his senses and no mind is left in him...' (Plato, Ion 534c). It seems to me that the poet/artist is damned either way – any real accomplishment is the result of closeness to the divine or to divine intervention rather than through knowledge and skill, while without closeness to the divine, any work produced is a meaningless play with images which takes us further from the 'truth'. 'The truth would be literally nothing but the shadows of the images.' (Plato, Republic, Book VII). The poet or artist cannot construct valid ideas or beauty as this is something which exists beyond us, which we can only hope to glimpse via rational thought and divine revelation. The implication for arts education practice is that art cannot be learned or taught.

Plato's conception of the existence of 'truth' in knowledge and in the universe devalues imagination and art because they are uncertain, flexible, relative and interpretive in nature. He sees imaginative activity as deceptive in that it is not the best path towards 'truth' and can be deviational. Indeed, for Plato, images and visual perception can be dangerously enchanting. He discusses sensory illusions, such as seeing things differently through water, of the 'illusion about colours which sight is liable' and of how such illusions can have 'an effect upon us like magic' (Plato, Republic, VI). We might also understand this to imply that imagination, as a lower capacity in our thought which comes about through perception of the material world, can trick and mislead us. We do not reach the divine via our senses, but, as is laid out in the 'divided line' metaphor, through reason,

'At the intelligible end of the line, in the realm of knowledge, the soul ultimately passes out of hypotheses, and goes up to a principle which is above hypotheses, making no use of images in the former case, but proceeding only in and through the ideas themselves.' (Plato, Republic, VI).

Let us return again to section 1.1 and my recounting of young people's dialogical (and Plato would approve of this given his emphasis on dianoia [table 3.1]), critical reasoning in relation to complex issues around evolution and creationism as a result of engagement in art experiences. These young people had produced imaginative, fantastical drawings in order to deeply explore and express these concepts. They were able to arrive at statements of belief about the world as a result of this cognitive

process. Within their dialogue they had included knowledge of scientific 'fact'. While for Plato, belief and opinion do not constitute true knowledge, we are at least able to argue that through imagery and art we can *exercise* our capacity to discuss and to reason, even if this might be a subjective exercise. Following Plato's 'Divided Line', these capacities are required if we are to be able to reach the 'truth'. At what point do we discard the images (eikasia) and beliefs (pistis) in order to find knowledge through discussion (dianoia) and reason (noesis).? The notion of a hierarchy with distinct and successive forms of cognition seems nonsensical and even dangerous. As the young people who worked with 'A Duck for Mr. Darwin' concluded in consideration of issues related to genetics which the exhibition raised, scientific knowledge can be dangerous without the accompaniment of ethical belief. We only have to look at Einstein's frequent descriptions of using imagination and visualisation to produce his theories to see that even the most objective scientific understandings can require the use of imagery.

This discussion has touched on Plato's theories relating to poetry and art, straying somewhat from a strict examination of imagination in its own right and identifying it with the arts. This reflects the content of Plato's discussions to some extent, being wrapped up in the downgrading of the arts as imaginative and of imagination as only applying to the arts. It is relevant to comment on since Plato went further in his attack on poetry and the arts, further contributing to a legacy in which imagination gains a less than positive image through identity with a lack of reason and of credibility.

Bundy describes Plato's charge against artists as

> *'…that through phantasy they become subjective artists. Not only are they concerned with material objects rather than with ideas, but they insist upon reproducing this material world from their peculiar point of view. 'Imagination' leads the artist to deal with the material, the changing, the objects of opinion. 'Phantasy' leads him [or her] to an error still more serious: to deal with the individual and the relative. He [or she] is thereby so much farther from the absolute, unchanging ideal.' (Bundy, 1922, p.374)*

The best art reaches the truth via the 'eye of the mind', as if in direct contact with the divine, and needs little or nothing of imagination. 'Beholding beauty with the eye of the mind, he will be enabled to bring forth, not images of beauty, but realities' (Symposium, 211d). I find this hard to swallow. Even if there is some kind of divine universal force,

it is difficult to imagine or understand how an artist would be likely to 'tap into' this directly, beyond the 'capture' of what may emerge as persistent themes which relate to our actual lived and sensed experience. It is this mediation between sensory experience and cognition which artists seem to deal in. Of course Plato would dismiss this as image and shadow. For me, art is a product of sensed experience and related cognition. It can't be a representation of 'truth' because we can't possibly see beyond our experience and understanding as humans and it is this which art expresses, rather than divine intervention. The art can only be a truth from the artist's point of view and the 'beauty' of the art arises from the conviction of the artist and their skill in completing the work in such a way as to express the concept which they are trying to convey with great integrity.

Plato's use of allegory and metaphor is striking. The allegory of the cave is one of his most powerful legacies coupled with the seemingly contradictory fact that this was a man who held imagination in low esteem. 'The cave' is one of a number of allegories and the fact that his work is written in the form of dialogues between characters, similar to the plays and drama which he criticises, points to the use of imagination in combination with or fuelling reason. As I will argue later in this paper, allegory and metaphor are not possible without imagination and in his allegories, Plato (in his own terms) is presumably presenting something close to 'divine truth'. Perhaps it is slightly unfair and certainly tricky to compare Plato's definition of imagination, images, phantasies to our own; however, I argue that Plato's concept of 'divine truth', like his allegories, is simply imagination and this is a statement with which I think he would definitely disagree. He has constructed understanding of the world around him, informed by his sensed experience and using imaginative skill within his thought, in an explicitly image-based way. He destroys his own arguments through his own actions.

Plato's broader teachings have undoubtedly had value for us and this has led to their survival. Unfortunately part of this legacy is the low status which he ascribed to imaginative thought, his low opinion of the arts as being linked to imagination and materialism and the identification of imagination as being sense dependent, concerned with the material world and therefore of less importance than more reasoned thought. We only have to dig a little into recent attitudes to art in education to see the subconscious reflection of these views. Gingell, (2000, p.1) provides a powerful and comprehensive summary of Plato's impact:

'Plato, infamously, banished artists from the ideal Republic. He did this for four reasons. Firstly, artists lie about the nature of the Gods and heroes…Secondly, as art copies the world of the senses, and as this world is itself a mere shadow of the ultimate Forms of reality, the arts take us away from, rather than towards, an understanding of reality. Thirdly, even within the sensuous world, artists depict what they do not understand. Thus, if we wish to understand shoes, we should go to a shoemaker not a painter...Lastly, arts such as poetry and music appeal to our emotions rather than our intellects. They are thus doubly dangerous in that they bypass the end of life, which is understanding…if we take Plato's implied message, that is, that art is to be judged on its contributions to our moral and intellectual life, then the history of thought about the arts abounds with thinkers and institutions who pay covert tribute to Plato.'

Plato's legacy to art and imagination is largely negative but in understanding that this stems from their relationship to sensory experience and to their capacity to lead us away from 'reason', we are able to understand what is at the root of modern day conceptions which classify art as 'none academic' and associated with technical skill. The concept of 'good' art occurring only through some kind of divine intervention helps us to see the origins of concepts of 'giftedness' which tend to be more quickly attributed to artists than to other kinds of thinkers.

3.4.2 *Repressed imagination: mind/body dualism*

Plato's suspicion of sensory experience and the imagery resulting from this seems to coalesce in the mind/body dualism of Renes Descartes. Descartes presents a classificatory challenge if we attempt to decide on whether or not his theories have provided a valued home for imagination. 'I think therefore I am' (Part IV, Discourse on Method, 1637) implies that we have an autonomous role in constructing meaning about our experience as opposed to us being deductive seekers of divine truth and this might imply a role for imagination in terms of support for our creative and constructive thinking. There is surely a dual legacy from Descartes in that his theories instigated or supported ways of philosophising which lead to beliefs about human beings as creative constructors of understanding as opposed to deductive receptors of fixed 'truths'; however the statement was also accompanied by Descarte's belief that we arrive at true knowledge about the universe through methodical deduction. As with Plato, sensory experiences of the material world are to be doubted. The emergence of ideas

which separate and prioritise mind over body seem to have the most direct implications for arts education practice.
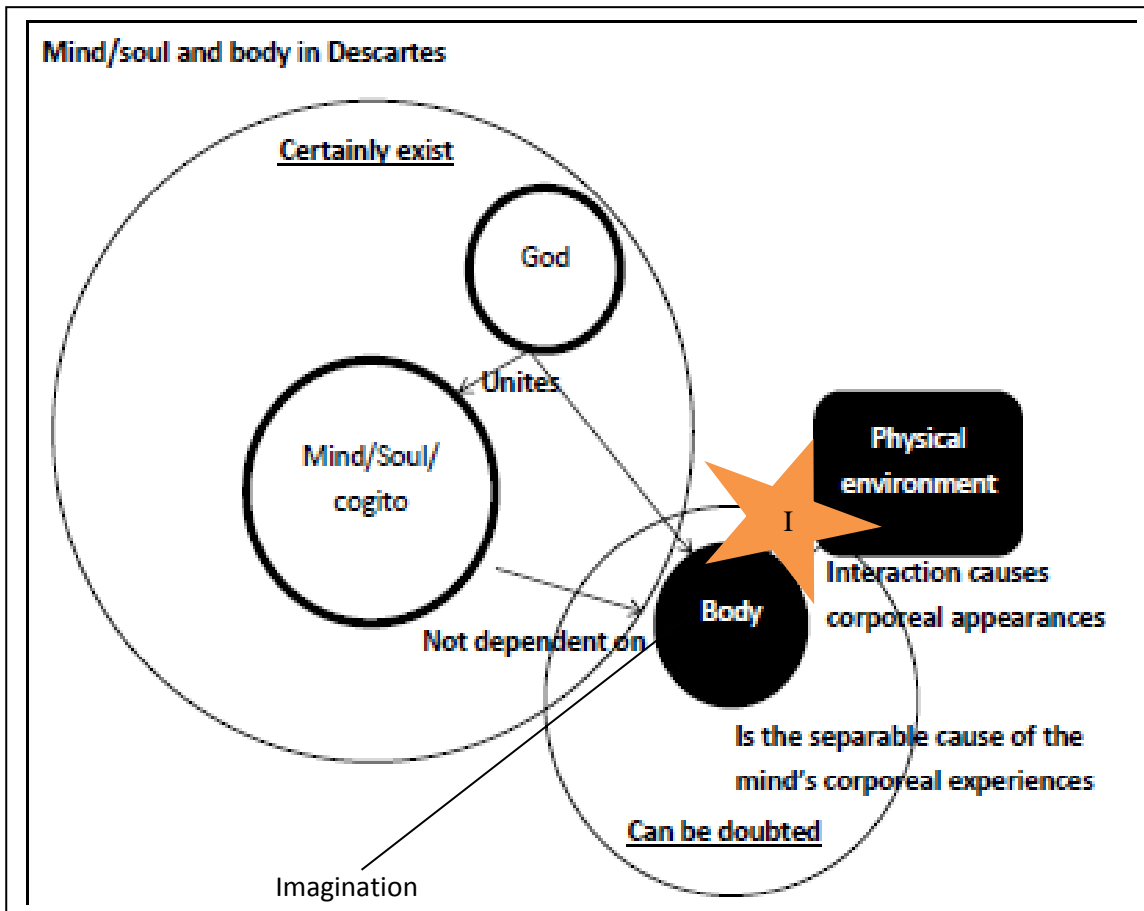
Figure 3.4 Mind/soul and body in Descartes' theory

Let us see where in Figure 3.6 Descartes situates imagination. He does not consider imagination to be a necessary ingredient of the self or mind:

> '…I consider that this power of imagining, which is in me, differing as it does from the power of understanding, is not a necessary constituent of my own essence, that is, of the essence of my mind. For if I lacked it, I should undoubtedly remain the same individual as I now am.' (Descartes, Philosophical Writings 2, 22 (VII, 33; IX, 25-26)

So imagination must sit outside of the 'cogito', linked only to sensory experience. While Descartes is convinced of its existence, its purposefulness is limited to mediation of material experience. This means that it is not trustworthy because our bodies can deceive us, whereas our rational minds cannot, since reason, born in the mind and without recourse to imagination, leads us to God's undoubtable truths.

'Imagination, essential as it is for the self's relation to the empirical world, is thus effectively discarded from the metaphysical centre and foundation of Descartes' philosophical system.' (Schlutz, 2009, p.52)

Descartes brings a tension to the concept of imagination. He tells us that we are responsible for deducing truisms but using our sensed experiences in this can be more of a hindrance than a help. This seems to me, in the C21, within a largely evolutionary paradigm, as a conclusion at odds with our consensus on natural laws (acknowledging that these 'natural' laws may consist solely of human-made meanings). Why would we have evolved the capacity to integrate sensory experience with thought if this is not advantageous? Descartes, like Plato, gives imagination a minimal role in rational thought. As in regard to Plato, I struggle to see how we can be rational without imagining in most, if not all scenarios.

Having arrived at a basic model of Descartes' theories in regard to imagination, questions and problems arise: how is it possible to arrive at deductive truths about the world without manipulating mental images of that world, based on sensory input? How can we check our answers without contemplating their relativity to external reality? For Descartes, our perception of 'external reality' cannot be trusted. Sense perceptions of the world are to be avoided wherever possible to enable pure, deductive reasoning. 'Descartes says he can clearly and distinctly understand himself to be a complete being even without his faculty of sensory and imaginational appearances.' (Broadie, 2001, p.297). This aspect of mind or 'soul' that can exist without sensory input is the cogito. It enables us to deduce irreducible truths via rational method akin to mathematical thought.

'Only by freeing oneself from the contradictory and unfounded assumptions of one's acquired opinions could one hope to give philosophy the precision of geometry and arithmetic by developing clear, distinct, simple, and certain principles to guide scientific thought…This complete rejection of one's old beliefs can be achieved most efficiently…by attacking their unreliable common foundation, the senses.' (Schlutz, 2009, p.37)

Reinforcing Plato, Descartes belittles the utility of the mental image and imagination, on the grounds that they are connected to unreliable sense impressions: 'for imagining is simply the shape or image of a corporeal thing' (Descartes, Philosophical Writings

2, 19). He considered mental images as '…no more than a quasi-material residue of sensory experience which, in fact, obscures the self-reflection of the cogito.' (Kearney, 1988, p.161). The imprecision and potential for inaccuracy with mental imagery is at odds with his reductive and deductive approach. Contradictorily, this suggests something to me about the useful-ness of mental images, if we consider them from a context in which more hypothetical and creative ways of thinking are valued. However, Descartes takes a reductionist approach, discarding belief in anything which has not been methodically examined through his rationalist, 4 stage technique, 'the method'.

Imagination, attached to bodily sensation, threatens the 'purity' of thought which can be reached via the cogito. Descartes believes in reductionist 'facts' which are ultimate truths and that imagination has no part in our understanding these, since they are not to be constructed but to be reached. We are on familiar territory here.

Descartes's assertion of our ability to arrive at these simple 'truths' via the cogito only, prompt us to ask, how do we arrive at them without making imaginative leaps between concepts? Is it not imagination which helps us to connect ideas and situate them within a pre-existing scheme of knowledge? If so, is Descartes's 'cogito', actually imagination or at least largely consistent of imagination as an essential aspect of productive thought? Descartes might be horrified by this idea but if we presume that we are to arrive at the 'simple facts' via Cartesian method, how do we accept only what we know to be true, separate things into smaller parts, make complete lists of further problems, other than by applying some kind of rationale? The application of this will require imaginative leaps, thinking forwards, backwards, across, randomly. The formation of 'simple facts' surely depends on prior, sensed experience as a basis for rejection or acceptance of an idea as 'fact'? It is difficult to conceive of how we would know whether we hold something to be true without the inclusion of some kind of imagination, whether as 'imaging', 'productive', 'creative' or 'fantastical' on our scale.

Schlutz recognises these problems and argues that the cogito '…remains dependent on imagination' and that in Descartes there is a '…peculiar double relationship with regard to imagination as an essential condition of modern subjectivity.' (Schlutz, 2009, p.37). Put simply, it is very difficult to conceive of the human mind as the source of meaning in the world if it is stripped of its creative powers, which lie in the ability to imagine something new or 'other'.

By reducing everything to 'simple facts', Descartes leaves us with an understanding of our world which simply misses out a large proportion of our experience of it. A poignant example is his assertion that 'The *"truth"* of painting is to be located not in the adequacy of its representations, but in its use of colour, which irrevocably locates it in the realm of the real.' (Schlutz, 2009, p.41). How much is lost to us in terms of the understanding which can be gained through painting if we take this approach? All that was intended by the artist and all that we could bring to the work through our personal experiences. This is irrelevant to Descartes because it is highly subjective and not comprehendible within the realms of his 'method'. This method is not applicable to experience as a whole. How are we to approach the more subjective areas of knowledge? Not at all? Descartes asserts that if we can trust anything, we can trust our own minds but his reductionist approach traps him into imposing severe, philosophical limitations on the way in which we use our minds. We must reduce and deduce, not connect and create. Descartes' philosophy is suitably exclusive, theoretical and far removed from lived experience. For me it fails because such deductive, reductive approaches will produce non-situated, limited impressions of existence, at odds with his aspirations towards 'truth'. In the real world, where knowledge is often (within an interpretive stance, always) subjective and complex, imagination is required, perhaps to reach an 'essence' (as we shall see, in Aristotle's terms), rather than to find value only in that which Descartes can deduce, with the certainty of this deduction being highly questionable.

In order to explore Descartes proposition that we can think without relying on sense originated imagery, I have asked colleagues who are mathematicians about their mathematical thinking. For some, mental images do not play a part in mathematical reasoning, which is simply about following rules of logic. Others say that a good mathematician needs to be creative and say that even when contemplating the most abstract problems, unattached to material experience, they visualise shapes and forms in their thinking. Is it the case that in order to think *creatively*, attempting to produce something original, we are more likely to draw on mental imagery, a product of sensed experience, broadening the range of possibilities and thinking around a problem as opposed to performing a technical task which gives us an answer? If we simply follow pre-existing rules, how do we arrive at anything new? Is there something about the

nature of mental images which accommodates originality better than more verbal forms of thought? I will return to these questions in chapters 4 and 5.

I cannot accept Descartes' view that imagination must be disregarded in thought or that his 'method' is the only way to arrive at certain knowledge, partly because I am not convinced that there is such a thing as 'certain' knowledge. It is important to be aware of his negative contribution to a perspective on imagination which can jeopardise its status in education by instilling, through time and culture, the idea that association with our senses comes at the expense of the capacity of our minds. I think this underlies a view that imagination and by association, art, are non-academic and manual/technical subjects for those who aren't good at thinking. Descartes extends the negative perspective of imagination begun with Plato which will end in artistic and physical learning experiences being frequently regarded as inferior to those which are deductive and therefore seen as more intellectual, hence a higher, general regard for subjects such as maths or physics. I argue that they are simply different, not more difficult and not more useful to society. They also rely on imagination. Broudy provides a useful description of the role of imagination in reasoning due to the necessity for abstraction within this, with which it is useful to end this discussion of Descartes.

> *'What makes it possible for us to reason that if 2+2=4, then 4+4=8…At some point in our experience the idea of number must arise…All reasoning is done with and through concepts, ideas, notions, and all of these are rooted in an act of imagination which enables us to deal with images and other tokens of actual things rather than the things themselves. The pride of intellectualism often makes us forget its non-intellectual origins.' (Broudy, 1994, p.11)*

In arts education practice the (largely unconscious) separation of mind and body seems to result in a need to categorise art largely as a manual/technical/bodily activity, perhaps, ironically, because we *sense* it and the activities of artists can be seen. This kind of classification in itself suggests a lack of imagination. While artists are often working materially, using their bodies, the process they are undertaking is happening largely in their minds. There is an interplay of the sensory and the cognitive. Without the cognitive, there would be no reason or drive for the sensory activity, which is not passive but a decision 'to make'. A further implication of mind/body dualism is that in identifying art as bodily and material, we lose our understanding of its cognitive value. This is manifested in the way that we often choose to evaluate it and reflected in the current national curriculum, which emphasises the development of technical skill. Over

all the emphasis is on product over process. I say this because of experiences I have had of work on projects which have reaped significant cognitive and metacognitive benefits but despite this, teachers and parents have been disappointed that artistic outcomes are not up to the standard that they had imagined. This was often the case in a research project 'Mind the Gap', in which children worked with parents to produce a stop-motion animation film. Parents seemed to expect that, after about 8 hours of work, the end result would resemble the production standards of Wallace and Gromit. The whole project was specifically designed to develop thinking skills, with art as the vehicle for this, however; in some cases an understanding of art as only a manifestation of technical skill hindered an understanding of how much had been learned through a rich, making process which was consciously infused with opportunities to develop metacognition.

3.4.3 *Valued Imagination: Aristotelian origins of a cognitive perspective*

Aristotle's arguments suggest a far greater role for imagination within cognition than do those of Plato and crucially, he acknowledges that imagination is a necessary part of logic and reason. He provides psychological insight into the workings of imagination which include its necessary bodily basis but does not condemn it by this association. He avoids mind/body dualism. He details and defines a model of imagination which enables the possibility of useful, human creativity (even if he is a little suspicious of this power). He also expresses an alternate (to Plato's) view of poetry and arts, proposing that such activities support the representation of essences or universals, a theme which will appear later in this thesis as we discuss symbolism and metaphor in visual art (Chapter 5).

Aristotle defines imagination (in his terms: 'phantasia') as a mediator between sense perception and judgement. He tells us that '...imagination is a different thing from both perceiving and thinking. Imagination cannot occur without perception, nor supposition without imagination.' (De Anima, 3, 3, 427b). Whilst liminal, the importance of this role should not be underestimated. It is the basis for our consciousness because without it, our sense perceptions would not be accessible to our internal thought process. Schlutz explains that for Aristotle:

'...phantasia is the particular capacity that allows a mediation between aesthesis (sense perception) and dianoia (discursive thought). As the ability to produce mental images, it is responsible for transforming the data of aesthesis and to make them available in the form of representations (phantasmata) to dianoia for further processing. ' (2009, p.17)

Aristotle proposes the notion that we think using mental images, in a positive light rather than as a critique of their mimetic properties which copy already 'copied' images of divine truths.

'For in the thinking soul, images play the part of percepts, and the assertion or negation of good or bad is invariably accompanied by avoidance or pursuit, which is the reason for the soul's never thinking without an image.' (De Anima, 3, 4, 431a).

This assertion of the role of mental images enables Aristotle to get to grips with how imagination actually works as a process. Mental images are 'stand-ins' for the sensed perceptions they represent when required within thought:

'The thinking faculty, then, thinks the forms in images, and, as what it should pursue or avoid is defined in the images, it is moved even in the absence of perception, whenever there are images before it.' (Ibid, 431b)

Aristotle gives us a more elaborated theory of how imagination functions than does Plato. Within this theory mental images act as malleable, 'building blocks' for our thought. Plato's distrust of images and their root in experience of the material world, a mere shadow on the wall of his allegorical cave, is not shared by Aristotle.

'The Platonic paradigm of the image as a form of painting – an external copy of nature which is itself an external copy of transcendental Ideas – is replaced by the Aristotelian paradigm of the image as an internal activity of mind which mediates between sensation and reason...The image serves as a bridge between the inner and the outer. It is both a window on the world and a mirror in the mind.' (Kearney, 1988, p.107)

We begin to see that the ability to think, in this scenario, should be enabled or increased by extending sensed experiences and accumulating a rich 'bank' of images from which to draw on in thinking. We are also able to free ourselves from the 'rational verses sensual' or 'mind verses body' dualism and the problems which such dualisms

introduce for the role and value of imagination. Aristotle's descriptions of how imagination functions dispense also with Plato's strict hierarchies of thinking which place imagination in the lowest ranks. So how does Aristotle model imagination? Firstly, as 'movement: '...imagination is held to be a kind of movement and not to occur without perception' (De Anima, 3, 3, 428b). 'Movement' within imagination is an act of deliberation in which mental images are selected and manipulated to support thinking:

> *'Phantasia must have the ability to create a unity of manifold images for the intellect to work with. The moment of "deliberation" is an intermediary step, necessary to support the more advanced cognitive processes' (Schlutz, 2009, p.19)*

So, imagination consists of 'movement': from sensations to cognition. It is associated with desire for knowledge, which is what produces the movement 'For it lies in our power to be affected by imagination whenever we wish' (De Anima, 3,3, 428b), ''The object of desire is the point of departure for action' (Ibid, 3, 10, 433a). Returning briefly to the example of practice given in the previous section, relating to the 'Mind the Gap' project where children and parents made an animation, what was apparent from the research was the extent to which the animation as an output was the *driver* of the thinking. The prospect of producing this film provided the 'desire' which Aristotle refers to as what produces imaginative movement. In such a motivated and cognitively active state, participants were able to achieve in their learning, as well as produce their film.

Imagination is also associated with the regulation of behaviour, as

> *'…whenever we hold the belief that something is terrible or fearsome, we at once experience the corresponding emotion, as also with comforting beliefs. But in the case of imagination, we are in just the same state as if we were looking at the terrible or comforting things in a painting.' (Ibid, 3, 3, 428b)*

This might explain the effect on young children of the Yoko Ono exhibition at Baltic (1.1), in which the intentionally calm and gentle atmosphere of the works seemed to be reflected in the children's behaviour. The children had enough previous experience to connect with the feelings embodied in or suggested through the art, to 'lock on' to and manifest them.

Finally, Aristotle alludes to the temporal nature of imagination, its role in memory and supposition about our future:

> *'The thinking soul apprehends the forms in images, and since it is by means of these images that it determines what is to be sought and what avoided, it moves beyond sensation when it is concerned with such images...Moreover, it is by means of the images or thoughts in the soul, which enable us to see (the future), that we calculate and deliberate about the relationship of things future to things present.' (De Anima, 3, 7, 431b)*

So, for Aristotle, imagination connects sensory perception with our mental worlds, is driven by desire, regulates our behaviour (relating to self-regulatory descriptions of metacognition discussed in chapter 4) and allows us to think backwards and forwards through time. A distinction between 'sensible' imagination and 'deliberate' imagination completes our model – only humans have the latter, which is the ability to deliberately combine images in order to support reasoning (De anima, 3, 4 429a., 3, 10, 433a-b). As described previously, such images are drawn from an internal store and recombined as required, as opposed to being immediately empirically experienced. We see clearly that 'For Aristotle, *phantasia* remains an intermediary faculty residing, as it were, *between* primary and pre-existing faculties of sensation and reason.' (Kearney, 1988, p.112). The mental image, as a kind of building block of the imagination plays a critical role in cognition, including reason (*noesis*). The origin of mental imagery in sensed experience is regarded as a necessity rather than as a problem. .

> *'For Aristotle to affirm that images are modified modes of sensory perception, is not therefore to condemn them to a pseudo world of untruth...Without the transitional services of imagination, reason would be unable to make contact with the sensible world of reality...It would not be able to represent anything... Reason simply cannot function without the mediation of the mental image.' (Kearney, 1988, p.109)*
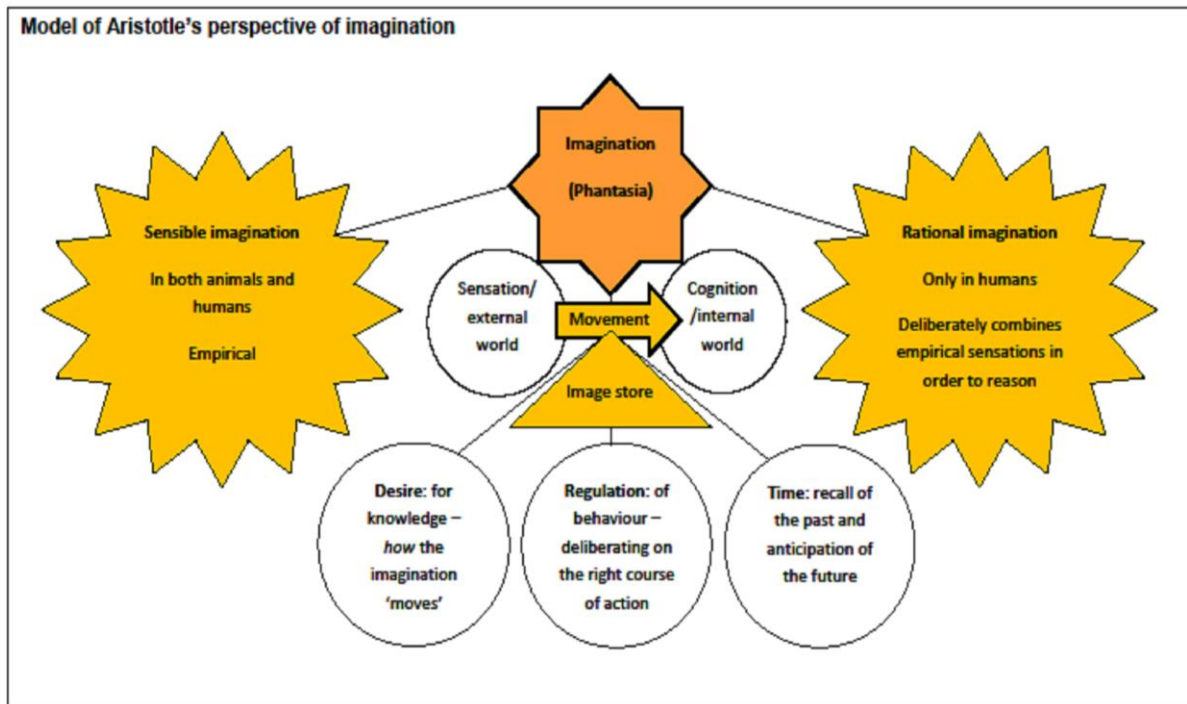
Figure 3.5 Model of Aristotle's perspective of imagination

Aristotle raises the status of imagination by explaining its integration and function within our broader cognition, asserting its necessity for our ability to reason. It has certainly shifted position from its awarded place in Plato's 'divided line' and we begin to see it not as the bottom 'rung' on a 'ladder' but more as a dynamic force which permeates our thinking more generally. Plato's rigid, hierarchical notions of thought begin to seem inadequate and ill-suited to the way we actually think if we see imagination working so fluidly to support this.

Having noted that Aristotle's perspective is more dynamic and 'soft' than Plato's, we must be mindful that as malleable as imagination is in his model, there is no implied belief that we are interpretive, creators of knowledge. Aristotle has reservations about imagination and describes its potential negative influence:

> 'When imagination originates movement, it necessarily involves appetite...Now thought it is always right, but appetite and imagination may be either right or wrong – the object may be the real or apparent good...Many men follow their imaginations contrary to knowledge.' (De Anima, 3, 10, 433a)

The Aristotelian legacy of a philosophy of imagination implies some negative consequences for attitudes towards creative thought, despite the fact that it might seem to us like an opportunity for a positive acceptance of our capacity to be autonomously creative. This creativity and the wandering of our imagination is still something to be restrained and used in the service of more legitimate thought. While imagination is regarded as indispensable and necessary for connected experience, it

> '...is considered more a mechanical operation tied to the sensing faculties than a creative process constitutive of genius...In becoming philosophically respectable, imagination also became somewhat tame and unremarkable.' (Johnson,1987, p.145)

Despite the limitation of imagination within Aristotle's model, there is a major difference between his and Plato's conception of the nature and role of mental images which has implications for art-based learning. For Aristotle the role of the mental image is as 'a mental intermediary between sensation and reason rather than as an idolatrous imitation of a divine demiurge.' (Kearney, 1988, p.106). Aristotle is sceptical of the 'divine visions' which Plato sees as the best means of creating worthwhile art, seeing them as '...merely effusions of our physical impressions which rise up when reason is asleep or in a fever' (De Insomniis,462a). Visionaries confuse '...the representation of a perception with perception itself.' (De Memoria, 451,a). Aristotle recognises our ability to use images to arrive at essential truths inherent in the world around us. Thus, art is *not* mimesis, instead:

> '…it re-describes reality so as to disclose the 'essential' dimension of things...the practice of poetic imitation is one which fosters truth rather than falsehood, which deals in essences rather than appearances.' (Ibid)

As well as situating imagination throughout the entire breadth of our cognition, thereby raising its cognitive status, Aristotle provides a more respectable role for the arts. He is the originator of a psychological approach to imagination and of a belief in the possibility that it can be nurtured towards productive, cognitive ends. The idea of art dealing in 'essence' suggests its valuable relationship with meaning and thought and gives it purpose beyond aesthetics. In these ways he sowed the seeds for a cognitive (as opposed to a mimetic and by implication, technical) perspective on art. His approach to imagination is foundational in terms of western philosophy and in the

context of this thesis, relevant later as we come to consider the relationships between art, imagination, cognition and metacognition. The inference that as human beings we are able to connect and build ideas, while somewhat restrained by Aristotle, is nevertheless both powerful and empowering. It enables thinkers after him to build on the notion of human autonomy in 'making sense' and to award increased power as to the capacity of human beings to understand and live creatively within our universe.

3.4.4 *Valued imagination: Hume and Kant's cognitivism*

An exploration of concept formation and synthesis would be offered up by Hume and Kant, strengthening the foundations for a cognitive perspective of imagination and providing theories which are compatible with modern psychological approaches.

The philosophical perspectives of Hume and Kant build on the Cartesian concept of meaning as a product of our minds, extend the idea of subjectivity and acknowledge the role of imagination in enabling meaningful existence. They share a 'metaphysical scepticism' and a view that 'all we know is a constantly changing stream of sense data and not the object itself.' http://www.fromdeathtolife.org/cphil/subobj.html. Kant's theory was inspired by and flows from Hume's, which is why I discuss them together here before going into more detail about their individual contributions to our understanding of imagination.

For Hume, imagination is the basis for our belief in continued existence. It enables us to make connections which hold our world together mentally and such a world only really exists mentally. Hume discusses the associations between sense impressions and emotions, overcoming Descartes's mind/body dualism in such a way as to help us to begin to think about the ingredients and conditions required for imagining. He highlights the role of imagination as a connective power between ideas or impressions which we receive via our senses. He leaves us with a subjective view of existence in which imagination is our most essential tool in sense-making.

For Kant, imagination is necessary for and exists prior to knowledge. As with Hume, it is the basis of our belief in continued existence but Kant gives more functional detail with his theory of its schematising role in our thinking. Kant outlines the mechanics of imagination, detailing how we assimilate sense impressions based on prior knowledge,

constructed through 'transcendental imagination'. By this he means that we are not reliant on external, metaphysical laws for sense making but on the sense-making capacity of our own minds. The truth is 'in here' not 'out there'. Kant sees the interplay of imagination in our interpretation of what we see before us, taking a stance in which we are creative interpreters of our world, using our senses and our intellect in this interpretation. Both Hume and Kant assign great value to mental images and their malleability in serving our broader cognition and it is with them that we see great leaps forward in a cognitive perspective of imagination which, in recorded history, seems to have originated with Aristotle and results in psychology.

For Hume, the mental images which we retain as our interpretations of the sensed world, are actually all that we have in terms of a 'reality'. This is not the deductive path towards natural laws, guaranteed by God, as described by Descartes. Rational thought is no guarantee of an external 'truth' since it relies on subjective, sense interpretations.

> *'While retaining the mimetic model of the image as a mental copy of sensation, he goes on to insist that this subjective world of representation is the only reality we can know. Reason is thereby deprived of any autonomous role, its ideas simply differing from sensory images by their degree of "force or vivacity". (Kearney, 1988, p.165)*

Hume, in a sense, finishes what Descartes begins in claiming the authority of the mind within meaning making but strips away the Cartesian resort to rationalism in the face of chaos.   In what seems a brave and innovative approach for his time, he establishes that there is no inherent 'truth' other than that which we construct for ourselves via imagination. Understandably, this seems to leave him in an uncomfortable position in which he understands the dangers of our dependence on imagination (resonating with Platonic, mediaeval and Cartesian demonization) but acknowledges that we cannot do without it:

> *'Nothing is more dangerous to reason than the flights of the imagination, and nothing has been the occasion of more mistakes among philosophers…If we embrace this principle and condemn all refined reasoning, we run into the most manifest absurdities. If we reject it in favour of these reasonings, we subvert entirely the human understanding. We have therefore, no choice but betwixt a false reason and none at all. For my part I know not what ought to be done in the present case.' (Hume, T1.4.7.6,SBN267)*

Poor Hume! Kearney describes his plight concisely:

> *'Hume had proposed…to show how knowledge could dispense with all appeals to transcendent beings or deities, how it could establish its own foundation in the immanence of human reason. But while he set out as an advocate of positivist rationalism, Hume ended up a radical sceptic. He was to discover that once one divests reason of its metaphysical scaffolding and seeks to found it on a purely empirical basis, the very edifice of rationalism collapses into an arbitrary fictionalism.' (Kearney, 1988, p.163-164).*

In acknowledging the need for sensed images in creating knowledge and demonstrating the subjective nature of these images as interpretative 'copies' of a sensed reality, Hume undermines the power of reason as a means of objective understanding and does not know how to deal with this. These ideas are far easier to accept in our own time, in the aftermath of existentialism and postmodernism. Hume's ideas correspond to my own, more than 200 years later: rationality is one way thinking which is heavily dependent on imagination; it cannot remain 'pure' of imagination, if we include mental images in the definition of this.

Kant, in his 'Critique of Pure Reason', fleshes-out Hume's ideas and establishes 'transcendental imagination' as a core faculty which is the root and creator of truths.

> *'Confirming Descartes' primacy of human subjectivity, Kant would substantially revise its intellectualist premise by reuniting understanding and sensation on the common basis of a transcendental imagination which grounds both.' (Kearney, 1988, p.163)*

For Kant, the validity of meaning is established by consensus and 'fit'. His examination of our synthesis of mental imagery provides answers to dilemmas arising from Hume's theory, such as, how can we understand cause and effect without reverting to empirical experiences in the absence of metaphysical law and none-subjective reason? What both Hume and Kant accomplish are cognitive perspectives of imagination and the detail of how it functions. For both, all meaning is imagined. Truth is a human construction. They provide rationales which are useful in supporting arts in education through their insistence on imagination as an aspect of thought which is both essential and creative. The implication of them attributing us with creative, cognitive powers is two-fold: cognition and imagination can be nurtured and by nurturing imagination, we

will nurture our broader thinking. Kant's discussion of imagination in art leaves us with no doubt that he understands its value in doing this. Hume's theories regarding imaginative connectivity reveal the mechanisms by which we are able to apply, unite and cohere understandings across areas of experience.

3.4.5 *Conditions for imagination as connectivity*

While Hume's almost existential concepts of imagination seem to imply a frightening and chaotic existence, their saving grace is that they enable us to hold together a world view and to make ourselves feel secure as conscious beings in a complex universe. Imagination does this by 'filling in the gaps', when empirical experience which might convince us of a truth or meaning is simply not available. For example, we cannot see that other people still exist when we are not with them, but our imagination enables us to think that they do.

> *'When the exact resemblance of our perceptions makes us ascribe to them an identity, we may remove the seeming interruption by feigning a continued being which may fill those intervals and preserve a perfect and entire identity to our perceptions.' (Hume, T1.4.2.40,SBN 207)*

Imagination enables the congruence of our understanding, in turn, enabling us to feel secure as conscious beings trying to deal with the otherwise chaotic experience of life. Of course, this also extends to our idea of our 'self' based on the relations of contiguity and resemblance that we experience among our perceptions.

> *Identity is nothing really belonging to these different perceptions and uniting them together, but is merely a quality we attribute to them, because of the union of their ideas in the imagination.' (Hume, T1.4.6.16, SBN 259)*

The idea that imagination helps us to cope with consciousness brings us back to archaeological and evolutionary psychology perspectives discussed earlier, in which it is suggested that dealing with the possibilities for thought which imaginative capacity brings may have led to the development of art and culture in an attempt to work out meanings via externalisation.   In both sets of theory, imagination helps us to cope with an otherwise overwhelming context for a conscious being and is therefore necessary for survival in a somewhat 'chicken and egg' situation in which it is also the vital

ingredient for consciousness in the first place. Imagination emerges, more and more, as the keystone of human stability and development and the means by which we hold ourselves and our society together.

As well as providing a view of imagination as our means of meaningful existence, Hume outlines its connective nature and the conditions for supporting this. (We will return to this idea in the context of visual art in Chapter 5). He describes a 'uniting principle among ideas' (Treatise on Human Nature, 1, 4). This principle has three psychological features: resemblance, contiguity in time or space and causal connection.

> *'In memory, then, our ideas are bound to occur to us in temporal and spatial order…In imagination…the three principles of union supply the place of inseparable connexion by which they are bound to each other in memory.' (Warnock, 1976, p.17)*

This demonstrates a perspective in which imagination is recognised as a faculty enabling the malleability of thought and specifies the actions involved. Furthermore, this malleability enables the union and solidification of ideas. Like Aristotle, Hume's impression of the imagination is concerned with movement and flow in its uniting of ideas and filling in of gaps, helping us to make leaps in order to form meanings. Hume tells us that the imagination

> *'…when set into any train of thinking, is apt to continue even when its object fails it, and, like a galley put in motion by the oars, carries on its course without any new impulse.' (Hume, T1.4.2.22, SBN 198)*

As well as providing us with a subjective view of existence in which imagination is our greatest tool, Hume gives us some useful ideas about the conditions in which imagination thrives. He alerts us to the positive impact of, at one end of the spectrum, the proximity of sensed experiences on imagination and at the other, of the positive impact of distance, 'gaps' and problematic thinking (see Warnock, 1978,' p. 37-38 referring to the Treatise). It seems that imagination works best with extremes in Hume's model and that there is something powerful in our need to complete a picture. This need is felt emotionally.

'It is certain nothing more powerfully animates any affection, than to conceal some part of its object by throwing it into a kind of shade, which at the same time it sees enough to pre-possess us in favour of the object, still leaves some work for the imagination. Besides that obscurity is always attended with a kind of uncertainty; the effort which the fancy makes to complete the idea rouzes the sprits and gives additional force to the passion.' (Hume, T2.3.4.9, SBN 422)

For Hume there is a strong association between emotion and imagination. Mental imagery, whether stored in memory and recalled or being directly experienced, is the source of this emotion. The 'more powerful the imagination to form the image, the more powerful the feelings.' (Warnock, 1976, p.37-38). Considering Hume's words (above) in regard to the motivation stirred by concealed or missing knowledge, it follows that the more powerful a sensed experience, the more emotionally powerful the resulting imagination. Of course there are significant implications here for the value of arts experiences, particularly if we consider them in Aristotelian terms, as the 'essence' of ideas. This notion of the deliberate potency of art lends itself to Hume's conception of powerful sensory experience and therefore, has the potential to spark more emotional, powerful imaginative responses.

So there is an iterative relationship: emotional experiences are likely to produce potent mental imagery and mental imagery is able to produce emotion when recalled or applied to a new experience. The emotional power may come from unpredictable sources, specifically relevant to an individual who is emotionally stirred by a new experience because it resonates with an existing one, stored in the mind as a mental image. The idea that imagination depends upon experience and that if this experience is emotional it has additional power brings to mind Dewey's idea of 'Art as Experience'. We will explore this in Chapter 5 but for now, in terms of art, let us say that we might expect it to work strongly on the imagination, since it employs aesthetic and conceptual techniques in a deliberate attempt to produce emotion or thought. People often speak of art as having an emotional power and I have often heard arts-education practitioners cite this as a special aspect of its educational potential.

Going further, the aligning emotional aspects of imagination and therefore of imagination embodied in art, support the development of empathy, since we are able to imagine what others feel.

'Tis indeed evident that when we sympathize with the passions and sentiments of others these movements appear first in our mind as mere ideas, and are conceiv'd to belong to another person as we conceive any other matter of fact. Tis also evident that ideas of the affections of others are converted into the very impressions they represent, and that the passions arise in conformity with the images we form of them.' (Hume, T2.1.11.8, SBN 319)

For Hume, imagination is terrifying in enabling us to realise that we live in a chaotic universe, in which it is all we have to help us cope and 'find our place'. Yet it is also comforting in providing the antidote to this potentially frightening subjectivity by enabling us to make connections in our thoughts towards constructing meanings which make us feel stable. Imagination's power is derived from it being bound up with our emotions. While it can be argued that emotions are simply a form of cognition, each of us knows, experientially, the difference between plain thought and feeling – emotions are perhaps a special form of thought, hence Hume's distinction. It is the intertwined and to some extent, interdependent nature of imagination and emotion which *drives* us to make meanings and construct knowledge where this is absent. It is also what enables empathy for our fellow human beings. Imagination, as a connecting power, seems to permeate our cognition at every point and is not relegated to the bottom of a cognitive hierarchy. Suddenly, imagination is critically important.

3.4.6 *Transcendental imagination*

For Kant, imagination is the basis of knowledge. It is the means by which we synthesise our sensed experience and exists in us 'a priori'. 'The principle of the necessary unity of pure (productive) synthesis of imagination, *prior to apperception*, is the ground of the possibility of all knowledge.' (Kant, Critique of Pure Reason, 1781, A118). Kant's transcendental imagination is built on the idea that imagination '…must be exhibited a productive power *presupposed* by sensation and understanding rather than a derived intermediary function which comes *after* them.' (Kearney, 1988, p.189). It is an innate human faculty. It permeates or underpins all of our thinking by enabling us to relate and synthesise sense perceptions with pre-integrated mental images which imagination has bound together as concepts. As with Hume, in Kant's theory, expressed largely through The Critique of Pure Reason (1781), imagination becomes much more than just a feature of thought, becoming instead an essential, all permeating aspect of it.

Imagination works to synthesise sense impressions, or mental images, into and with schema, which '…like a particular image, is [are] something which the imagination makes for itself, and which it then applies to experience in order to render it intelligible to the understanding.' (Warnock, 1976, p.31). Essentially, the role of imagination is as a classifying agent, constructing categories based on sensed experiences and then adding to these categories or re-grouping as new sense experiences need to be integrated. This is a dynamic force within our thinking, manipulating and moving new sense perceptions and stored images in order to progress our understanding. It recalls the Aristotelian idea of imagination as associated with movement as well as Hume's notions of connectivity and filling in gaps but goes further in defining the nature of this 'movement'.

Johnson describes Kant's 'attempt to elaborate a unified theory of imagination…' which can be seen as 'an exploration of the ways in which meaningful unity and order are achieved in our experience and cognition.' (Johnson, 1987, p.147). There are four major stages in the development of Kant's view of imagination (Johnson, 1987, p.147-165), which may be useful. I summarise them here:

1. **Reproductive imagination**: imagination as a power to form unified images and to recall into memory past images, so as to constitute a unified and coherent experience

2. **Productive imagination:** what makes it possible for us to experience public objects that we all share in common with the world…the unifying structures of our consciousness…supplies all of the connections by means of which we achieve a coherent, unified and meaningful experience and understanding…operations of the imagination so pervasive, automatic, and indispensable that we are ordinarily not aware of them…the possibility of understanding the world depends on the existence of this synthesising activity

3. **Schematism:** an activity mediating between sensation and understanding or thought…establishing order in our experience

4. **Creative imagination in reflective judgement:** reflecting on representations in search of novel orderings of them…in reflective judgement, there is no pre-given concept…instead we must reflect imaginatively on a series of representations in an

attempt to come up with a concept or other representation under which they can be organized…imagination acting freely

I suggest that Kant's four kinds of imagination can be summarised more succinctly as: recalling, synthesising, ordering and reflecting/creating, calling to mind frameworks of cognitive capacities (e.g.; as described by Mosely et.al., 2005, Bloom et al. 1956). The implication is that 'Imagination generates much of the connecting structure by which we have coherent, significant experience, cognition and language.' (Johnson, 1987, p.165).

We see that imagination supports cognition. It seems likely that it will by extension support metacognition, if we see 'meta' as implying a cognitive overview of cognition, following similar mental procedures. Kant does not discuss this explicitly but perhaps we can summise from his cognitive theories how this might work. Surely a significant part of metacognition is recognising when a concept is complete, what that concept is and how it fits within our unified sense of self? Knowing that something is settled and in place in terms of what we know about our learning? Using Kant's theory we might say that it is via imagination that we are able to arrive at metacognitive knowledge (Flavell, 1979), specifically; via reproductive, then productive imagination and then via schematism. Reproductive imagination would enable us to recall representations of learning situations. Productive imagination would enable us to synthesise these representations with others. Schematism would enable us to negotiate and order sensed experiences and integrate them meaningfully with our existing view of our own learning. Is completion of this imaginative process an arrival at metacognitive knowledge? Creative imagination in reflective judgement would come in as the vital ingredient of metacognitive skill (e.g.; Veenman et al. 2004), reflecting on our learning and re-ordering our understandings into new approaches.

To provide an example of what this might look like in arts-education, in a recent research project 'Mapping Transformation through Contemporary Art', Y4 children were asked to work with an artist to make sculptures of their own learning, as a means of supporting the development of their metacognition. Reproductive imagination manifested as them making an initial, Plasticine model to represent their own learning. While we were seeking symbolic representations, in the first instance, children often simply recalled things they had done while they were learning and represented them

in plasticine (sitting at a desk, writing, playing football). Productive imagination kicked in after experiences in the gallery, looking at the work of other artists and comparing that work to ideas about learning: 'if this art is about learning, what is that learning like?'. Children were then able to further understand the concept of symbolising, to expand their symbolic repertoires in connection with the concept of 'learning' and begin to situate these new images alongside their original ones, bringing them all together in group drawings which began to cohere understandings of learning. In large, floor-based group drawings, children could visually connect and group images related to learning, reflecting Kant's 'schematism'. 'Creative imagination in reflective judgement' was demonstrated when each child produced a sculpture of their own learning, which they went on to reflect on verbally. By this point everyone's work had become symbolic to one degree or another and all of the children could talk more coherently about their own learning. To differing degrees, the children had developed their metacognition. The project, for me, illustrates Kant's stages of imagination in action and as being concerned with cohering and constructing personal understandings.

The final term 'creative imagination in reflective judgement' is troublesome, since it could also be argued that productive imagination and schematism are in some sense 'creative' if we are to define this as the production of something relatively original (after, for example, Robinson, 2001). Where should we say that creativity begins and ends? Overall, Kant's version of imagination is constructive and creative, dispensing with fears that imagination leads us astray from objective truth because its premise is that it is only the human mind which can make sense of experience. Imagination is the key to all of our thought for Kant and it is built in to us as humans. Such a view is very different to what many people think of as imagination in current times, which tends to be associated only with creativity and this creativity, rather than applying to the production of new concepts, is usually concerned with making material products using technical skill or to the production of ground breaking or fantastical ideas. When people say that they are not imaginative or not creative, it is usually an allusion to their lack of technical skill or inability to produce socio-cultural innovations, rather than their ability to produce new schema. (We will return to creativity in Chapters 4 and 5). When we describe the way that some people are more imaginative than others, or that people with conditions such as autism find it difficult to imagine, perhaps we are also talking about a particular kind of imagination, rather than the fundamental cognitive activity which Kant describes.

Of further interest to us, particularly because we are concerned with visual art in this thesis, is Kant's concept of the principle of finality, originating with Aristotle (De Anima) but applied by Kant in the area of aesthetics. We get pleasure from finality. Finality comes from combining understanding and imagination. By using these we can identify new concepts or patterns in nature. When the concept that we are building or looking at is complete in itself and has integrity (by which is meant that it fully forms the new concept) and when this can be assigned to a place within our more general conceptual framework and life-world – when it 'clicks' – we are satisfied with and pleased by this 'finality'. This might refer to all sorts of experience, for example: to a scientific concept, a piece of literature, or to a work of art. It may be initiated by external/material or internal/cognitive experience but will of course always involve internalisation and cognitive process. We can experience finality by looking at someone's art and finding that it produces a sense of 'finality' in our thinking, or we can make a piece of art work, through this process, reaching and expressing a finality (or we might say: completing a concept). As with Descartes, Plato and Aristotle, imagination is the bridge between sensory perception and internal thought but with Kant, the fear and doubt are removed. Kant discusses art and aesthetics positively, describing art in cognitive terms in a way which is more enlightened and reasoned than the way it is generally stood in education more than 200 years later, in light of the emergence of the field of psychology. It seems that it is difficult for us to leave behind the stigma which has come to be associated with the connection between art and bodily experience, even when many artists have made a point of pursuing more deliberately conceptual approaches for the last 100 years or so.

Kant still divided mental and physical experience into 'the formal, conceptual and intellectual, on the one hand, and the material, perceptual and sensible, on the other' (Johnson, 1992, p.xxvii). While he maintains this division he recognises and describes the positive role imagination plays in our thinking, acknowledging that material experience is our only means of objectivity, dispensing with the Cartesian cogito. In Kant's model of transcendental imagination:

> *'In order to have an "objective" experience, there must be some material given from outside us to our senses, and this content must be organized by patterns of thought given by our mind… We cannot know things as they are*

in themselves but only as they appear for us, subject to the universal structuring activity of human consciousness.' (Johnson, 1992, p. xxviii)

Kant brings us closer to a constructivist/interpretivist view of knowledge in which imagination is fundamental as a dynamic, organising force. He massively expands the role of imagination in cognition, providing a perspective which exceeds the boundaries of much of our common understanding of it in the present day. The notions of organisation and creativity seem to align since creativity is considered largely in terms of its use in the critical generation of concepts, through reflection. His idea of transcendence echoes the evolutionary perspectives discussed earlier in this chapter and with Hume, as meaning that through the acquisition of imaginative capacities we are able to transcend experience so as to be able to make sense of it.

The idea of transcendence, coupled with Kant's 'principle of finality' (above), imply the necessity for imagination in metacognition, to enable a kind of 'second-level' transcendence. In this, we are conscious of our 'first-level' acts of transcendence which occur within our experiences of learning and can organise these *as if* we stand outside them, using imagination. Here, we would be using imagination to conceptually place ourselves outside of ourselves as well as to look down on a 'whole picture' of our learning in order to categorize it into schemata. It removes us from temporal, spatial and bodily constraints, freeing us to manipulate concepts (formed from mental images), from the metaphorical 'outside'.   A question which emerges from this is whether developing metacognition therefore requires us to develop our imagination so that it is sophisticated enough to enable this additional level of transcendence. If this is the case, the implication is to educate our children so that they are able to imagine themselves outside of themselves with ease and to productive ends. We have already discussed that our ability to externalise our thinking through art and story-telling may have been a pre-requisite for human development. Perhaps similar activities might help individual learners to come to terms with and finalise concepts inherent in their own thinking? Findings from the 'Mapping Transformation' project described above certainly suggested that this is the case. Kant recognised that art is a cognitive product of transcendence 200 years ago. We have used art to help us live as transcendent beings for 50,000 years. Why is this not more explicitly recognised or verbalised in art education practice? Figure 3.6 expresses Kant's theory in relation to imagination and

art, recalling the iterative process of self-awareness and cultural production shown in figure 3.2.
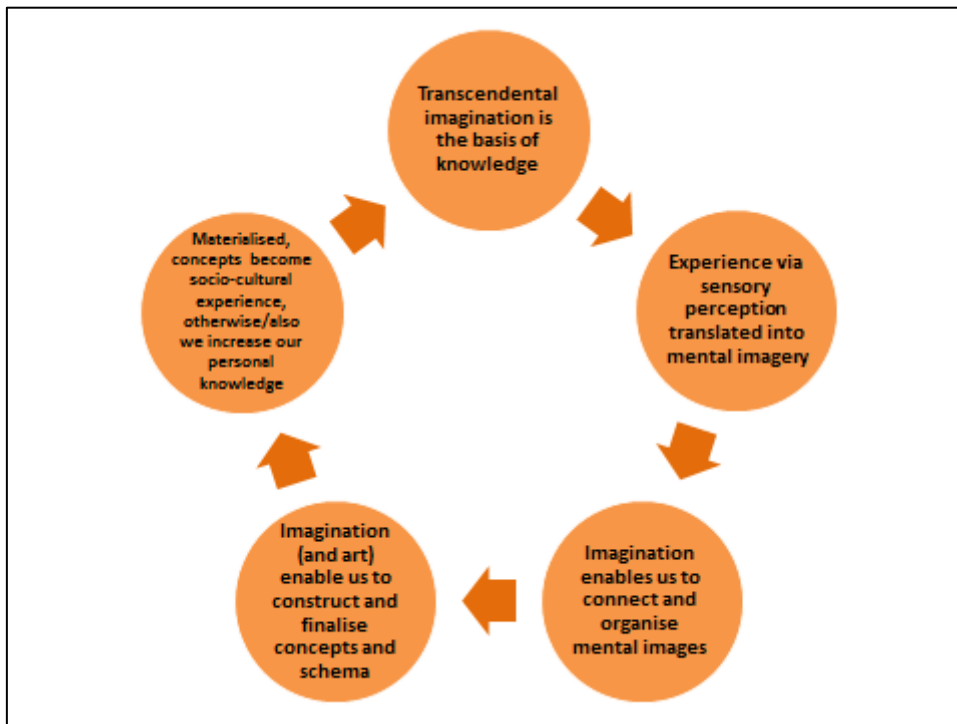
Figure 3.6 Transcendental imagination and art: an iterative process

We will end our discussion of key philosophical theories with Kant, since his work sets the scene for and comes close to the psychological perspectives which will be discussed in the next chapter. We will be omitting much. Given more capacity than this thesis allows, we would explore, at least, the romantic perspectives of Coleridge and Wordsworth, the existentialist views of Sartre and Heidegger and postmodern approaches of Foucault, Barthes and Derrida. In attempting to discuss these theories here, we would not do them justice. Instead, we have examined what seem to be the 'biggest' and most overtly influential ideas which impact on our understanding of imagination and relate to visual-arts education practices.

3.4.7 Summary and implications for pedagogy

From Plato we inherit a distrust of imagination, based on discrediting the value of sense perceptions and due to this, an explicit relegation of imagination within an imposed hierarchy of cognition. Within this hierarchy, imagination is separated from reason. By association with imagination and with the 'second-hand' nature of sense perceptions which art turns into 'third-hand', inaccurate representations of nature, art, like

imagination, is treat with suspicion and awarded a low status in terms of human achievement. We may inherit the concept of art as a 'talent' or 'gift' and more so than in other subjects because of Plato's assertion that good art is a result of divine intervention. Descartes (while asserting the origin of knowledge as being within the self) asserted a mind/body dualism in which sensory perceptions are apt to lead us away from reason. This can be reached by his 'method', to which imagination is a hindrance. Strands of thought have emerged which I would argue have a continued negative impact on attitudes to imagination and by association, to art education. These are:

- a suspicion of the sensory basis of imagination
- a view that imagination has a limited usefulness in cognition
- a view that imagination is at odds with reason
- a belief that useful episodes of imagination occur only through divine intervention, or by directly tapping into nature, in a 'nature' as opposed to 'nurture' model of thought

In education, these strands imply that imaginative subjects, classified here as those in which we rely heavily on sensory perception, are less important than those which require more abstract thinking where we don't use our hands or eyes so much. Art would probably be off the curriculum if we adhered fully to these ideas. The strands of thought imply that sensory experience is not important for learning, so we might expect to see (even) less opportunities for play and for experimentation with materials. We might be expected to think rationally without having recourse to real life experiences, learning methodical techniques from which we should not stray. There would be no risk-taking. Subjectivity would be discouraged and pedagogies would support ways of thinking which are deductive rather than hypothetical or creative. There would be no point in trying to nurture imagination through the arts since, aside from the fact that this could lead to value-less and dangerous thoughts, any useful sort of imagination will occur naturally and cannot be taught. Perhaps the arts would become hobbies and pastimes only. I suspect that, if they did not rebel because the educational experience was so boring for most, our students would be very compliant, dull and unlikely to change the course of their lives or have much impact in the world.

Within perspectives which hold more value for imagination, we inherit Aristotle's exploration of mental imagery as it supports our imagination and a cognitive model which asserts a useful and permeating role for it. We see imagination as a dynamic force which supports our thinking by allowing us to 'move' sensory perceptions to become mental images which we can store and manipulate towards the construction of understanding. He accepts the role of imagination within reason. He suggests that art offers an alternative kind of understanding to reason which is valuable in reaching the 'essence' of things. While Aristotle still believes in universal truths, he describes cognitive processes which allocate a greater role for or move us towards ideas about humans as constructors of knowledge. Descartes, (while also reinforcing mind/body dualism), reinforces this with 'I think therefore I am', unintentionally leading us further away from a belief in objective truth, which has a consistently negative implication for imagination, towards a more constructive perspective of knowledge creation which requires imagination. Building on this, Hume and Kant assert that imagination is in fact the foundation of our consciousness, present throughout our thinking as a fundamental and permeating aspect of cognition. For Hume imagination is a dynamic connector, used to fill gaps in our knowledge. Its power is related to our emotional experiences. For Kant, imagination is an organizing force, enabling us to construct and finalise concepts which move our thinking along. He recognizes cognitive activities as embodied in visual art and tied to aesthetics. The notion of transcendence, in combination with an essential role for imagination in cognition, suggests that imagination must also be required for metacognition, perhaps in greater amounts or more sophisticated applications. We can summarise these strands of thought as:

- Imagination is the basis of knowledge
- Imagination is fundamental to cognition and therefore, metacognition
- The power of imagination is dependent on emotional experience
- By using imagination to produce or experience art we are able to finalise and potentially, express concepts in the physical world
- Transcendental imagination is what enables us to 'step back' from experience and will be required in the development of metacognition

In education, these strands imply a fundamental need to ensure that we support the development of imagination. They imply that imagination is critical not only in specific subject areas but is applicable across *all* of our thinking and learning. In order to

nurture imagination we should ensure students are exposed to sensory experiences which are broad and designed to have emotional impact which individual learners can connect with. Art can provide a way to exercise our imagination, since, through the making process, it reveals our thinking processes. Through experiencing other people's art we are exposed to the finalised concepts of others which then 'feed' our imagination. The idea that art is thinking made explicit suggests that it has potential to support the development of metacognition, since, as we have discussed, it enables us to 'stand outside' of ourselves to 'see' our learning and manipulate our thoughts in regard to it. If we can nurture metacognition by developing imagination then this implies increased value for the role of art (as well as other ways of learning) within the curriculum, since metacognition has a significant positive impact on children's achievement (Higgins et al. 2012).

3.5 Contemporary practice perspectives

Having looked at historical perspectives of imagination, it is worth considering briefly, how and to what extent these manifest in contemporary life. Focusing on perceptions of childhood and imagination in the media, Machin and Davies point out the existence of what seems like an over-simplistic version of imagination which leans towards romantic interpretation.

> *'What is referred to as imagination in public discourse is usually wrapped up with ideas like fantasy and make-believe…This imaginative mode of thought is implicitly contrasted to the rational, mature mode that characterizes adult thinking…The notion of imagination implies a boundlessness and freedom.' (Machin and Davies, 2003, p.106)*

Questioning this emphasis, they see imagination in a similar way to Kant, as a fundamental aspect of our thinking, arguing that we need to think about imagination '…not just associated with free creativity but as a capacity which facilitates our everyday business.' (Ibid, p.107). Machin and Davies highlight a general leaning towards a 'magical' interpretation of imagination, as described in the introduction to this thesis. While not undervaluing the usefulness of the 'magic' which imagination enables, I have seen that in practice, this association can have negative impacts. I am thinking particularly here of the status of arts education, perceived as a highly imaginative activity and placed in dualistic opposition to activities which are seen as

objective, reasoned and measurable so that our education system, with its emphasis on accountability, relegates imaginative and subjective art to 'none academic' status (whatever that actually means). Of course there are worse and even less sophisticated attitudes and for some imagination is 'just fantasy and pretend'.

While imagination is not limited to the arts, it is probably identified with art more than any other subject, so in considering contemporary perspectives of imagination in education it is relevant to consider imagination and art, even putting aside the focus of this thesis in the visual arts. In Chapter 5 we will discuss the relationship between imagination and art in detail but for now, suffice to say that perhaps art offers more opportunity for unrestricted imaginative development than any other subject. In Chapter 1 I outlined what I consider to be the current, dire state of arts education in England. If we are not supporting art, then we are missing a huge opportunity to support imagination and I would suggest that this is not being compensated for in the 'core' subject areas which schools are forced to focus on. If art suffers, so does imagination and if imagination suffers, so does all of our thinking and learning.

It is particularly concerning that by adopting a curriculum which requires us to study 'great' art and artists, those of us without the confidence to interpret this liberally are likely to neglect or reject contemporary art which is culturally and individually relevant. As something which is new to culture, contemporary art pushes at the boundaries of our existing understandings, uncovering gaps in our knowledge which (following Hume's theory), if the art engages us, we will strive to fill. This is likely to result in changes in our understandings which we might call 'learning'. By neglecting contemporary art we lose potential for imaginative exploration which nurtures understanding and criticality in relation to pertinent aspects of contemporary life. This understanding could make us more 'fit for purpose' in a contemporary world, yet we are encouraged by the current government to stick with tradition. Why? Don't they want us to be imaginative, autonomous learners?

Perhaps the persistence of a disregard for art is in part a consequence of the subjective, sometimes emotional and pleasurable aspects of it? Maybe for some, if learning is fun it isn't proper learning. Its frequent identification as technical as opposed to a mental skill (stemming from Plato and Descartes) may reinforce it being seen as

an optional extra rather than as a necessity. Such a technical approach is reflected in the content of the current national curriculum.

The current policy attitude towards art in education emerges from a perspective which seems to omit or be afraid of the cognitive value of art. According to Bruner:

> *'…tyrants so hate and fear poets and novelists…Even more than they fear and hate scientists, who, though they create possible worlds, leave no place in them for possible alternative perspectives on those worlds.' (1986, p.54)*

While it is never acknowledged or made explicit, we uncover a 'suspicious' view of imagination as embodied in art, due to its use in creating world views which may not be in keeping with that prescribed by authority. Indeed, it has the potential to disrupt the status quo. This would appear to lead to its suppression.

Art is not the only way to support imagination. Stories, play, pretend play, drama and other activities are all regarded as activities which generate imagination. Machin and Davies provide a critique of our beliefs as to how to support the development of imagination, on the basis that these are associated with a restricted and 'magical' model of imagination which fails to take into account its fundamental part in our thought.

> *'Western culture represents children as being imaginative compared to rational adults. They are seen as being boundlessly imaginative and spontaneous. The journey to adulthood is one where the individual travels from imaginative make-believe to mature and concrete thinking. But we also think that children need to develop imaginative power.' (Machin and Davies, 2003, p.110)*

The introduction of fantasy stories and stimuli is a pre-requisite for the development of a child's imagination, but 'Exactly how children will develop is never clearly spelled out.' (Ibid, p.109). We shall see in Chapter 4 that the nature of the development of imagination from childhood to adulthood is contested amongst psychologists but there *are* existing theories. The lack of definition which Machin and Davies describe reflects my personal experience of contemporary perspectives of imagination, as a magical quality which, when positively viewed, is the 'key' to good learning and happiness. This is very rarely unpacked. Perhaps this is because as teachers and artists we know

almost intuitively that this is the case, however; the lack of definition or full expansion of the process leaves imagination within education vulnerable and subject to neglect. If we cannot say what it is, then how can we consider how to support it? In the current climate of accountability, if we cannot say what it is and how it works, how can we measure it, or, how can we argue that it should not be measured?

3.6 Chapter summary and response to vignette

Returning to the vignette at the start of this chapter, in light of our journey through historical perspectives of imagination, what are the important themes to introduce to student teachers, or to other arts education and education practitioners? What have we exposed which has importance for education and art education in offering a more realistic picture to inform our often superficial understanding of imagination? Overlapping themes have emerged which are important to share. These are: historic tensions, transcendence, mental images as mediators, cognitive imagination, art as cognitive imagination, art as extension of mind, the problem of art as talent.

- **Historic tensions**: certain philosophical perspectives of imagination have persisted in shaping our current, western understanding of it. In one stream of thought, based in a belief in objective, universal truths; imagination is treat with suspicion and under-valued due to its sensory basis and a belief that it is a threat to reason. In a second perspective, associated with a belief that if there is an inherent truth, it can only be reached via, human construction of understanding based in sensory experience; imagination is treat as a fundamental, cognitive asset which enables us to construct knowledge. From a contemporary perspective, in light of developments in psychology and the lived experience of the author, the second perspective makes the most sense and more accurately reflects imagination within an interpretative perspective.
- **Transcendence**: imagination is responsible for human self-awareness, in a human evolutionary as well as in an individual context. It also enables us to cope with the mental challenge of this self-awareness. Imagination enables us to 'see ourselves', connecting and organising our thoughts towards *our* construction of knowledge, so that *we* are the origin of meaning.
- **Mental images as mediators**: the basic unit of imagination is the mental image, which is our means of transforming and storing sense perceptions in our minds. We

generate mental images through lived experience, suggesting that richer experience might support richer capacity for thought. The power of these mental images is aligned to the emotional impacts which they stir.

- **Cognitive imagination**: imagination, rather than being associated only with fantasy and creative activities, is fundamental *throughout* our cognition. Its basic units are mental images, which we connect and categorise to produce concepts and schema. Without these mental images, concepts and schema and the way they move, driven by our desire, we would be unable to cohere ideas, to solve problems or to reason. If imagination is cognitive, it can be nurtured. Given this broad definition of imagination, not limited to making things or stories, it is more difficult for someone to say that they 'have no imagination' or to think that this is a healthy attitude to impart to learners.

- **Art as cognitive imagination:** while art is undoubtedly linked to the senses and we often use our hands or bodies to make it, because it is an imaginative activity (according to opposing philosophies which both favour and discredit art), it is also a cognitive activity, given our definition above. The fact that our bodies might be involved in its production does not imply that we think any less in art than we do in other subjects. It is not accurate or helpful to classify it either purely or mostly as technical skill. As such it has been relegated to low status in comparison to other subjects which we consider to be 'academic'.

- **Art as extension of mind:** using art to work out ill-fitting thoughts has been intrinsic to our development as humans and is also useful on an individual level. By placing our thoughts outside of ourselves and 'stepping back' from what is a concrete representation of them, we seem to provide ourselves with 'space' or freedom to work things out, particularly things which may be difficult to grasp or align with our existing knowledge. Art can help us to reach the 'essence' of things and enable us to cohere and finalise concepts. As well as extending the individual mind, art extends socio-cultural consciousness through the material manifestation of thought. In this way it has supported our socio-cultural development. We need to provide 'spaces' for art, both metaphorically and physically, as opportunities to experience and make art and environments in which we can make and experience it. Artist studios and art galleries need to be part of our education, along with increased opportunities for art within the curriculum.

- **The problem of art as 'talent':** we have established that imagination and therefore art are cognitive activities. We have also seen that a Platonic perspective of 'good'

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art as being manifested via the artist's direct channel to divine truth can be rejected on the basis that *we* are responsible for constructing knowledge. Nevertheless, this attitude still permeates our ideas of art and imagination. It seems reasonable to accept that in any area of knowledge there is a mixture of 'nature and nurture' in play, with genetic and socialised influences merging to impact on ability. Why should art, as a largely cognitive activity, supported by the parallel and intertwined activity of developing technical skill (which is itself cognitive as well as physical) be dependent on a notion of 'talent' more than any other subject is? If we imply that art depends on talent more than other subjects do, we imply that it cannot be learned and is not an important aspect of education. By extension, considering that human evolution has depended on art making as a means of imagining, in not supporting children and young people to study art we risk neglecting the development of imagination.

3.7 Visual re-presentation: historical imagination
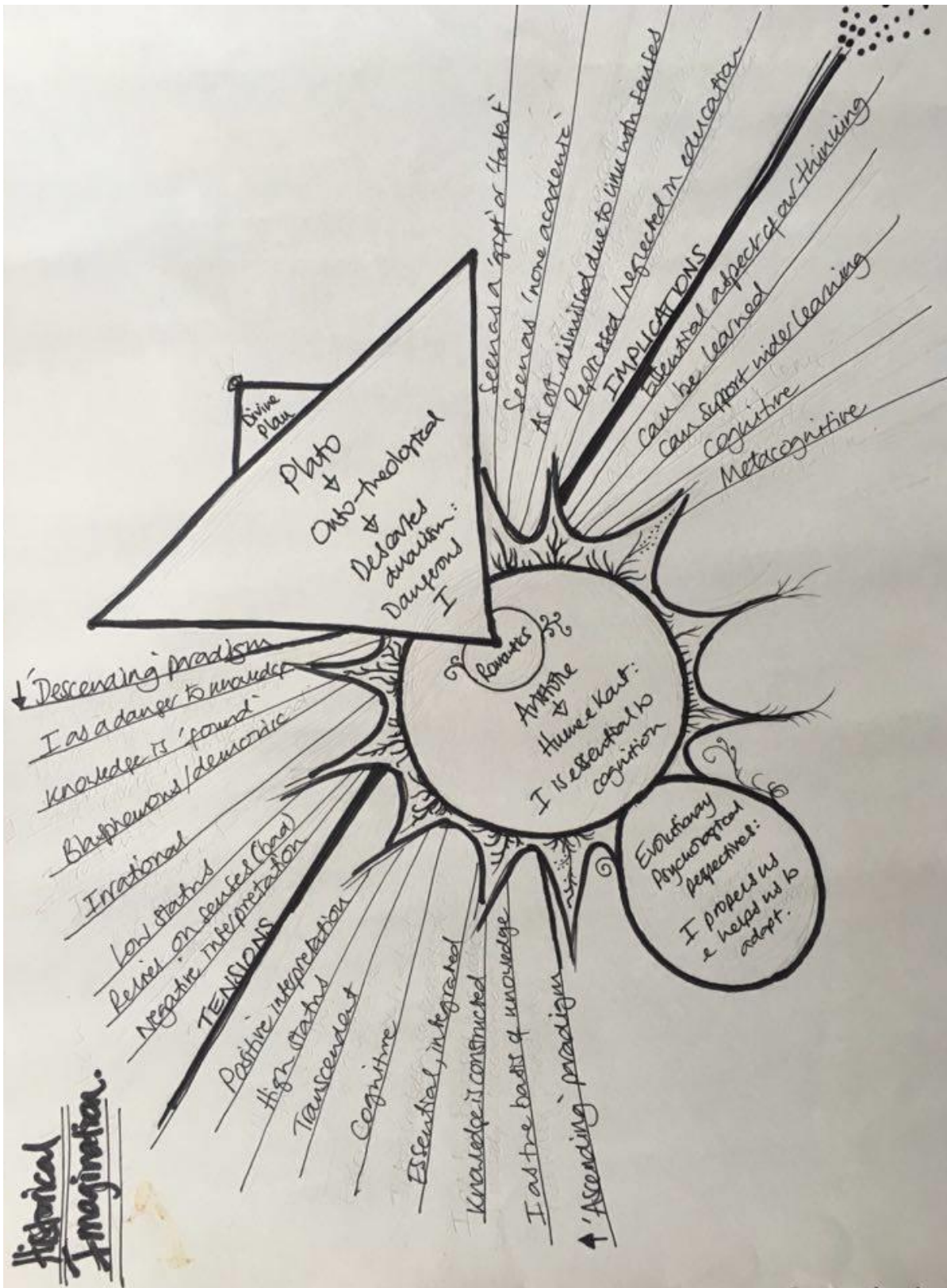
Figure 3.7 Re-presentation: Historical Imagination

Chapter 4. Imagination: a psychological perspective

4.1 Vignette: imagination and art supporting my own thoughts

Writing the preceding chapter required me to be imaginative about imagination in order to arrive at an understanding of it which would encompass a range of perspectives over different periods in history in order to identify our constructed understanding/s of it. The archaeological, evolutionary, philosophical, religious and scientific perspectives were initially unfamiliar to me in any substantial way. As I tried to gather my thoughts about the broad reading I was doing, identifying key ideas and making connections between them, a loose understanding of their 'fit' within my own world view began to emerge but the picture was hazy, with aspects of it moving in and out of 'view' and being impossible to grasp at the same time. This feeling is very normal for me and is part of what has often led me, whether in academic work or in work as an artist, to produce a 'whole picture' of the relationships between the different elements of an overarching view of imagination. For this reason, my thesis was visualised as an evolving 'map' on the wall of my study from the planning stage onwards. Written thoughts, references, doodles and potential connections between things were added to it as I read and wrote, in the hope that it would all come together in the end. In staring at these connections, I experienced a need or drive to find out what all of these concepts and ideas might 'look' like. What exactly did I have in front of me? Without fully, consciously intending to do so and more out of a feeling that it was 'right', I began to make a collage as a result of these feelings and thoughts (Figure 4.1).

The collage used visual-symbolic representation as opposed to the more text-based representation in my mind map. Making this work felt like exactly the right thing to do but was out of the ordinary for me, since I hadn't made any art for 7 years, with the exception of some doodles and ink sketches which I now included in the collage. As an artist who had effectively 'given up' art and deliberately turned my creativity in new directions, I had always felt a kind of guilt at leaving art behind, having believed in it as an alternative and dignified way to deal with existence and as a woman from a working class background, having been determined to continue with it 'against the odds'. I would constantly think that really I *should* make art. In the face of multiple commitments, shortly before writing the following chapter of my thesis I had made the decision that I would make art again but not until my thesis was complete. Strange then, that I suddenly found myself painting and collaging!

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Figure 4.1 Working out 'imagination' through collage and paint (with details)

It wasn't really until I was well into the process of making this collage that I realised that I was trying to depict imagination, or my current picture of it. The act of making was largely an act of asking myself what imagination looks like and a means of trying to get to an answer which I felt was somewhere inside me but couldn't be released or realised other than by this means. It was a way to get at *my* truth on the matter. In part, I think this was a reaction to the broad reading I had been doing – trying to remain critical in the face of this by establishing a personal view. On reflection, I saw making this work as a way towards a kind of understanding which I was unable to reach by reading or writing. As I worked, I began to establish 'rules' to govern how I would allow myself to meaningfully depict the elements of the work (this seems to me to largely constitute the basics of painting – making choices about what the paint is allowed or enabled to do - and connects with my previous practice as an artist). The 'rules' of what the paint was encouraged to do were associated with the concept I was working with. For example, the thickness or prominence of a colour, or of a line, were significant in some way – perhaps not in a completely literal way but there was a sense that it was 'correct', or 'settled' both aesthetically and conceptually. Shapes and inset images were symbolic. There was a sense of balancing images and ideas and that by this act I would arrive at something complete or 'true' in my own terms.

What is of interest here is *why* did I feel that this was the way forward? What was it about making a piece of art that I thought would be helpful? I felt driven to undergo this process and the act of making made me feel really good – my mind and my body working together to semi-consciously try to resolve a question and construct an image which represented that solution, as worked out on the paper. I had and have no intention to show the piece of work (although I reluctantly include it here as Figure 4.1 so that this discussion is less abstract) and the motivation was purely related to functionality in terms of working through my thoughts and feelings.

In the end, the experience of making the art, as opposed to the finished piece, is probably what was most helpful in helping me to reflect further on 'imagination', as I was able to consider the imaginative process I underwent to make the art as well as the way I had represented imagination as a kind of 'essence'.

I outline this experience at the beginning of this chapter in the hope that, by the chapter end, I am able to offer some ideas as to why producing a piece of art was a useful way

forward, considering the production of the piece of art as an act of imagination and imagination as a cognitive and metacognitive act or essential aspect of cognition and metacognition. Therefore I will be trying to answer the question of why imagination is useful to our psychological development as human beings by assimilating multiple perspectives in light of my experiences and constructing a personal theory on that basis.

4.2 Imagination and Child Development

Contemporary psychology confirms by scientific means what philosophers from Aristotle to Kant theorised, namely, that imagination is fundamental in and to cognition. For example, in work which looks into the generation of new ideas, Magid et al. (2015) establish that in problem solving in novel situations, children use their related mental representations to constrain the hypothesis they consider within an analogical thought process dependent on imagining. To the degree that the ability to represent the abstract form of a problem and a solution is a constraint on hypothesis generation more broadly, imagination does not just support thinking; it is "just thinking".' (Magid et al. 2015, p.11). While this statement acknowledges the quality of criticality in imagination, it is useful to look more closely at its role in our thinking and in the development of our thinking, so that we are fully informed in supporting the simultaneous development of imagination and thought, *if* these two things are actually separable.

Piaget argued that 'In reality, the child has no imagination, and what we ascribe to him [or her] as such is no more than a lack of coherence, and still more, subjective assimilation' (1962, p.131), suggesting that where there is a gap in our thinking, 'imagination' will follow merely as a useful term which coheres a series of assimilating and accommodating processes, aligning with the more recent ideas of Magid et al. (above). Vygotsky argued that '…even in the simplest generalization, in the most elementary general idea…there is a certain bit of fantasy.' (1986, p.39). This section will attempt to unpick the workings and overlap between what we might describe as imagination and what we call cognition and metacognition. While key literature acknowledges the role of imagination in development (e.g. Piaget, 1962, p.205, Bettelheim, 1991, p.4, Vygotsky, 1986, p.39) it often does so obliquely or, even when there is specific reference to imagination, this is usually in terms of its role within an aspect of cognition. I would like to up-end this perspective to look at what kinds of

cognition happen within, or constitute what we would generally call 'imagination', as defined within the scale I have identified.

This chapter begins with an overview of Piaget and Vygotsky's theories of child development, associated with imagination. These theorists are selected as 'key thinkers' whose work I have an established respect for, related to my own ontology and which is used frequently to support current education practice. The theorists provide an interesting contrast in terms of differing approaches to imagination as related to different ontologies, so that we can explore the relationship between ontology and the implications of this for imagination as dependent on the level of subjective interpretation acknowledged as present in the accumulation or construction of our knowledge. I realise that reference to these two theorists misses much in terms of the psychology of imagination in child development, so attempt to use them as a foundation for establishing key principles for use in extrapolated discussion which draws in further theories and research. This discussion follows the structure of the 'scale of imagination' proposed in Chapter 1 and relates aspects of developmental cognitive theory to each 'type' of imagination before going on to discuss metacognition and applying the same structure to that area of thought. I will show how imagination is integral to our development, begin to identify aspects of cognition which seem especially relevant to art and imagination, so that these can be expanded in Chapter 5, as well as begin to discuss some implications for pedagogy which will be solidified in Chapter 6, where I will focus on the value of art in imaginative learning and what good visual art-based pedagogy might look like.

4.3 Piaget

4.3.1 *Piaget's attitude to imagination*

As noted above (4b), Piaget argued that imagination is in fact the child's attempts to cohere his or her experiences of the world. Piaget's successive and sequential stages of child development are well known, with children undergoing an age-related process involving consequential, developmental steps from sensorimotor (0-2) to pre-operational (2-7), concrete operational (7-11) and formal operational (11+) (e.g.; Morgan, H. (1999) p120-125, Wood, D. 1988, Ch. 2). In the context of this thesis, Piaget's concepts of schema and the accommodation and assimilation of new experiences into these (1952 the Origins of Intelligence in Children) resonate with Kant

and Aristotle in considering the role of imagination in developing a mental model of our world. We construct this by drawing upon a store of mental representations, related to sensory perceptions, which like Aristotle, Piaget describes as images (Piaget, 1971).

Piaget's proposition that we rely on active experience with our environment for the development of our learning implies the importance of sensory perceptions, going against Cartesian and Platonic concepts which demote and stigmatise physical experience. Wood summarises Piaget's idea that 'Thought is internalized action' (1950 The Psychology of Intelligence) well:

> *'…the analysis of human knowledge and intelligence must begin with a consideration of motor activity and practical problem-solving. It also alerts us to one of his most important messages, which is that children have to be active and constructive in order to develop their understanding of the world.'*
> *(1988, p.19)*

Piaget sees active experience as critical in the early, ego-centric stages of sensorimotor and pre-operational thought which prepare the ground for concrete and formal operations. These 'later', more developed operations are akin to logical and abstract thought, so that, while Piaget emphasises the importance of sensory experience in the early stages of development, we see an echo of Plato's 'divided line' represented in a 'progression' *away* from sensation and perception and *towards* reason and abstraction. There is an inference that these later ways of thinking are more complex than their sensory predecessors, thus implying (whether intentionally or not) that these more abstract thinking skills (perhaps referred to in education as more 'academic') are somehow 'ultimate'. Whether Piaget intended that we strive for these later 'levels' throughout our lives as learners or whether they are simply 'ultimate' within the developmental process itself is unclear to me within the scope of literature appropriate to this study.

In the ego-centric phases up to age 7, children are characterised as not yet being able to think as adults do, with Piaget characterising adult thought as being rational and empirical to some extent:

> *'…these egocentric habits have a considerable effect upon the structure of thought itself. This it is chiefly because he [or she] feels no need to socialize his thought that the child is so little concerned, or at any rate so very much*

less concerned than we are, to convince his hearers or to prove his points.'
(Piaget, 1964, p.1)

While Piaget is discussing the development of thought as opposed to thought in general, there seem to be inherent assumptions in his work that objective, empirical thinking which rests on culturally agreed 'truths' is more desirable than or superior to more intuitive, subjective thinking which we might consider to be characteristic of artistic and imaginative thought. He describes ego-centric thought as a 'regression to a primitive mode of thinking' (2002, p.153). I would argue against such a hierarchical approach which favours deductive reasoning, believing that the more subjective thinking which Piaget places in early, egocentric development, which he proposes is critical in supporting us to construct knowledge and meaning, is also critical throughout our learning. As I will outline below, it opens up possibilities for new interpretations, necessary for the construction of new understandings and ideas. One critique of Piaget is that:

> *'…he had "always detested any departure from reality", which he related to the influence of his mother's poor mental health…he confessed to having no visual imagination and no understanding of poetry…He was the epitome of his own theory, an imperialistic philosophy which perceived in the development of the child a recapitulation of the development of culture from the "primitive" to the "enlightenment", satisfyingly situating the western scientific world as the pinnacle of intellect.' (Angelo in Adams and Duncan (eds.), 2003 p.131)*

While I agree in part with this opinion Piaget offers much to support the argument for imagination and creativity if we cease to accept the early developmental stages which he outlines as being inferior to the concrete and formal operations which can be seen as something to be aspired to within his model. By removing a hierarchical perspective of the 'stages' we find useful models of thought which help us to think about how imagination functions in development and in 'developed' learners. For me, different kinds of thinking are likely to be more or less useful in different contexts. If artists tend to use cognitions which are more akin to Piaget's sensorimotor and preoperational stages (though they will probably use concrete and formal operations too) it is because these aspects of cognition suit their purposes and offer a particular kind of insight in the construction of their (and, in a cultural sense through the production and sharing of art, our) mental models. Therefore, it is useful to look more closely at the processes

which Piaget describes as addressing a 'lack of coherence' (Piaget, 1962, p.131) and which enable our 'subjective assimilation' (Ibid) within the construction of our understanding, which Piaget suggests is what we mean by 'imagination'.

4.3.2 *Imagination in cognition for Piaget*

'Assimilation' and 'Accommodation' are key terms for Piaget as

> *'… ways in which children make meaning from experiences. Our environment creates certain demands that we must accommodate. We will then react to the environment in terms of what we have assimilated (learned)'. (Morgan, 1999, p.122)*

Within Piaget's developmental perspective we can assume that, as Kant had proposed and Piaget suggests, imagination is key within the processes of assimilation and accommodation depends on activity (such as play) undergone by the child. Within and through this activity, the child develops a repertoire of and propensity for using symbols:

> *'As regards the content (the symbolised), it is only the child's own life. Just as practice play reproduces through functional assimilation each new acquisition of the child, so "imaginative" play reproduces what he [or she] has lived through, but by means of symbolic representation.' (Piaget, 1962, p.131)*

As well as suggesting the importance of ensuring a range of active experiences, Piaget's theory indicates the presence or development of some kind of imaginative/symbolic 'store' which we draw from in order to assimilate and accommodate. Again this echoes Aristotle and is also referred to by Broudy (1987) (discussed further in the next chapter) who refers to an 'image store' which we use to construct understandings. If such a symbolic system of mental images is construed literally as being dependent on stored, analogue models of visual or, in the case of visual impairment and blindness, sensory imagery, perhaps there is a case for arguing for a special value in introducing highly visual or sensory activities, likely to include art, to the child in order that they can develop their 'repertoire' and visual symbolic language. This is discussed further below.

Piaget describes the varying roles of imagination within young children's play, seeing that it can be the 'content of the game' when a child 'makes up a story he knows to be untrue for the sake of telling it' or can be the 'instrument of the game', when used symbolically to represent something within play (Piaget, 1962, p.119).

> *'Just as in non-symbolic games practice is functional assimilation which enables the child to consolidate his [or her] sensory motor powers…or his [or her] intellectual powers (questions, imagination, etc.), so the symbol provides him [or her] with the means whereby he [or she] can assimilate reality to his [or her] desires or interests.' (Ibid)*

Symbolic thought then, is fed by and intertwined with 'imagination', and is essential within development, especially as this development takes place in and is reflected through play. Piaget's description of the 'symbolic schema, the reproduction of a sensory motor schema outside its context and in the absence of its usual objective'(Ibid) is reminiscent of Hume's definition of imagination as the ability to bring to mind what is not present, discussed in Chapter 3. The recognition of the importance of symbolic schema and how these function to integrate and construct new knowledge, for me, as a trained artist, resonates immediately with visual arts practice and with the experienced described in the vignette at the beginning of this chapter which details the use of a symbolic, image making process to construct a new image/schema in relation to a group of thoughts. The aspects of Piaget's theories most closely aligned with artistic practice are those of egocentric thought and within this 'autistic' thought, (meaning subconscious thought, not adapted to reality which 'creates for itself a dreamworld of imagination' (2002, p.44) in contrast to 'directed' thought which is conscious, adapted to and aimed at influencing reality) beginning at age 2 and extending into age 7 -8. It is worth interrogating these ideas in an attempt to uncover the 'mechanics' of imagination.

Further resonances between what Piaget identifies as earlier developmental, egocentric stages and the cognition which, from experience, I know is connected to art processes (which will be discussed from an 'art' perspective more fully in Chapter 5), lie in the concepts of 'autistic imagination', important in children aged 2-6, and 'verbal syncretism' which Piaget suggests develops as the child reaches 7-8.

'Autistic thought is subconscious… it is not adapted to reality, but creates for itself a dream world of imagination; it tends, not to establish truths, but so to satisfy desires, and it remains strictly individual and incommunicable by means of language. On the contrary, it works chiefly by images, and in order to express itself, has recourse to indirect methods, evoking by means of symbols and myths the feeling by which it is led.' (Piaget, 2002, p.44)

The connections here with what I have termed 'imaging', at the start of our imaginational scale, as well as, at the other end, 'fantastical imagination' seem strong in that this is a process which uses mental images but without any, or with limited 'real world' boundaries. Without sufficient experience or activity to be able to combine images, Piaget suggests that we leap to the fantastical in order to make meaning because, at this stage, it makes as much sense as anything else, since schemas still lack 'realistic' information. According to Piaget:

'Ego-centric logic is more intuitive, more "syncretistic" than deductive, i.e. its reasoning is not made explicit. The mind leaps from premise to conclusion at a single bound, without stopping on the way…Little value is attached to proving, or even checking propositions. The vision of the whole brings about a state of belief and a feeling of security far more rapidly than if each step of the argument were made explicit….Personal schemas of analogy are made use of…Visual schemas also play an important part, and can even take the place of proof in supporting the deduction that is made' (Piaget, 2002, p.47)

An emphasis here on personal, subjective schemas, fluid, intuitive connection making, the use of visual schemas and having a sense that a schematic 'vision' is complete, have strong resonance with artistic practices. For me, this suggests that there is a place for artistic play not only in the developmental stages of our learning but throughout life in order to provide a particular perspective on things, to open out our possibilities, to reach intuitive conclusions and to enable originality. If a logical 'proof' is required, this can be explored afterwards, in the way that Einstein described his thinking as depending more on imagination than on knowledge and his thought processes as visual (see Miller, 2000, p.431). When more socio-centric thought evolves after age 7-8, egocentrism

'…remains crystallized in the most abstract and inaccessible part of the mind, we mean the realm of purely verbal thought. In this way, a child may cease between the ages of 7 and 11 to 12 to show any signs of syncretism in his [or her] perceptive intelligence…and yet retain very obvious traces of

syncretism in his [or her] verbal intelligence, i.e., in those thoughts that are separate from immediate observation.' (Piaget, 2002, p.130)

Again this resonates with artistic practice and the use of physical processes to 'tap into' a level of consciousness or way of thinking which is symbolic , visual, personal and difficult to put into words. According to Piaget 'It is in ego-centric thought that we give reign to our imagination. When we think socially, we are far more obedient to the "imperative of truth"' (Ibid, p.126). Perhaps artists take this route because images (in the broader sense of images which are based on sense perceptions) best enable them to express their ego-centric thought? Perhaps they work in a language of symbol, myth and metaphor because ego-centric, autistic and syncretistic thoughts are difficult or impossible to communicate otherwise, unable to cope with the intuitive, none-rationalised leaps of syncretistic connections within this kind of thinking (unless perhaps in poetry or songs as specialised forms which provide space for association) and being associated with 'organic wants' (Piaget, 2002, p.45) and associated feelings, as Piaget ascertains. For many friends who are artists, the feeling that something should, could or would not suit being put into words can drive them to make art, which captures thought of a different kind, operating in a metaphoric language as opposed to language with words. (We shall discuss this in more detail in Chapter 5). If we begin to see this we begin to see how art processes really do utilise imagination in a more 'pure' or isolated way than creative thinking in other subject areas might, as there is a 'direct route' into autistic imagination and syncretistic thinking which does not necessarily (but may) attempt to apply this to a 'real world' situation or problem. Perhaps artists are expert at tapping into autistic imagination and verbal syncretism, which emerge as key qualities of artistic processes? Going further, does art reveal ego-centric thought and present it for either, further egocentric reflection by the artist of viewer or, for transformation into 'communicable intelligence' (Piaget, 2002, p.46) as culture, in society?

Presumably, if as adults we have mastered the ability for all kinds of thought within Piaget's model (though there are suggestions suggests that not all of us do and that this can be culturally relative e.g. Dasen, P.R. (in Lonner and Malpass, 1994) we might take a pragmatic approach to picking and choosing when and how to apply different aspects of our thought and when to 'use our imagination'. Piaget cites the intuitive translation of language as an example of the positive use of syncretistic thought (2002,

p.154) in which 'A schema of understanding is constituted, resting only on a few points. In these cases such a schema precedes analytical understanding' (Ibid) but must analytical understanding always be the final goal? Perhaps it is useful to think about the world in other ways too? Perhaps sometimes we need a different way of looking?

Also resonant with artistic thought is the idea of 'movement of thought from the whole to the part' embodied in syncretistic perception which 'excludes analysis, but differs from our general schemas in that it is richer and more confused than they are.' (Piaget, 2002, p.134). For me, this is what art (particularly conceptual art) does – it expresses a syncretistic perception of the artists schema related to an aspect of their world. This is a broad (in that it does not necessarily follow a 'logical' route), open and personal piece of thinking, realised and made explicit through artistic process. As such, the potential of artistic methods for supporting us to 'transcend' ourselves and 'see' how we think, becomes apparent. Through syncretism and autistic imagination we can 'think beyond'. This will be further discussed in relation to 'metacognition', (below) and begins to suggest that art pedagogy, in supporting and exposing syncretistic perceptions and autistic imaginings, might support the development of metacognition by providing a channel for these kinds of thought, which we might describe as imagination. While utilising 'fantastical imagination' in terms of our scale, this process may become more like 'creative imagination' as we apply it to the 'real-world' context of our learning. This rationale follows Piaget's logic that concrete operations need to develop out of ego-centric activity related to autistic imagination and syncretism.

What are the conditions which support the development of these potentially productive kinds of ego-centric thought? Piaget's concepts of equilibrium and disequilibrium also ring true in terms of imaginative thought processes, performing a motivational role and driving the urge to construct coherence. Impacting as we move towards more socio-centric thought, with this shift challenging our existing, ego-centric conceptions, disequilibrium will occur when our existing understandings come up against those of other people. 'Social experience, then, may help a child to restructure her thinking by inducing agreement and cognitive conflict that mobilize thought and help to being about the next stage of development… ' (Wood, 1988, p.44). We are moved to develop a schema when we sense that new information cannot be assimilated by our existing schema and there is a need for accommodation, in other words, when there is disequilibrium. '…the equilibration process is an active reaction on the part of the

subject, serving to compensate peturbations in a system.' (Piaget, 1971, p.359). When we are presented with disequilibrium, according to Piaget, syncretism will kick in as part of an oscillating process whereby we extend our existing schemas or create new ones in order to accommodate new information.

> *'In syncretism of understanding, as in that of perception, there is a solidarity between the details and the general schema. One may appear before the other…but it will call forth the other and be called forth by it by a process of alteration which prolongs itself into an indefinitely protracted oscillation. As this rhythm is repeated, the details are more and more analysed, and the whole is more and more synthesized…to begin with, only the largest and most distinctive details are noticed, and only the coarsest of general schemas are constructed…then analysis and synthesis develop concurrently and at the expense of the initial syncretism.' (Piaget, 2002, p.159-160)*

The implication is then, that in order to be able to reason, we must first engage in a process which emerges from sensory perceptions and syncretism so as to be able to 'fill in the detail' of a general picture through further analysis, so that 'syncretism of reasoning grows out of that of understanding and perception.' (Piaget, 2002, p.160). Having argued that Piaget's description of mental imagery and syncretism are what we might otherwise describe as 'imagination', it follows that imagination underpins our ability to reason and is likely to initiate this cognitive process.

The syncretism which Piaget describes as a main component of this coherence forming/imaginative process, lying in between autistic imagination and concrete/formal thought, seems to qualify as or be integral to 'productive imagination', when we combine knowledge into an existing schema, or, when new schemas are constructed, 'creative imagination' as identified in the scale established previously. The concept of addressing disequilibrium certainly rings true in the context of the vignette at the beginning of this chapter, where I was using art to support the cognitive process of cohering my thinking about imagination. This raises the question of why it might be useful to include a sensorimotor process such as painting as part of the cognitive process. The artist Joan Miro said 'I begin painting and as I paint the picture begins to assert itself, or suggest itself, under my brush…The first stage is free, unconscious…the second stage is carefully calculated.' (in Miller, 2000, p.431-432) Is this process successful because the thinking in use requires a return to the autistic imagination which operates symbolically and is related to organic desires (Piaget, 2002,

p.44)? Or is this more connected with Piaget's belief in gaining understanding by direct experience – of learning by doing? It may be helpful to some of us in feeling more confident with our mental model to see our thought process realised through our senses in a way which produces a concrete and satisfying end result. A return to sensorimotor activities might be beneficial within this. A return to a way of thinking which happens through action is associated with more 'open' and playful learning which, in not being limited to the concrete or formal, enables us to expand our thinking through a broader range of possible connections which make a different kind of 'sense'.   In combination with John Hattie's findings (2014, Ch.15) that physical activity and gesticulation enable us to 'free up' thinking space, the sensorimotor aspect of artistic process becomes a powerful tool within our learning process.

While Piaget seems to elevate the status of logical thought, he also recognises that imaginative thought is key to developing the ability for this and acknowledges the need for a 'system of imaginal symbols' (1971, p.381) which complement our use of language (which he describes as being often too abstract, impersonal and lacking concreteness) in providing a vital semiotic function. Our ability to generate mental images is essential in providing a semiotic system which enables us to think.

> *'…if one wishes to evoke in thought some past perception, it is necessary to supplement the verbal sign system with a system of imaginal symbols. Without some semiotic means it would be impossible to think at all. The image, then, is a symbol in that it constitutes the semiotic instrument necessary in order to evoke and think what has been perceived.' (1971, P.381)*

Piaget suggests that experience, activity and play are essential in generating the kinds of thinking needed for our early development in order to form the foundations of our schema.   Given that an artistic process is one of constructing and expressing a coherent or new schema, it makes sense to 'go back to the start' and access a kind of thinking which depends on our hands and senses, in order to present a special kind of understanding in a subjective and interpretable form which does not seek to be logical or deductive but prioritises a metaphoric perspective of the world.

Ego-centric thought might be considered as our most imaginative thought because it is not deductive or tied to the 'real world' but instead operates more intuitively, drawing

on 'autistic thought'. Later, socio-centric, concrete and formal operations also require imagination in the form of syncretism, in order to make connections, support analysis and develop hypotheses, filling out our schemas with detail gathered from an increasingly socio-centric perspective. Piaget's theories suggest that imagination is essential both in child development and in providing the foundation for the more logical thought which he ascribes to developed learners. His ideas pivot around a shift between thinking which is not attached to a consensus about the 'real world' to thinking which follows 'general laws' as absorbed through socio-cultural relations, with this shift becoming an indication of developed learning. This theory only stands if we accept ontologically a notion of 'truisms', whether in a positivistic sense or in a socio-cultural sense. An interpretivist, constructivist ontology might call this into question, positing the idea that we live in a chaotic universe in which all we can do is make our own sense. For me, this ontology aligns closely with syncretistic cognition and we might expect to see the role of 'connection making' increasing in such a paradigm. My own syncretistic thinking brings to mind a scene from the end of the 'Harry Potter' series, in which Harry, having seemingly been killed by the evil Voldemort, meets Dumbledore in an after-life version of Kings Cross Station.

> *'"Tell me one last thing", said Harry. "Is this real? Or has this been happening inside my head? ". Dumbledore beamed at him…"Of course it is happening inside your head, Harry, but why on earth should that mean that it is not real?"' (Rowling, 2007, p.579)*

If we dispense with the idea that there is a meaningful distinction between 'autistic' and 'real world' knowledge, we are left with an ontological model in which syncretistic connection making is the only sense there is. Therefore imagination reigns. This moves us towards and exploration of constructivist approaches to learning.

Age. Ego/socio-centric	Type of thought related to imagination	Description of cognition	How the cognition functions
2-6 Ego-centric	Autistic imagination	Subconscious 'dreamworld' of imagination, not adapted to reality	By images, evoking symbols and myths, driven by a need to satisfy desires, understand by doing
7-11 Towards socio-centric	Syncretism and verbal syncretism	Ego-centrism internalised & crystallized into verbal syncretism, characterized by intuitive, illogical, connection making.	Perception by means of general schemas, not analytical detail. Movement from the whole to the part via intuitive connection making
11+ Socio-centric	Logical thought and abstract reasoning (supported by verbal syncretism)	Logical thinking about concrete objects and hypothetical thought	Schema extend via oscillation between syncretistic thought and developing schema towards solidarity between detail and general schema

Table 4.1 Summary of imagination in cognition for Piaget

4.4 Vygotsky

4.4.1 *Vygotsky's attitude to imagination*

Where Piaget was self-admittedly uncomfortable with fiction and art (see above), Vygotsky explicitly outlined their value, not only in the early stages of development but throughout our lives and ultimately, for the social construction of culture and society. It is interesting that Vygotsky's first work and we might tentatively assume part of the foundation for his constructivist approach was 'The Psychology of Art' (1971) and in his paper dedicated to 'Imagination and Creativity in Childhood' (2004) he asserts that:

> '…imagination, as the basis of all creative activity, is an important component of absolutely all aspects of cultural life, enabling artistic, scientific, and technical creation alike. In this sense, absolutely everything around that was created by the hand of man [and woman], the entire world of human culture, as distinct from the world of nature, all this is the product of human imagination and of creation based on this imagination.' (Vygotsky, 2004, p.9-10)

While not explicitly expressed, the emphasis on construction and creativity in Vygotsky's work implies a basic difference with Piaget, perhaps on an ontological level. While both describe a process in which complex concepts, related to 'real life' are developed by learners, Piaget's ascribed high status for logical/abstract thought and the negation of imagination within this, for me, suggests a deductive or reductive approach which pivots around the notion of discoverable 'truths', in a Platonic sense, while Vygotsky's more constructive approach suggests that we have the ability or need to *construct* 'truths' or at least ideas which function practically in that way. Vygotsky's ideas seem more akin to post- modern ontology, despite the fact that his death in 1934 pre-dated this considerably. Here is an author whom we might expect to have much to offer in a consideration of imagination.

4.4.2 *Imagination in cognition for Vygotsky*

A useful way to begin to explore Vygotsky's theory as well as to illuminate his and Piaget's theories of imagination is to explore the differences between these two models. Both are set within broader perspectives on child development and might be considered related in terms of 'opening the black box' of our minds and revealing the process of learning. Amongst other sources, Vygotsky provides us with his own insight into this through his respectful critique of Piaget's theory in 'Thought and Language' (1986), chapter two, on which Table 4.2, below, is based.

Vygotsky pictures imagination as an interwoven dynamic between combined, mental images and concept-development which creates iterative, constructive cycles in our learning influenced or instigated by experience and emotion. There are key differences between Vygotsky's theory of imagination within our development and that of Piaget. The former model extends the need for imagination throughout our developmental stages, into logical/abstract thought and in life-long learning, with imagination dependent on 'real –life', socio-cultural experience rather than originating in the autistic subconscious.

The table below attempts to summarise the key differences between Piaget and Vygotsky's theories of imagination which I will now expand on briefly.

Area of difference	Piaget	Vygotsky
Foundations of imagination	Imagination and fantasy are grounded in 'autistic', subconscious thought	Imagination and fantasy are grounded in sense perceptions gained from social and cultural experience in reality, are conscious and can be directed
Childish imagination	Children are more imaginative than adults, as is revealed through their play which frequently demonstrates scenarios impossible in reality as gaps are filled by autistic imagination drawn from the subconscious	Children are less sophisticated than adults in their use of imagination and what often seems imaginative and fantastical to adults in children's talk is actually a result of a limited range of real-life experience which results in unusual/naive combinations drawn from real experiences
Progression in development	Imagination is needed more in defined, early stages of concept formation and we 'grow out of it' as our thought becomes more logical/abstract in maturity. In a sense it is at odds with our broader thought	Imagination is intrinsically linked to our concept development, is not attached to linear developmental stages and becomes more sophisticated in parallel with our broader thinking as we mature. While it is in a sense opposite to our broader thought it is also necessary for it and vice versa
Relationship to our broader thought	Imagination is at odds with our more developed thought and becomes less useful in time	While opposite to our broader thought, this opposition is a useful necessity, forming an iterative relationship between imagining and other thinking
Emotions and intellect	Imagination is connected to the need to satiate ego-centric desires	Imagination is intellectual as well as emotional or ego-centric but emotion and imagination are strongly connected
Application of imagination	'Deficit model' (Zittoun and Cerchia, 2013)in which imagination comes into play to fill in conceptual gaps, which reduce as we mature, implying a 'cut- off point'	'Expansion model' (Zittoun and Cerchia, 2013) in which we continually use imagination to expand our concepts to incorporate new experiences, required throughout life on an individual and social level

Table 4.2   Key differences between Piaget and Vygotsky's models of imagination in cognition

4.4.3 *Foundations of imagination*

As discussed above, Piaget's vision of imagination connects it with 'autistic' thought, arising in the subconscious. Vygotsky rejects autistic thinking as the foundation for development as well as the idea that it seems to arise from nowhere, other than in response to our personal desires, in Piaget's model.

> *'Autistic thinking is neither the first step, nor is it the basis upon which all further developmental stages might be built. It is also incorrect to portray autistic thinking as a form of hallucinatory imagination prompted by the pleasure principle, which allegedly precedes the reality principle.' (Vygotsky, 1986, p.20).*

Instead '…the development of speech creates a favourable condition for autistic thinking, while autistic function, in its turn, is beneficial for the development of intellectual skills' (Ibid, p.23), thus the origins of our imagination are situated in social and cultural experience as opposed to subconscious desire. '…everything the imagination creates is always based on elements taken from reality, from a person's previous experience.' (Vygotsky, 2004, p.13.). This places us on much more solid ground in terms of the origins of imaginative development and provides accessible routes into supporting it. It also rings true. If we see imagination as constituted by sensory perceptions ('Imaging' on our scale of imagination), then we have discussed in the philosophical section of this thesis that, (whether we like it or not, depending on whether we consider images to be trustworthy, like Aristotle, or potentially misleading, like Plato or Descartes) imagination originates in experience. However internalized and 'impossible' our imaginings may become, it is difficult to see them originating anywhere other than experience unless we look towards ideas of mystic visions which lead us to 'create something out of nothing' (Ibid).

4.4.4 *Childish imagination*

I use the term 'childish' deliberately because the identification of imagination as a 'childish' activity, which we grow out of in time, has significant connotations for attitudes to imagination within learning and education. While Piaget's theory provides arguments to support the development of imagination in early childhood through engagement in activity such as play, the implication is that it will need less support as time goes by and it becomes 'replaced' by different kinds of thinking. In my own

practice and personal experience at school, I have seen substantial impacts on educational experience through attitudes which are partially grounded in such a perspective of imagination and which results in children and young people passing through the education system and being moved towards successively less explicitly imaginative activities, (meaning those which are designed to develop imagination as a learning outcome). One only has to think about the English Baccalaureate (https://www.gov.uk/government/publications/english-baccalaureate-ebacc/english-baccalaureate-ebacc), which does not include a compulsory arts subject, to find a contemporary manifestation of this. Vygotsky's theory suggests the need for continual nurturing through exposure to suitable experiences. According to Vygotsky, a view of the imagination in which it diminishes as we mature is based on an over-simplistic perception of imagination as concerned with unreality or limited to the fantastical. In fact:

> *'The child can imagine vastly less than the adult, but he [or she] has greater faith in the products of his [or her] imagination and controls them less, and thus imagination, in the everyday, vulgar sense of this word, that is, what is unreal and made up, is of course greater in the child than in the adult.' (2004, p.34)*

So we see the imagination in early childhood as naïve, unrefined and 'running wild' but with an implicit acknowledgement of the necessity of this state as part of our development. Vygotsky associates this early stage less with 'freedom' to imagine but more as a time when imagination is constrained through limitations of experience:

> *'Goethe said that children make anything out of anything, and this undemanding, very tolerant quality of children's fantasy, which becomes more fastidious in adulthood, is frequently mistaken for freedom or richness of imagination. What is more, the products of children's fantasy diverge sharply and obviously from adult reality and this is taken as support for the conclusion that children live in a world of imagination more than in the real world.' (Vygotsky, 2004, p.32)*

Throughout our development, imagination takes on a different form, appropriate to that stage, being intrinsically connected with our broader thought and experience '…during every developmental stage of childhood, creative imagination operates in a particular way, one that is characteristic of that particular stage of the child's development.' (Vygotsky, 2004, p.31.). Imagination is what it needs to be, when it needs to be,

because it is one part of an inter-dependent relationship with the rest of our thought. Vygotsky highlights the period of adolescence as critical within our development, in that imagination and broader thought, previously having developed on different tangents, meet and cohere:

> *'In adolescence…we observe a powerful enhancement of the imagination combined with the rudiments of mature fantasy…at this time, a great deal of experience has accrued and assimilated; the so called permanent interests develop, childish interests are curtailed, and, as a result of general maturation,, the working of the imagination begins to assume its final form.'* (Ibid, p.32-33)

Vygotsky's theory that the *difference* between imagination and our broader thinking and, simultaneously, the integration and intertwined-ness of imagination within our broader thinking, which is necessary for conceptual development, means that

> *'…we cannot place imagination at the beginning of the development of the child. Imagination develops as thought develops, and its development is included in the process of development of the child's thinking and conscious meaning-making.'* (Gajdamaschko, 2006, p.37)

This places the emphasis in terms of imaginative development in a very different place to Piaget's theory. While proposing that imagination is with us throughout our development and lives, Vygotsky asserts the notion of its special relevance in early developmental stages is somewhat naïve and depends on a simplistic idea of what imagination actually is.

The sophistication through maturation which Vygotsky describes, is judged by the applicability of this thinking in 'real world' contexts and seems sensible. Of course, this idea is based on a hierarchical perspective which allocates higher status to what is essentially more practical or adapted learning, (perhaps because Vygotsky thinks that it is more able to impact tangibly on 'reality'?), and relegates the more 'open', connection-making, fantastical aspects of imagination to the lower end of the hierarchy. This is in keeping with a constructivist ontology developed in Soviet Russia (e.g. Nature, 1932) but perhaps we should register this classification in order to keep an open mind about imagination? Must we only value the practical? Is there no room for imagination which is simply playful and offers a different way of experiencing life? Here

in the West, in capitalist and neoliberal times, despite being the supposed ideological opposite of communism, our government and education system often tends to value what results in material gain. In arts education this can be seen repeatedly and historically as the arts are justified through their contribution to the strength of our creative industries. In what seems to me to be a failing ideological system, we might do well to consider that there may be alternative perspectives which imagination can support and be more a part of. Returning to Vygotsky, what we must bear in mind is the emphasis that he places on the value of the arts for learning throughout his work, suggesting that, while he may believe that fantastical, childish imagination lacks sophistication, fantastical imagination which may venture into the unreal, always has a place.

> *'Vygotsky, as an author deeply interested in the arts, saw fiction and poems as triggers for imagination: engaging with them demands accepting to enter into the counterfactual world of imagination.' (Zittoun and Cerchia, 2013, p.308)*

Fantastical imagination does not always imply a lack of sophistication.

4.4.5 *Imagination within development*

Continuing the discussion above, rather than becoming less relevant and growing weaker as we grow older, for Vygotsky, our imagination becomes more sophisticated in parallel with the increasing sophistication of our wider thought. This wider thought includes the logical, abstract cognition which Piaget seems to separate from imagination.

> *'…as the person grows older, and develops the mastery of complex semiotic systems and thus 'superior' mental capacities – capacities to use signs to direct one's own thinking - then imagination can also operate on those…Imagination is thus a complex thinking process, socially developed, which can be used as much to satisfy one's need for daydreaming than to find creative solutions to scientific, revolutionary or artistic problems' (Zittoun and Cerchia, 2013, p.311)*

In adolescence, imagination and reason/broader thinking converge to keep pace with each other in a model of development where imagination starts out as the stronger force. Imagination becomes 'closely associated with thinking' (Vygotsky, 2004, p.34).

Vygotsky proposes that imagination remains but adapts to rational requirements, being no longer imagination for its own sake, but contextualised towards a purpose. In some people the imagination is curtailed and Vygotsky quotes Ribot:

> '…the majority of people gradually get lost in the prose of everyday life…This however, is only regression, but not an annihilation, because the creative imagination does not disappear completely in anyone, it merely becomes incidental.' (Vygotsky citing Ribot, 2004, p.34)

At a crossroads for imagination and thought in adolescence, the imagination '…undergoes a profound transformation; it changes from subjective to objective.' (Vygotsky, 2004, p.35). These notions are linked to the ideas of Plastic (external) and Emotional (internal) imagination, the first being objective and the second, subjective (Ibid, p.36). 'The manifestations of both types of imagination and their gradual differentiation is characteristic of the adolescent period.' (Ibid). The concept of emotional/internal imagination, whether we see the emotions as separate to cognition or 'emotions' as a useful term for a certain aspect of our thought, has interesting implications in relation to our ability to think about/imagine our own thoughts and feelings in such a way that might lead to the development of metacognition.

Vygotsky highlights the relationship between emotion and imagination, at all life stages, seeing emotion as intrinsically linked to creative imagination. He believed that 'All forms of creative imagination…include affective elements.' (Vygotsky, 2004, p.19). While this is not necessarily at odds with Piaget, it is not something which Piaget seems particularly interested in, presumably because of the limited period of child development with which he associates imagination most strongly – a time when our emotions are perhaps less complex and associated, for Piaget, with basic, egocentric desires. Vygotsky discusses in some detail (see 4.4.6) the relationship between imagination and emotion, stating that emotion influences imagination and in other cases, imagination influences emotion.

4.4.6 Imaginative processes for Vygotsky

Zittoun and Cherchia (2013) discuss and contrast what they call Piaget's 'deficit' model of imagination with an 'expansion of experience' model which they allocate to Vygotsky. They suggest that Piaget sees imagination as necessary when there are

'gaps to be filled' in response to a temporary disjunction or misfit between the given of one's experience of the world' (Ibid, p.309). The implication is that, with maturity, imagination 'should mainly…disappear and be replaced by more adapted thinking capacities.' (Ibid, p.312). With Vygotsky's model, imagination is required throughout our thought and 'develops in interaction with other superior thinking functions, such as memory, verbal thinking or conceptual thinking' (Ibid) and is therefore 'a form of enrichment, or expansion, of one's experience and understanding of the world.' (Ibid, p.306). Within this 'Imagination can be seen as an excursion [which creates]…"loops" out of the present, here-and-now of experiences connected to "real" objects.' (Ibid). It is through imagination, (manifested through play in the child) that we are able to create our zone of proximal development: 'Play is the source of development and creates the zone of proximal development.' (Vygotsky, 2002, p.15 in Zittoun and Cherchia, 2013, p.313). This has implications for cognition but, perhaps even more powerfully, for metacognition, and will be discussed below (4.7).

As I have discussed, a key aspect of Vygotsky's theory is that imagination originates in real experience. He describes 'four basic ways in which the operation of imagination is associated with reality' (2004, p.13) which resonate with our 'scale of imagination' outlined previously. The first association relates to 'Imaging' within our scale and

> *'…stems from the fact that everything the imagination creates is always based on elements taken from reality, from a person's previous experience…the creative activity of the imagination depends directly on the richness and variety of a person's previous experience because this experience provides the material from which the products of fantasy are constructed. The richer a person's experience, the richer is the material his [or her] imagination has access to.' (Vygotsky, 2004, pp.12-15)*

The second association could be compared with 'productive' and 'creative' imagination in our scale in that it involves the bringing to mind of a 'real' phenomenon, drawing on mental imagery, but not having been actually experienced by the person imagining. It is a combination of recall and a (relatively) original combination of images. Vygotsky uses the example of imagining the African desert, although he has never been there. Critically:

> *'It becomes the means by which a person's experience is broadened, because he [or she] can imagine what he [or she] has not seen, can*

conceptualize something from another person's narration and description of what he himself [or she, herself] has never directly experienced.' (Vygotsky, 2004, p.17)

This has important implications in terms of visual art, since we begin to see its potential to 'extend boundaries' in Vygotsky's terms. Again, if applied to our own thinking, this extension of boundaries is what would enable us to become metacognitive by enabling us to see 'beyond' our own current mental capacity.

The third type of association is concerned with the relationship between imagination and emotion in a description which echoes Hume's assertion that strength of associated emotion is linked to the potency of mental imagery (3.4.7). For Vygotsky, emotions influence how we use our imagination

> *'…every emotion seeks specific images corresponding to it. Emotions thus possess a kind of capacity to select impressions, thoughts, and images that resonate with the mood that possesses us at a particular moment in time. Everyone knows that we see everything with completely different eyes depending on whether we are experiencing at the same time grief or joy.' (Vygotsky, 2004, p.18)*

Vygotsky discusses 'this influence of the emotions on combinatory fantasy' as the 'law of the general emotional sign' in which images which have a similar emotional effect in us 'have a tendency to cluster together' (Ibid). In this way our imagination develops in accordance with emotion, however; the relationship between emotion and imagination is two-way and each influences the other at different times. Our imagination also *produces* emotion: '…every construct of the imagination has an effect on our feelings, and if this construct does not in itself correspond to reality, nonetheless the feelings it evokes are real feelings' (Ibid, p.19). Vygotsky links this psychological law with art, saying that it 'should explain to us why works of art created by their authors' imaginations can have such a strong emotional effect on us.' (Ibid, p.20). (We will visit this idea again in section 5.4.4). These works of art are 'crystallizations' (Ibid) of imagination which go on to have socio-cultural impacts, which are presumably imaginative and emotive. If Vygotsky is right about this alliance of imagination and emotion, then if we neglect to develop imagination, we are also neglecting our emotional selves, potentially impacting negatively on our health and well-being on an

individual and societal level. His link to art as 'crystallized imagination' suggests that it might have a role in supporting such well-being.

This brings us to Vygotsky's fourth association between imagination and reality which is that of 'crystallized', or 'externally embodied' imagination in which imaginative ideas are given material form (Vygotsky, 2004, p.20). 'In this way imagination becomes reality' (Ibid) and is able to affect the 'real' environment. There is then a cyclical process where perceptions from 'real' life undergo a psychological process in which they are transformed into something 'new' which is then produced as a 'technical device, machine or instrument' (Ibid), or in fact, as art, with the potential to impact upon external reality. Vygotsky insists that to arrive at this point involves both intellect and emotion since 'Feeling as well as thought drives human creativity.'(Ibid, p.21). Again, we might not automatically separate feeling and thought and perhaps imagination is what glues these two things together so tightly, cohering them through mental images and associations so that the distinctions are either blurred, or perhaps are artificial classifications, not intrinsically existent other than to provide a means of description. This is for specialized discussion out with this thesis.

In addition to describing associations between imagination and reality, Vygotsky discusses the mechanism of creative imagination. While acknowledging complexity, he warns that this often leads to 'ideas about this process being something extraordinary and completely exceptional.' (2004, p.25) or within the province of the 'gifted and talented' only. The process he describes can be summarised as beginning with internal or external perception, moving on to dissociation (the breakup of a complex whole into a set of individual parts), then to change/distortion, then to association, unification and combination and then, if produced tangibly in an external setting, crystallization. (Vygotsky, 2004, pp.25-28).

What Piaget and Vygotsky's theories share and which must be influential in any consideration of pedagogy is the importance in each of experiential learning and play. As we might expect, Vygotsky emphasises the social aspects of these and Piaget implies the increased importance of these activities in the early stages of development but either way, we might start to see that art has a significant role to play, either in a practical, making sense or in a cultural one. While in a general sense, Piaget and Vygotsky's theories may not seem at odds with each other and the variations seem

relatively minor in two approaches which are developmental and to one degree or another, constructive, I believe that in a consideration of imagination and implications for art pedagogy, there are differences which it is valuable to highlight and consider. For me, this is not 'hair splitting' as Piaget's theories leave imagination and art pedagogy in a less important position than those of Vygotsky who, for me, has more to offer in this field as well as in a consideration of the development of metacognition through visual arts, which I will visit below (4.7).

4.5 Psychological perspectives and our 'scale of imagination'

At this point and having considered in some detail the perspectives of two key psychologists in child development, perhaps by way of summary it is useful to return to our 'scale of imagination' and attempt to apply their ideas to the different types of imagination I have classified (Figure 4.2). Additionally, this is an opportunity to work additional, relevant perspectives from some other psychologists for whose work there is limited capacity to include in this thesis.

What is imagination?

Fantastical imagination: creating images which have never existed in real experience. To help us push at boundaries? E.g.; *the horse can talk, fly and be Minister for Education*

Creative imagination: combining and applying imagery with relative originality. E.g.; problem solving, making something new: *a black horse with a white star in the courtyard of your own castle*

Productive imagination: Combining imagery/mental representations from existing experiences. E.g.; connecting, categorising: *a black horse with a white star*

Imaging: bringing to mind what is not present but which exists in experience/has been perceived. E.g.; memory: *a horse*

Figure 4.2 A scale of imagination

4.5.1 *Imaging*

If we take imaging to be the ability to bring to mind what is not present and involving the recall of mental images, (not limited to the visual but meaning any stored 'image' from sensed experience) as building blocks for our thinking, we see the way that both Piaget and Vygotsky's emphasis on learning through experience makes sense.

> *'The basic tools for the creation of products of imagination are images (built through various methods), and word meanings, included in various contexts and plans for the creation of products of the imagination…Mastering such tools can take place through interaction with cultural objects and through development of the symbolic function.' (Diachenko, 2011, p.24).*

Bruner extends these arguments into his book 'The Culture of Education' in which he proposes that 'mind is both constituted by and realized in the use of human culture' (1996, p.1). Bruner's conception of culture is broad, containing not just arts and sciences but social modes of discourse and thought. In terms of discussing the social aspects of culture Bruner refers to Mead's notion of the 'generalized other' (referred to elsewhere in this paper) and its place in the development of metacognition which will '…depend upon the demands of the culture in which one lives – represented by particular others one encounters and by some notion of a "generalized other" that one forms' (Bruner, 1986, p.67). Bruner's ideas will be discussed again later in Chapter 5 of this thesis but, bringing this discussion back to the subject of imagination as 'imaging' we begin to see that even the most basic application of imagination has far reaching consequences when (concurring with the philosophical and psychological perspectives discussed) we begin to see imaging as dependent on and the basic 'carrier' of socio-cultural experience from sensory experience to mind and then back into the world and which, Bruner suggests will develop both our cognition and our metacognition. In considering imaging, it may be useful to better understand the functionality of mental images in order to consider implications for pedagogy and the place of visual art within this. Mental images will be discussed briefly in the context of and as a foundation for the discussion of imagination in and through visual art (Chapter 5, 5.3), seeking to enquire as to whether the processes we undertake as artists and art experiencers externalise and mirror the experience of manipulating mental images, since, if this is the case, we might conclude that art provides a means of revealing and understanding our cognitive and metacognitive processes.

4.5.2 *Productive Imagination*

While clearly a key aspect of and made possible by imaging, it is difficult to place symbolic thinking within our scale of imagination since there is debate about the nature of mental images and the degree to which a sense perception is 'pure' and a representation of the material world or, in entering our thought, has already been accommodated, assimilated and synthesised to fit in with our schema. For example, in his work 'The Imagination', (1936, 2012) Sartre argues against the possibility of a simple replicate and retain model of storing perceptions:

> *'…the image cannot in any way be reconciled with the necessities of synthesis if it remains an inert psychic content. It can only enter into the stream of consciousness if it is itself a synthesis and not an element.' (2012, p.144)*

We have seen that Piaget and Vygotsky's theories pivot around synthesis and (in Vygotsky's case) construction, suggesting that our brains are not simply sponges. Arnheim states '…if the purely sensory reflections of the things and events of the outer world occupied the mind in their raw state the information would be of little help…Nothing we can learn about an individual thing is of use unless we find generality in the particular' (1969, p.1). So, at what point do images become symbols which we use for productive imagination? Arnheim suggests that we store images so that we are able to generalise from them and re-apply as required but when does this generalisation happen? At the point of perception or at the point of application to a new experience or problem? Should we take a simplistic stance and decide that images are immediately symbolic as they represent an absent object or experience? A detailed analysis is beyond the scope of this thesis but for now, (acknowledging a blurred line between 'imaging' and 'productive' categories) let us assign symbolic thought to 'productive imagination', assuming that for sensory experiences to become symbolic there is likely to be a combinatory requirement for this which may stem from a need to generalise and categorise in order to accommodate and assimilate experience. A productive, mental transformation occurs which involves combining and integrating pre-existing mental images which exist in a symbolic form, to produce new symbolic forms. It is here also that the 'syncretistic' (Piaget, 2002, p.134) quality of imagination comes into play, connecting schema and new experiences towards a personally coherent whole, in much the same way as Aristotle describes imagination as 'movement' from the sensory to the cognitive, driven by desire and fuelled by emotion, as noted by Hume

and by Vygotsky. The conditions for this movement to take place are those of uncertainty, disequilibrium (Piaget) or rupture (Zittoun and Cherchia, 2013) which provoke us to 'fill in gaps' if we see this situation as a deficit of knowledge (implying that knowledge is a discoverable, universal truth) or, alternately, to construct new knowledge, if we take a more constructive and creative perspective. I choose the second interpretation because I believe that the 'deficit model' for imagination leads to education in which

> *'…the individual is spectator, not re-creator. In this view, the person is not a conscious being..; he or she is rather the possessor of a consciousness: an empty "mind" passively open to the reception deposits from the world outside.' (Freire, 1996, p.56)*

I see such a perspective as an inhibitor to the imagination, to creativity and to humanity and one of the implications arising from this thesis is to ensure that, assuming the position of us each having some sort of 'image store' from which we draw within our life experience in order to construct our understanding, there is support to help learners to develop the capacity to draw on and manipulate the resources in this 'store' independently and responsibly, rather than an attempt to simply load the store up, which is what I see much of the current education provision in the UK as amounting to. We need to enable *self*-productive imagination if we are to be able to approach the capacity for creative imagination. As Freire suggests in 'Pedagogy of the Oppressed' (1970, 1996), this will involve supporting criticality, dialogue and individuality. Also on the border between productive and creative imagination, depending on the degree of originality in terms of the product of the process, is reasoning, '…which rests on the capacity to imagine possibilities' (Byrne describing Johnson Laird's 'mental models' theory, 2007, p.441). Furthermore, the development of the ability to reason is likely to be reliant on productive and creative imagination since imagination '…might be considered to be one factor in creating more complex forms of thinking (and possibly more rational ones).' (Markovits in Byrne, 2007, p.462).

Fantastical imagination must come into play to help us reason too, since we sometimes need to imagine the impossible, 'counterfactual' (Byrne, 2007) or irrational in order to imagine the possible and rational. The implication of this is that Aristotle's embracing of imagination was more apt than Plato's distrust (how can reason be separated from imagination?) and in more practical terms that

imagination permeates even the most rational and objective areas of learning. In contemporary education this would imply a need to develop imagination in order to support thinking across all subject areas.

4.5.3 *Creative Imagination*

Our classifications of imagination blur again as productive imagination applied to an end and with originality slips into creative imagination. The difference in classification lies in the production of something which is relatively new.

> *'Everything that requires artistic transformation of reality, everything that is connected with interpretation and construction of something new, requires the indispensible participation of imagination.' (Vygotsky, in Rieber ed.,1998, p.153).*

Ken Robinson, creativity guru of recent years, defines creativity as 'imaginative processes with outcomes that are original and of value' (2001, p.118). Robinson describes how imagination gives rise to symbolic thinking which 'emancipates us from the here-and-now and enables us to have ideas that are not bound by our immediate environment.'(Ibid, p.127). Ultimately, imagination can free us from 'truth-bound cognitive states' which Stokes argues are 'rarely sufficient for creative thought' (in Paul and Kaufman, 2014, p.160). These non-truth-bound states (imaginings, suppositions, curiosities, desires, hopes, wishes…all involving 'syncretistic' thought in Piaget's terms) are necessary for creative thinking as '…novel conceptual combinations, transformations, and for formations.' (Ibid, p.162). In such a non-truth-bound context (which at its most extreme would constitute fantasy), we are able to perform cognitive manipulations, underpinned by imagination, which enable creativity. Imagination enables us to suspend 'normal' rules of reality in order to manipulate concepts and categories within our minds. Stokes provides a rich but concise thesis of creative cognition in which imagination is fundamental to the cognitive manipulations he describes:

> *'Creative thought and behaviour…requires cognitive manipulation. Cognitive manipulation typically involves voluntarily thinking about the contents of some conceptual space in non-truth-bound ways. In creative processes, this cognitive activity often causally interacts with affective, motivational, inferential, and free associative capacities.' (Ibid, p.171)*

There is an obvious link to art here, as a non-truth-bound 'space' for such activity but this space can be provided as part of our ordinary cognition in any context in order to enable psychological novelty which may or may not then be manifested in the physical world. Such a manifestation is for Vygotsky 'crystallization' and the transformation of the imaginary into the 'real' or physical, which, following his socio-cultural theory becomes experience which will in turn feed the imagination of others. Seen in this way, imagination manifested as creativity is socially transformative and constructive. According to Vygotsky: 'It is precisely human creative activity that makes the human being a creature oriented toward the future, creating the future and thus altering his [or her] own present.' (2004, p.9-10).

Piaget's emphasis on the importance of play makes sense within this Vygotskian perspective in allowing 'space' and freedom for cognitive manipulation through symbolic interplay.

> *'Early imaginative play predicts later divergent thinking… Moreover, when children are given play opportunities, as opposed to repetitive copying, their subsequent creativity in unrelated domains is boosted when tested a few minutes later' (Picciuto and Carruthers in Paul and Kaufman 2014, p.212)*

Following Vygotsky's thinking, in which imagination becomes more sophisticated and aligned to the rest of our thinking with age, rather than being used decreasingly, opportunities for play should not decrease with age, rather the 'toys' we play with and the games we play with them will change with us. Both Vygotsky and Piaget describe the development of more abstract thinking as we age, so perhaps play as an activity becomes more abstract, although there may also be value in returning to concrete, tangible activities in order to provide a sense of freedom in being against the norm (and I have seen this in my professional life when I have given plasticine to adults in my teaching!). If we do not have this opportunity for play, combined with a driving force created by disequilibrium and desire, then our imagination has neither the freedom or motivation to work in syncretistic ways towards novel outputs.

4.5.4 *Fantastical Imagination*

Fantastical imagination might be considered as the most 'imaginative' form of imagination, being concerned with thoughts associated with impossible physical

realities, or, in Stokes' terms (above), being non-truth-bound. It is fairly obvious, considering our scale, that this will involve the manipulation of mental images in a way which is productive and may be creative (if relatively original) and differs from these kinds of imagination in its subject matter rather than in its process. The more interesting question is why do we produce and enjoy these 'fantasies' and what is their role in our broader thought and well-being?

We have seen that Piaget saw 'autistic' or fantastical imagination as the subconscious origin of our imaginings and something we grow out of as we develop, necessary at a time when there are 'gaps' in a child's image store due to limited experience. In contrast, Vygotsky saw imagination as grounded in experience, becoming more sophisticated as our socio-cultural experience expands and our life-world as we perceive it 'fills out'. Presumably this includes what we are calling fantastical imagination. Of course as adults we enjoy 'indulging' in the fantastical in the form of cultural experiences (novels, films, art etc.) but perhaps 'escapism' is an understatement or superficial description of why this is important to us? Bettelheim, in 'The Uses of Enchantment' describes the role of fantasy in helping us to create meaning in our lives:

> *'To find deeper meaning, one must become able to transcend the narrow confines of a self-centred existence and believe that one will make a significant contribution to life…Our positive feelings give us the strength to develop our rationality; only hope for the future can sustain us in the adversities we unavoidably encounter.' (1976, p.3-4)*

Does fantastical imagination allow us to engage with aspects of our existence more profoundly by removing us from its immediate realities? Bettelheim describes how fairy tales '…start where the child really is in his [or her] psychological and emotional being. They speak about his [or her] severe inner pressures in a way that the child unconsciously understands, and…offer examples of both temporary and permanent solutions to pressing difficulties.' (Ibid, p.6). In this way, by removing ourselves mentally from ordinary experience we are able to get straight to the heart of the matter in order to deal with challenging issues and with our 'inner reality' (Ibid, p.65). This begs the question: 'If the primary role of fantasy is to explore realistic possibilities, shouldn't we have more realistic fantasies?' (Magid et al., 2015, p.2). Humans have a strong and ancient propensity for fantasy, as discussed earlier in this thesis via

evolutionary psychological perspectives (Montell 2002, Mithen 2001) which describe a need to locate ill-fitting thoughts within art or stories in order to cope with the implications of being conscious beings – almost as if consciousness is a kind of super-disequilibrium (in Piaget's terms) which requires a special way of thinking. When questions are overwhelming to answer or emotional to tackle do we turn to fantasy? As Magid et al. say:

> *'By embedding useful knowledge in extraordinary events with heightened emotional content, learners may be better able to access important cultural skills or facts. Consistent with this, researchers have suggested that imaginative engagement might support…creativity, intelligence, problem solving, symbolic reasoning, language development, theory of mind, narrative skills, social skills, causal reasoning, emotional regulation, and executive function.' (Magid et al., 2015, p.2)*

So we begin to build a picture where fantastical imagination may have a role in supporting other kinds of imagining and thinking by providing a 'far out' opportunity for thought in which we can focus on the essence of the problem in hand (practical, emotional or both) as opposed to the realistic detail. Of course we may also just enjoy daydreaming and perhaps the key here is that there is something enjoyable about fantastical imaginings? The freedom and 'way out' which fantasy provides us with in terms of coping with an immediate problem is perhaps something which we need as humans, living problematic lives, so that fantasy becomes a coping strategy, required for our well-being, as well as something which may offer the potential to get to the heart of an instance of disequilibrium in an unrestrained way. In fantasy, we are able to superimpose categories of experience with absolute freedom in order to explore possibilities and resolutions. Of course the perfect playground for this kind of thinking is in the realm of art, which operates through a symbolic language of metaphor which can take us straight to the 'meaning' of the matter. This will be elaborated on in the next chapter.

So how does fantastical imagination support our cognitive development? It is worth touching on this since the most common understanding of imagination is probably that associated with young children's unrestrained (or in Vygotsky's terms, under-developed) and frequent use of fantasy. In pre-school children, Fantasy Orientation (FO) (encompassing four constructs: imaginative play, imaginary companions ("entities"), toys and games, pretence) is related to better executive functioning

(Pierucci et al. 2014). Specifically; cognitive, rather than behavioural aspects of FO '…may be related to the development of cognitive aspects of executive functions such as attention shift and cognitive inhibition.' (Ibid). Pierucci et al. found that children who reported more fantasy related cognitions had better attention shift and that increased reports of imaginary companions were associated with better cognitive inhibition skills.

It is likely that individual differences exist in the composition of children's fantasy orientation (ibid, p.66), so this throws up the possibility that some children have a greater propensity to develop executive functioning via FO than others. '…fantasy-oriented children exercise executive functions when they switch in and out of pretense.' (Pierucci et al. 2014, p.67). This research suggests that fantastical imagination supports the development of flexible thinking and of our ability to be empathetic and socially adept. Perhaps in the absence of experience, young children nevertheless get to the crux of what is important for their learning by reaching the essence of this via fantasy? Notably, executive development was not associated with imaginative play using toys, with such play being related to poorer cognitive inhibition and working memory skills. (Ibid,p.65). This provokes speculation about the place of toys in imaginative activities doing some of the imaginative work for the child, rather than allowing the child to push their imagination further more abstractly, within their mind, thereby developing their higher order skills. There is an implication here for art-based pedagogy, particularly for the creation of art. Does physical activity, using materials to create a piece of art actually do more of the work for the imagination and make the imagination more lazy?! Perhaps the difference is that these materials are resources or vehicles for thinking, providing a path, rather than being pre-defined, meaningful objects which 'stand in' for imaging, productive and creative imagination. We will return to this in Chapters 5 and 6.

The area of fantasy is complex and fascinating and best left for detailed exploration beyond this thesis. For now, we might conclude that fantastical imagination, while at first seeming the most frivolous form (perhaps because we enjoy it?), performs critical functions within our cognition in enabling us to go where we are mentally, physically and emotionally unable. In doing this it supports our well-being by enabling us to make meaning, our ability to flexibly break psychological boundaries and think beyond the physically possible while getting straight to the heart of the matter. In doing these things it is at the least a means of escape from the difficulties of everyday existence

and potentially a transformative and propelling force within our cognition and our lives. Fantasy is never idle.

Figure 4.3 summarises what we have discussed as a psychological perspective of imagination and its implications for practice.

Imagination, motivation, disequilibrium	Associations	Implications for practice
F	**Fantastical** Non-truth-bound, flexibility, boundary-crossing, coping, well-being	**Fantasise** For learners of all ages, provide examples of the fantastical and metaphoric. Encourage thought about the 'impossible' in problem solving contexts. Exemplify 'category crossing'
C	**Creative** Originality, disequilibrium, syncretism, crystallisation, reason, emotional motivation	**Play** For learners of all ages, as relative to them and their context. Provide materials and resources as opposed to/as well as representational objects. Encourage dialogue which promotes reasoning
P	**Productive** Symbolic thought, generalisation, syncretism, disequilibrium	**Connect** Provide associative challenges, encourage divergence, subjectivity, pattern forming, allowing the learner to arrive at and justify their own connections
I	**Imaging** Image store, building blocks, perceptions	**Experience** Provide opportunities for socio-cultural experience

Table 4.3 Imagination and cognition, revisited

4.6 Summary and implications for pedagogy

Reflecting on our scale, we begin to see that classifying types of imagination is challenging and the artificiality of our distinctions is apparent, though they usefully serve as a starting point from which to explore how imagination functions. While some identification of categories is useful, there are many overlaps, much blurring and the frequent permeation of one category by another. Beginning with 'imaging', while the concept of an 'image store' seems neat, we are left with the problem of when images become symbols (on point of 'entry' or in 'productive' imagination). The distinction between productive and creative imagination is really only differentiated by the notion of originality and the potential of a crystallised 'output'. Fantastical imagination seems

a likely (perhaps not *always* necessary) ingredient for both creative and productive thinking. The notion of disequilibrium seems relevant throughout the scale, whether at the point of perception, which creates disequilibrium and the need to assimilate, when combining images to produce meaning and extend schemas (productive imagination) and particularly with creative imagination, in order to create the circumstances for original thought. Briefly, implications emerging in terms of pedagogy are concerned with:

- providing socio-cultural experience
- nurturing connection-making (syncretism) and criticality in this
- providing opportunities for play (for all ages)
- ensuring exposure to and encouraging the generation of fantasy
- providing disequilibrium in order to drive imagination and therefore, thought

Imagination helps us to deal with the experience of being conscious, self-aware beings. We are now conscious of this fact. We can imagine imagination. For exploration next is the way that imagination supports and features in our *meta*cognitive processes.

4.7 Imagination and metacognition

An exploration of the relationship between imagination and metacognition will extrapolate from some 'common sense' assumptions. Put briefly, if metacognition is: *thinking about our thinking,* then an essential part of metacognition is cognition. This means that we can build on our previous model in how imagination relates fundamentally to cognition in order to consider this 'meta' level. Secondly, if metacognition is somehow a meta-awareness of our own thought, we might assume that imagination is the agent enabling us to 'transcend' ourselves in order to generate this thinking. It seems reasonable to say that metacognition will depend largely on the ability to reflect and that the act of reflection will involve the recall and manipulation of mental images (imaging and productive imagination on our scale). While transcendence and reflection allow us to gain knowledge of ourselves, metacognition is said also to consist of skill or strategy. If this necessarily applies to the individual self, then the development of such skills will automatically be relatively novel, valuable and therefore creative (according to our previous definition of creative imagination). In order to work through these assumptions a practical definition of metacognition is required.

Previous authors have described the multitude of available definitions of metacognition (e.g. Tarricone, 2011 or Papaleontiou-Louca, 2008). Within the scope of this paper, what is needed is a pragmatic definition which is essential yet comprehensive enough to provide a foundation from which to consider its relationship with imagination. According to Flavell: '"Metacognition" refers to one's knowledge concerning one's own cognitive processes and products or anything related to them.' (1976, p.232). Flavell described a framework including metacognitive knowledge, experiences, goals and actions (or strategies) (1979, p.906). Others have distinguished between knowledge and regulation of cognition (Brown, 1987), while Kluwe (1982) distinguished monitoring and regulation within an encompassing category of 'executive processes'. Defining metacognition is recognisably problematic (Tarricone, 2011, p.3). For our purposes a relatively simple definition will suffice. To this end, we will combine Flavell's description of metacognitive knowledge…

> *'Metacognition includes knowledge about the nature of people as cognizers, about the nature of different cognitive tasks, and about possible strategies that can be applied to the solution of different tasks.' (Flavell, 1999, p.22)*

…with Veenman and Spaan's description of metacognitive skill:

> *'Metacognitive skills, on the other hand, concern the procedural knowledge that is required for the actual regulation of and control over one's learning activities' (Veenman and Spaans, 2004, p.160)*

Additionally useful is a description of a Vygotskian perspective which reminds us of the integral role of imagination as an underpinning force for supporting essential symbolic thought (discussed above): 'Metacognitive mediation refers to children's acquisition of semiotic tools of self-regulation, self-planning, self-monitoring, self-checking and self-evaluating.' (Daniels, 2001, p.100). These activities are supported by social interaction and speech which regulates self- behaviour and that of others, in turn accumulating further 'acquisition of those tools.' (Ibid).

Meta-evidence suggests that supporting the development of metacognition in children increases their chances of educational success (Higgins et al. 2012), so if there is a strong link between imagination and metacognition, this would suggest that paying attention to supporting the development of imagination in education is likely to be advantageous for learning.

4.7.1 *Transcendence*

Imagination is necessary for consciousness and consciousness/self-awareness is necessary for metacognition. Influenced by Kant, it would seem to make sense that consciousness and metacognition are closely linked, there is complex discussion and a level of disagreement about this, as Proust describes (2007). We see that within this discussion metarepresentation (defined as including a first-order representation and an epistemic or conative attitude directed at that content, e.g.; "I believe that it is raining") is an essential ingredient which we might describe as imagination of one kind or another. Metacognition,

> '…makes mental states conscious by making them the content of higher order thoughts. Metacognitions make first-order contents conscious by providing non-inferential metarepresentation that makes a mental state conscious. They are not themselves conscious however, unless a third-order thought metarepresents them.' (Proust, 2007, p.295)

Proust describes how higher-order theorists assert that a second function of metacognition is

> '…inherent to the semantic structure of a metarepresentation: it is that of applying…concepts to first-order contents, which in turn provides the inferential structure needed for reasoning about one's own states as well as those of others.' (Ibid)

From these assertions, we arrive at a model of metarepresentation to which we can relate our concepts of productive and creative imagination, with productive imagination used to join imagery of experience to imagery of epistemic concepts and creative imagination related to the application of concepts in order to reason about one's own states as well as those of others – necessarily a relatively novel piece of thinking. While this approach seems to integrate the concept of consciousness to that of metacognition, other authors (Carey and Reder, 2002) have argued that metacognition is in part, unconscious and

> '…a theory of consciousness needs to account for the fact that metacognition only becomes conscious through its reafferences: epistemic

feelings provide conscious feedback on the operation of an (often unconscious) prior command.' (Ibid, p.293)

Given the weight of the arguments, we might conclude for our own purposes that metacognition and consciousness, while not one and the same thing, are at least strongly related and that this indicates an essential role for imagination as the fundamental requirement for consciousness. Unfortunately, 'Although the literature supports the theory that self-knowledge is essential for metacognitive processes to occur, there is scarcely any research or theoretical discussion which specifically describes the interrelationship between self-knowledge, reflection, introspection, consciousness and metacognition.' (Tarricone, 2011, p.53). What seems clear is that 'Without the cognitive engagement in thought that metacognition makes possible, it is not clear how a self might represent itself "from the inside" and develop (more or less) coherent preferences over time.' (Proust, 2007, p.293). Such representation from the inside surely requires imagination as we have defined it.

> *'…there is a connection between mental imagery or mental representation, reflection and metacognition. This could be akin to the reflective processes imbued in and essential to metacognitive problem-solving.' (Tarricone, 2011, p.14)*

Edelman and Tononi (2002, p.102) differentiate primary and higher order consciousness, defining the first as the ability to '…construct a mental scene but… [with] limited semantic or symbolic capabilities and no true language' and the second as flourishing in humans, presupposed by primary consciousness and '…accompanied by a sense of self and the ability in the waking state to construct past and future scenes.' According to them:

> *'An animal with only primary consciousness can generate a "mental image", or a scene based on the integrated re-entrant activity in the dynamic core. This scene is determined largely by the succession of real events in the environment and, to some degree, by unconscious subcortical activity. Such an animal has biological individuality but has no true self, a self-aware of itself.' (Edelman and Tononi, 2000, p.194)*

Concepts of self- awareness only emerged with semantic capabilities (as described previously, these rely on productive imagination and of course, on a social network and interactions).

'When full linguistic capability based on syntax appeared in precursors of Homo sapiens, higher-order consciousness flowered, partly as a result of exchanges in a community of speakers. Syntactical and semantic systems provided a new means for symbolic construction and a new type of memory mediating higher-order consciousness. Consciousness of consciousness became possible.' (Edelman and Tononi, 200, p.194)

We have already discussed the place of imagination in supporting the development of symbolic thought, so here we find that imagination supports the development not only of consciousness but, by supporting ever more symbolic thought, this led to self-awareness in evolutionary terms and presumably in our psychological development. We begin to see that imagination, defined using our scale, permeates all aspects of thinking from the most basic to the most sophisticated. We also see that imagination and its benefits seem to generate at an exponential rate – the more imaginative we become, the more sophisticated we become in the application of imagination.

'An enhanced symbolic memory allows for an increasing number of verbal tokens. At a certain lexicon size, a person's conceptual range becomes enormously enlarged, promoting the use of metaphor.' (Ibid, p.197)

Of course, it is the use of metaphor which characterises the language of art,

'…central to artistic creativity has been the development of symbolic thought, allowing the mind disengagement from the immediate present and metarepresentation given over to intentions, beliefs, and recursive generative processes of combining and recombining items into virtually infinite numbers of novel sequences. Theory of mind, mental time travel, and both linguistic and non-linguistic symbolic representations are a part of human creative ability.' (Mula et al. 2016, p.226)

This suggests that art operates on a sophisticated level but also implies that in developing artistic language or metaphoric language through art experience, we may be able to increase the sophistication of our higher order consciousness, including, perhaps, our metacognition, if we take this as being closely related to, integrated with or an essential component of self-awareness.

'The emergence of the self leads to a refinement of phenomenological experience, tying feelings to thoughts, to culture and to beliefs. It liberates the imagination and opens thought to the vast domains of metaphor. It can even lead to a temporary escape, while still remaining conscious, from the temporal shackles of the remembered present.' (Edelman and Tononi, 2000, p.193)

Through self-awareness we are able to fantasise and use metaphor. Through imagination in the form of our ability to create and use symbolic thought are we able to become self-aware? Kaufman describes inspiration as transcendence: 'Inspiration is also transcendent of our more self-serving concerns and limitations. Such transcendence often involves a moment of clarity and awareness of new possibilities.' (2013, p.103). We might also see this as a metacognitive revelation when applied to our thinking and learning.

Related to the concept of self-awareness but taking us towards a consideration of this in regard to how others see us, George Herbert Mead's concept of the 'generalised other' enables us to integrate the socio-cultural, Vygotskian/constructivist ideas which have emerged strongly through this thesis. The concept has been noted by others in terms of its relationship to metacognition (Bruner, 1986) and to metacognition and imagination (Sadoski, 1992). Sadoski suggests that metacognition may be considered to be a form of imagination, described in terms of Mead's 'generalised other' in which the individual internalises a 'general systematic pattern of social or group behaviour' and applies these 'towards himself, just as he [or she] takes the individual attitudes of others.' (Mead,1934, p.158). Such an act is imaginative in requiring a leap of thought in order to consider how the 'generalized other' might respond in a given situation. According to Bruner:

> *'How much and in what form it [metacognition] develops will…depend upon the demands of the culture in which one lives – represented by particular others one encounters and by some notion of "generalized other" that one forms.' (1986, p.67)*

Bruner provides an insight into the development of metacognition in which culture shapes its nature within our consciousness '…our "smooth" and easy transactions and the regulatory self that executes them, starting as a biological readiness based on a primitive appreciation of other minds, [is then reinforced by language and]…is given a larger-scale map on which to operate by the culture in which transitions take place, and ends by being a reflection of the history of that culture as that history contained in the culture's images, narratives, and tool kit.' (Ibid). Here, Bruner echoes Vygotsky in the idea of crystallization through and the shaping of culture through a metacognitive act which we might also describe as creativity (and we will pursue this affinity below).

Having established that consciousness and meta-consciousness (which we might call self-awareness and when applied to our own thought, might call metacognition) are necessary pre-conditions for metacognition, we might ask what is necessary in terms of the act of metacognising. It seems reasonable that some form of reflection will be required and that at the very least, this will involve 'imaging' on our scale (as will most if not all of our thought), is likely also to involve 'productive imagination' and in order to arrive at a useful conclusion we may employ 'creative imagination'. Such reflective acts, applied towards the development of our thinking, may encompass analysis, reasoning, criticality and evaluation, leading to self-knowledge which is '…developed through the interaction between reflection, introspection and consciousness, and is essential for metacognition.' (Tarricone, 2011, p.54). Reflection, applied to the problems of our own cognition, is a metacognitive, creative and necessarily imaginative act.

4.7.2 *Creativity, metacognition and imagination*

Returning to our definition of metacognition in terms of knowledge and skill (4.7), we find ourselves considering the relationship between creativity/creative imagination and specifically, metacognitive knowledge, since we have arrived at the idea that the production of metacognitive knowledge is necessarily a creative act in that it requires a novel solution to increase our cognitive value. Perhaps we might more readily expect metacognitive *skill* to require creativity, needed to produce strategies for learning and methods for self-regulation, yet it seems that creativity permeates both aspects of metacognition as defined above. Both metacognitive knowledge and metacognitive skill require creative imagination, in the first case via what might be described by Piaget as accommodation and assimilation but which in a metacognitive context becomes creative when applied as a conscious attempt at developing our knowledge of our learning. We must bear in mind however; that some argue that metacognition is not necessarily or always conscious:

> *'Metacognitions make first-order contents conscious by providing the non-inferential metarepresentation that makes a mental state conscious. They are not themselves conscious, however, unless a third-order thought metarepresents them.' (Proust, 2007, p.292 and see also above, Carer and Reader, 2002)*

Perhaps it is safe to assert then, that if we are consciously applying our minds to solving problems or settling disequilibrium in relation to our learning, we will be using creative imagination in metacognition. (A further question might be whether we are able to apply creative imagination in an unconscious, automatic way. If we are able to think 'automatically' or unconsciously in other ways, why not creatively? Or is part of what qualifies creative thought as such that it be necessarily conscious and applied? These questions provide the topic for a thesis of their own). Some research has shown that

> *'metacognitive thinking allows students to build a metacognitive knowledge base and apply their creative thinking skills to an infinite number of applications. This is what separates a truly creative thinking process from a novice approach.' (Hargrove, 2013, p.515)*

So, supporting the development of metacognitive knowledge could in turn support more creative, metacognitively skilful thinkers. In the case of metacognitive skill, creative imagination is necessary for reasoning, (including 'counterfactual' thinking and the ability to imagine and evaluate possibilities (Byrne, 2007, p.439), which may also include fantastical imagination) and future planning. Given a definition of creativity as producing novel outcomes, this might apply only when metacognitive skills are being developed, rather than re-applied (although of course application to a new 'real-life' situation will imply originality). In turn, this raises the question of when and whether metacognitions stop becoming meta and instead become 'ordinary' cognitions. If we routinely apply metacognitive skills do they become a 'normal', rather than a meta aspect of our thought? In considering these questions we begin to see why metacognition is difficult to define! For the purpose of this thesis, if we argue that metacognitions are necessarily always novel, then the implication is that they are always creative but perhaps it is safer to say that the generation of metacognitive knowledge and skill is a creative act which relies on creative imagination.

Some of the literature (e.g. Puryear, 2014, Runco, 2015) leads us to ask whether metacognition and creativity (and therefore imagination) are so interrelated that they are in fact the same thing. Having defined creative imagination as imagination applied in a relatively original way so as to produce a valuable outcome – an implication is that we would need a meta perspective (metacognitive knowledge, supported by creative imagination as discussed above) of our own learning to be able to apply creative

imagination to it, in order to produce that 'valuable' outcome, which we might classify as metacognitive skill or alternately, new metacognitive knowledge? We need to 'rise above' what exists, to see beyond and construct the new, based on sound knowledge.

> *'An individual's knowledge of self and particular aspects of his or her own world is the ultimate medium of creative behaviour, for knowledge determines decisions as much as opportunities. In fact, it is the basis of one's knowledge that one can perceive and identify one's opportunities' (Albert, 1990, p.19)*

As discussed previously, we can take the transcendental view that knowledge and self-awareness develops as a result of imagination (taking imagination in the widest sense of our 'scale') and Albert's argument suggests that this self-awareness/knowledge is necessary for the successful development of creativity. Presumably if we apply this creative thinking to our own learning then our self-awareness is nurtured, generates improved learning and multiplies our creative potential in an on-going cycle.

> *'The concept of "creative metacognition" describes the skill a person can develop that helps them to appreciate when, and to what degree, internal interpretations should be externalized' (Kaufman and Beghetto, 2013 in Puryear, 2014, p.11)*

This theory can be applied to creative thinking in a 'Little-c' and 'Mini-c' sense (Kaufman and Behetto, 2009), focussing on day to day activities and creativity within learning processes but metacognition could also be applied to creativity in the form of 'Big-C' creativity (ibid) by people who we might classify as 'creators' and Runco discusses calling this second application 'meta-creativity' (2015).

Puryear suggests that:

> *'By taking the steps of connecting the concept of metacognition with a personal and developmental view of creativity, while employing either Vygotsky's or Piaget's theory of cognitive development and learning, one can find the possibility of meaningful measurement of (potential) creativity in individuals by way of metacognitive assessment.' (2014, p.13)*

The implication is that metacognition is a predictor of and condition for creativity. Perhaps the same is true in reverse? Is creativity a predictor of metacognition? Or are the two conditions simply so intertwined that they are the same thing by different names? Our previous exploration suggests that creative imagination, along with

productive and the other forms of imagination, enables us to be metacognitive in the first place. Answering these questions seems to hinge around the concept of originality and comes back down to whether metacognition is relatively (individually) 'original'. Of course we might consider ourselves as having a permanent sense of metacognition, which is ever-developing but contains knowledge and a range of strategies about our learning which remain constant, for example; I know that I don't have a great memory and that I need to write things down – this is not a new thought but still seems to qualify as metacognitive knowledge and skill. Perhaps it is best to settle on the idea that creativity and metacognition are closely related, both drawing heavily on all aspects of imagination but particularly, creative imagination. All in all this suggests that imagination in all its forms is fundamental to and has a transformative impact within an iterative, self-developmental learning process which enables metacognition/creativity applied to our own learning. Thereby, imagination increases our ability to learn.

4.7.3 *Modelling imagination and metacognition*

We have established that imagination is a fundamental aspect of cognition and outlined the types of imagination as related to cognitive functions (above). Simplistically, modelling metacognition and imagination requires us to recall and copy this model, raising it to another level, or, looking at it in another way, objectifying it as something outside of ourselves, in order to gain a metacognitive perspective. We might think that imagination in our metacognition will function in the same way as in our cognition, differing only in that we are applying those kinds of imaginative thought to the subject of our own learning. To some degree this is true but there is more to unpick if we are to truly understand the role of imagination within this act. A fundamental property of metacognition involves our ability to transcend ourselves towards a higher level of self-awareness. We have discussed previously Kant's transcendental imagination and this as the basis of knowledge. In some ways, awareness of our awareness is the basis of metacognitive knowledge, therefore we might expect imagination to have an amplified or perhaps more deliberately applied role in metacognition. This deliberate application and direction of our thought towards our own thinking also implies the use of creative imagination in which we combine imagery in order to solve problems and produce original, valuable outcomes. It is as if, when breaking through a barrier between cognition and metacognition, the imaginational bar is raised, and rather than

beginning with the 'basics' of imaging and productive thought, entering into metacognition initially demands creative imagination. Of course imaging and productive imagination are used, but metacognition is based on cognitions already acquired through socio-cultural experience and previously turned into images, productive and creative imagination at the cognitive level. These are now material for metacognitive consideration as well as tools within metacognitive manipulation – the same thought processes applied at a higher level of thinking and focused on learning. Only when we have embarked on the creative 'mission' of developing metacognitive knowledge and skill do we continue to manipulate and combine imaging and products of imaging at this higher level, 'looking down' on our own learning, having accumulated a sophisticated enough lexicon of symbolic language in order to do so. In Vygotskian terms, we have crystallised our thoughts into mental tools which enable us to open up and work within a metacognitive context.

Having broken a metaphorical 'barrier' into the 'world' of metacognitive thought, we can look at how different kinds of imagination map onto different types of metacognition. Perhaps we can situate metacognitive knowledge and skill within a larger 'pool' of Imaging in relation to thinking and learning from which we are able to bring to mind what is not present in terms of our own and other's learning. Also available to us within this pool of images is a range of cognitive tools which, at this higher level and when directed towards our own learning, enable us to manipulate and generate new thoughts which add to metacognitive knowledge and skill. Metacognitive knowledge and skill rely on and feed each other, with skill requiring knowledge as a basis from which to construct successful strategy and the obtainment of knowledge requiring the development of skill. Metacognitive knowledge requires productive imagination in order to recall existing and integrate new images/thoughts/concepts but creative imagination might also be needed in order to synthesise these thoughts by making and applying 'rules' to organise them coherently. Whilst it might seem counter-intuitive to include creative imagination with knowledge, seeing it as a 'given' or as an established kind of mental resource, this thesis has led towards and is based on an ontological perspective that knowledge *is* self-constructed, not discovered as an external 'truth'. Surely we 'make' metacognitive knowledge through a process combining experience and thought and this requires creative imagination towards the production of relatively new and valuable knowledge 'products'. Again, this suggests an internal version of Vygotsky's 'crystallisation' although the product is abstract.

Thus, we might make a rough guess that metacognitive knowledge is supported equally productive imagination and creative imagination, (without returning again here to the question of whether metacognition is necessarily 'new'). The act of *generating* metacognitive knowledge certainly requires creative imagination.

Moving on to consider metacognitive skill, with its focus on self-regulation and strategy, surely this is largely supported by creative imagination, since both of these executive functions require the ability to reason and solve problems which are personal (and therefore novel) to the particular learner. While it is likely to draw directly on productive imagination (and of course on imaging), it also draws on productive imagination already crystallised into metacognitive knowledge. It requires the ability to think forward, to ask 'what if?' and to create strategies for application in a range of contexts which may each require adaptation. At first it is difficult to conceive of much of metacognitive skill as not requiring imagination if 'Task analysis, planning, monitoring, checking, and recapitulation' (Veenman et al., 2004, p.90) are manifestations of such skills; however, we need to ask whether creative imagination is still present if metacognitive skilfulness is employed unconsciously or automatically, when it has been developed. Veenman et al. tell us that metacognitive skills '…can be acquired and eventually executed implicitly' (ibid), although again, the boundaries between cognition and metacognition begin to blur here. In terms of situating imagination with metacognitive skill, we might say that we are left with creative imagination underpinning the majority of the latter, leaving space outside of the imaginative aspects of it to account for none-creative (or none-original) execution of existing strategies and acknowledging our unaddressed question of whether creative imagination is necessarily conscious.

As yet, we have not situated 'fantastical imagination' within our model. At first, this form of imagination seems out of place in a model of thought which applies to such a practical focus as our learning but the arguments posited in terms of fantastical imagination within cognition still stand within a consideration of metacognition. When focusing on our learning and how to develop it, fantastical imagination might be useful in helping us to consider possibilities which are far out from or even impossible within our learning contexts, but provide a means of 'counterfactual' (Byrne, 2007) criticality which enables us to arrive at realistic possibilities. Arguments which support the value of fantasy in terms of our broader evolution should not be ignored in the context of a

smaller scale, individual learning process. If, as Mithen (2001, p.42) suggests, an evolutionary function of fantasy was to enable us to over-ride existing mental categories by externalising thoughts at odds with our innate, pre-programmed sense of order, it follows that fantasy might help us as individuals to arrive at new possibilities in our thinking and learning. By considering extremes and manipulating metaphoric categories beyond the realms of the 'real', we might see ways of mentally pushing at the boundaries of the metacognitive knowledge and skill we had previously arrived at. For this reason I locate fantastical imagination at transitional areas of metacognition, or at the 'edges' of knowledge and skill,, suggesting that it might act as a catalyst in the transformation of our learning.

Key:

P=Productive imagination

C=Creative imagination

F=Fantastical imagination
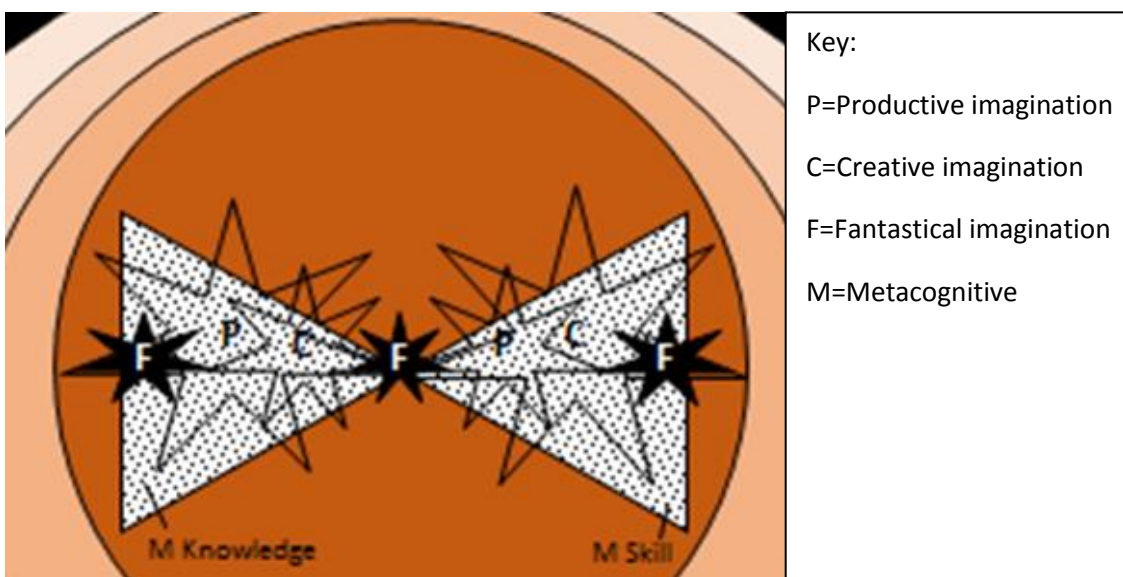
M=Metacognitive

Figure 4.3 Relationship between types of imagination with metacognitive knowledge and skill (detail of figure 4.4)

Taking this model further, we might start to consider the idea of what happens if we go beyond the edge of metacognition, where consciousness of metacognitive value leads the learner to consciously develop metacognition in order to improve their learning. The very abstract nature of this idea might provoke a response including the use of fantastical imagination, since, when we go to unexplored territories, we need to 'fill in gaps', or address our disequilibrium with whatever we have to hand. In the absence of developed knowledge, like young children developing cognition, we may use fantastical imagination.
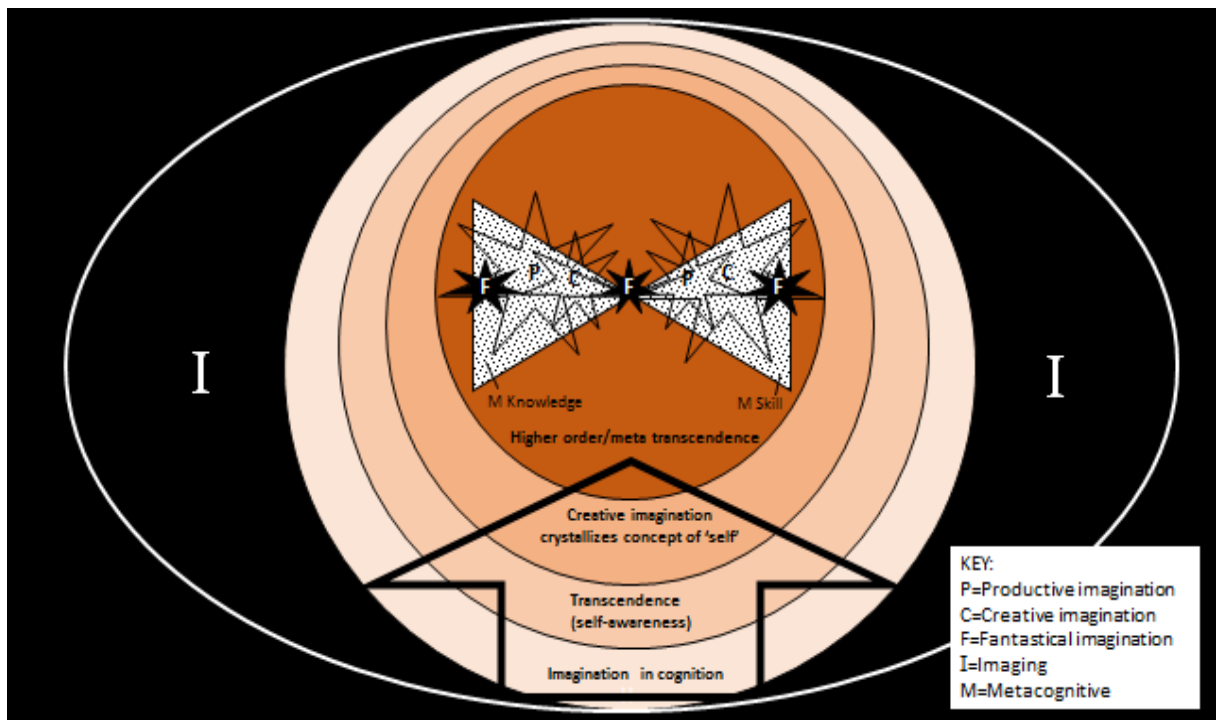
Figure 4.4 Model of imagination leading to and within metacognition

In figure 4.4 we see our types of imagination, represented within metacognition (as we have described them above), in the innermost circle. Metacognitive knowledge and skill interact with each other in a dynamic, two-way flow which is dependent on and almost filled by imagination. What remains within these processes beyond imagination are any operations which do not require mental images (for instance, verbal coding and perhaps, structures for thinking through, *if* it is possible for these not to depend on imagery). In order to reach this metacognitive state, through Imaging, we have used imagination to transcend into self-awareness (in an evolutionary and developmental sense), so that imagination is the basis for our knowledge construction. This is Kant's Transcendental Imagination. We have then used (within our lived experience rather than as an evolved biological feature) creative imagination to crystalize our concept of self, so that we are able to consider ourselves as if we are outside of our own cognition, transcending again to become metacognitive. Imagination then continues to support this metacognitive state.

We have arrived at a very abstract model of metacognition and imagination but what might different aspects of this look like in reality? A good place to observe these phenomena in education practice might be in projects which focus on or substantially feature creativity, given that we have established a strong role for creative imagination

within metacognition. While not necessarily being arts-based, arts-based projects are likely to require and perhaps exemplify creativity. The table below provides examples from my own practice.

Metacognition	Manifestation	Imagination	Process
Knowledge	A child acknowledges her lack of confidence following a conversation about learning using art images as stimuli. She mind maps her thoughts	Imaging Productive Creative	Brings to mind images relating to confidence Relates images to art stimuli and other people's conversation Applies the images to her own learning as a relatively novel concept, crystallized as a mind map which becomes a tool for learning
Skill	The child makes a sculpture about her own learning, in the form of a pizza, which has 'toppings' of different learning attributes in each section. She relates 'confidence' to these connected areas of learning. She goes on to present the work to the group, more confidently than she might have before	Imaging Fantastical Productive Creative	Brings to mind images as possibilities for making Thinks beyond what is possible in real life, mixing metaphors towards a concept for her sculpture Relates and connects the images Crystallizes her thinking into an external product which is also a tool for her further learning

Table 4.4 Examples of imagination in metacognition, in practice

4.8 Implications

We have seen that and how imagination is essential to metacognition. If we find that art supports the development of imagination, then we might assume that art also supports metacognition. We will explore this in Chapter 5. For now, we can speculate that the lack of 'right and wrong' answers which is inherent in a subjective area of knowledge like art, is likely to raise complex problems which we can only resolve for ourselves.   This may provide fertile ground for imaginative and metacognitive development since 'Metacognitive knowledge and self-knowledge develop in, and are

affected by, complex problem-solving situations' (Tarricone, 2011, p.53). If we see art as a subjective embodiment of human thought, feeling and belief, we begin to see that it may be a means of nurturing metacognition since it makes explicit certain kinds of knowledge about our human experience which we relate to in a personal way.

> *'Self-knowledge is influenced by feelings, beliefs, false beliefs, self-doubt, prior knowledge and understandings, suppositions, assumptions, ability, contexts and challenges which can be instigated in complex problems and can affect problem-solving processes.' (Tarricone, 2011, p.54)*

If art helps us to know ourselves as humans, this suggests a particular relationship with self and metacognitive knowledge. Art provides opportunities to exercise or examine: feelings, beliefs, false beliefs, self-doubt. It requires us to draw on prior knowledge, understandings, assumptions and abilities, in 'one off' cases or contexts (as the work of art) which instigate complex problem-solving tasks, due to the interpretable, subjective nature of the art. 'Challenges to beliefs and doubt stimulate reflection and instigate problem solving strategies.' (Tarricone, 2011, p.16).

If by developing imagination through art (and we will discuss this relationship in the next chapter) we can develop metacognition, we can look at ways of maximising on this. It may be that by focusing on aspects of self; explicitly on learning for example, we can increase the power of metacognitive development through art. However much this is the case, if arts education practitioners can develop an understanding of the psychological processes of imagination in cognition and metacognition it is likely that they will be able to help learners improve achievements not only in art, but in learning more generally, through supporting broader cognitive development as well as metacognitive development, proven to effectively improve our capacity for achievement (Higgins et al. 2013).

4.9 Summary and reflection on vignette

Returning to the vignette at the start of this chapter, I now understand my experience of making the art I described as one of attempting to address a disequilibrium in my thoughts by cohering corresponding mental and material imagery. The art I made is a personal reflection of the imaginative process, demonstrating the syncretistic connecting of images, according to personal, symbolic associations. The act of

collaging pre-made ink blot images, made over a number of years, replicates a process of drawing on pre-existing mental imagery, accommodating and assimilating these towards the construction of a concept. Painting into the collaged imagery can be seen as an attempt to identify strong connections or to demonstrate that, in imagination, some connections emerge more strongly than others, as patterns/schema in our thought. Perhaps this begins to emulate a 'meta' process, since the paint is applied as a reflective response to the previous layer of symbolic representations laid down. The successive layering and interplay between collaged images and materials is a mixture of experiment and reflection, shifting between cognitive and reflective action. I would not describe this reflective action as fully conscious or fully 'meta', so resist calling it metacognition as it takes place within my act of making, however; it is something close to metacognitive understanding, considering that I was consciously exploring the way that my imagination works. The resulting art is a crystallisation, in Vygotsky's terms. By making use of a space outside myself, returning to concrete experience in the application of paint, paper and glue, I was able to reflect something of my personal, none verbalised understanding of imagination by manifesting that process as a metaphorical concept. At this point, with the completed work in front of me, I could see my idea of imagination and I consider this to be a metacognitive act (metacognitive understanding). In knowing what I know now, as a consequence of this thesis, it would be interesting to see if and how that concept has developed through a new manifestation of imagination within a new art work. This repetitive exercise might enable me to see how far I had understood imagination implicitly in the first place, through experience as an artist and how much academic study and attempts to verbalise imagination have added to my understanding. The visual representation at the very end of this thesis may go some way towards this but it is also for further exploration in artistic practice beyond this thesis. I consider this plan to constitute metacognitive skill, since I know that through a strategy of making art I should be able to improve my understanding of imagination.

Some key themes have emerged from our discussion which can be summarised as:

- **Imagination is slippery and dynamic**: while our scale of imagination is useful for discursive purposes, the separation of imagination into distinct categories suggests that they occur as clear steps within an over-all procedure. The truth is that beyond the initial act of turning a sense perception into a mental image, the

different 'types' of imagination are interrelated and all support each other, while having distinct roles within this complex, constructive process

- o **Imaging**: provides 'building blocks'
- o **Productive**: enables connections towards schema
- o **Creative**: enables originality and leads to metacognition
- o **Fantastical**: enables originality by not being bound to 'truth'

- **Disequilibrium is a condition for imagination:** the absence of a cohered understanding creates a need for imagination in order to construct concepts which address this

- **Concrete experience can support imagination in the face of disequilibrium:** we often return to concrete experience when faced with disequilibrium, as children and sometimes as adults for whom this approach is useful. This may partially explain artistic responses to problem solving. Play, use of materials and bodily activity can support us in using imagination to construct responses to missing or ill-fitting areas of our understanding

- **Imagination enables transcendence:** at a human evolutionary level and at a personal level in individual cognition. At the personal level, imagination can help us to transcend our own learning, enabling us to become metacognitive. Imagination enables us to reflect on ourselves and our experience in order to create new ways of learning and new ways of being.

- **There is an affinity between creative imagination and metacognition:** through their congruent requirement for originality

4.10 *Visual re-presentation: psychological imagination*
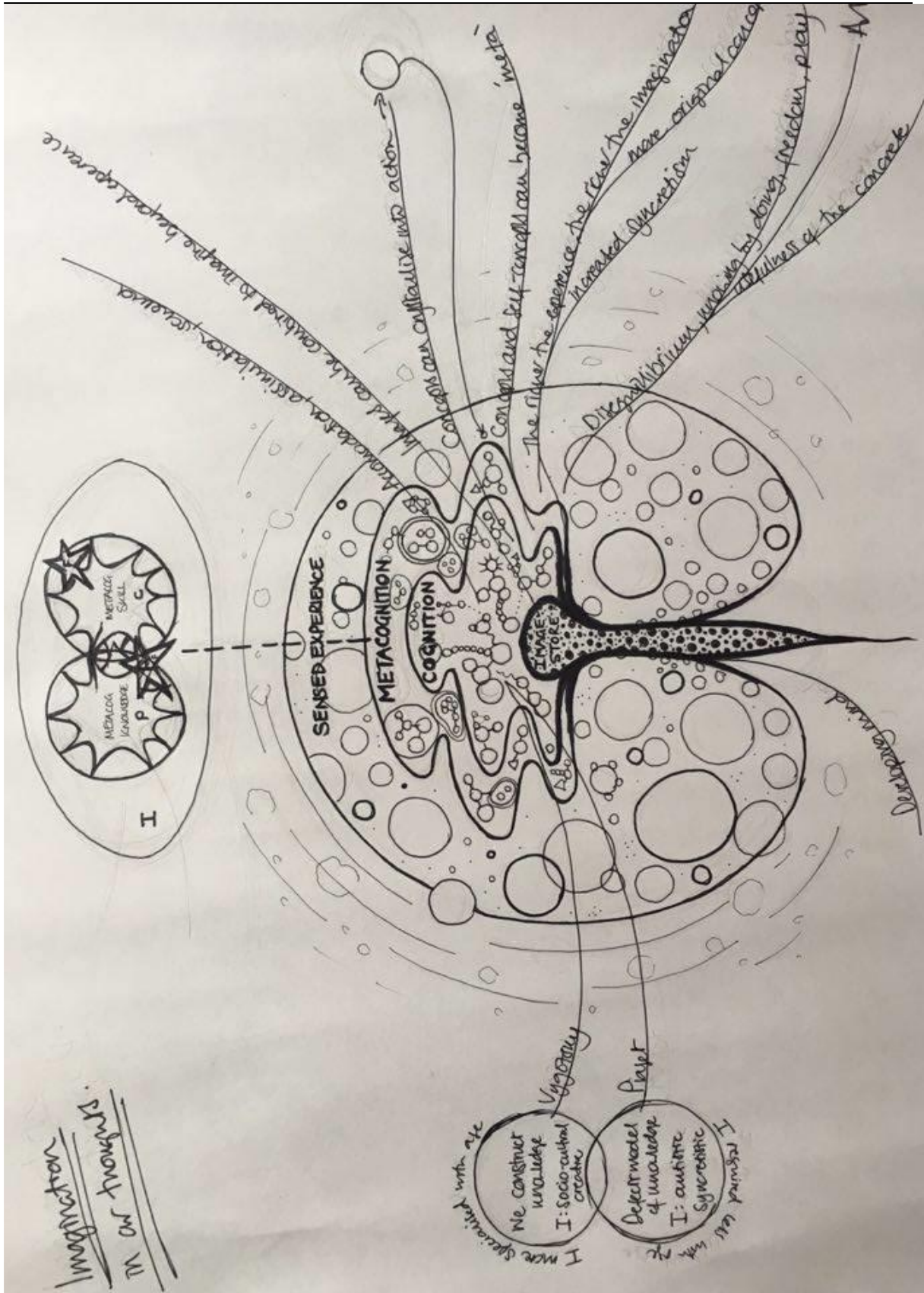
Figure 4.5 Re-presentation: Psychological Imagination

Chapter 5. Imagination: a visual arts perspective

5.1 Vignette: the special value of art experiences

While working as Schools and Colleges Programmer in a contemporary art gallery, I was asked to organise a project and choose an artist to work with a group of students from a Pupil Referral Unit. Our projects always pivoted around the art and artists currently on display in the gallery and we had a show of the work of Barry McGee, an artist who is often considered to be a 'street artist', who made site-specific installations featuring a combination of 'urban detritus with intricate hand-painted murals' (https://www.creativereview.co.uk/cr-blog/2008/february/barry-mcgee-at-baltic/).

Barry McGhee is interested in contemporary urban culture and sub-culture, graffiti and tagging, amongst other things. I organised a project around the theme of identity, which seemed appropriate in bringing together the needs and interests of this group of educationally disengaged teenagers and the work on display. The artist we decided to work with designed the project content, setting the students off to each customise a plain, Ikea chair in a way which expressed something about themselves.
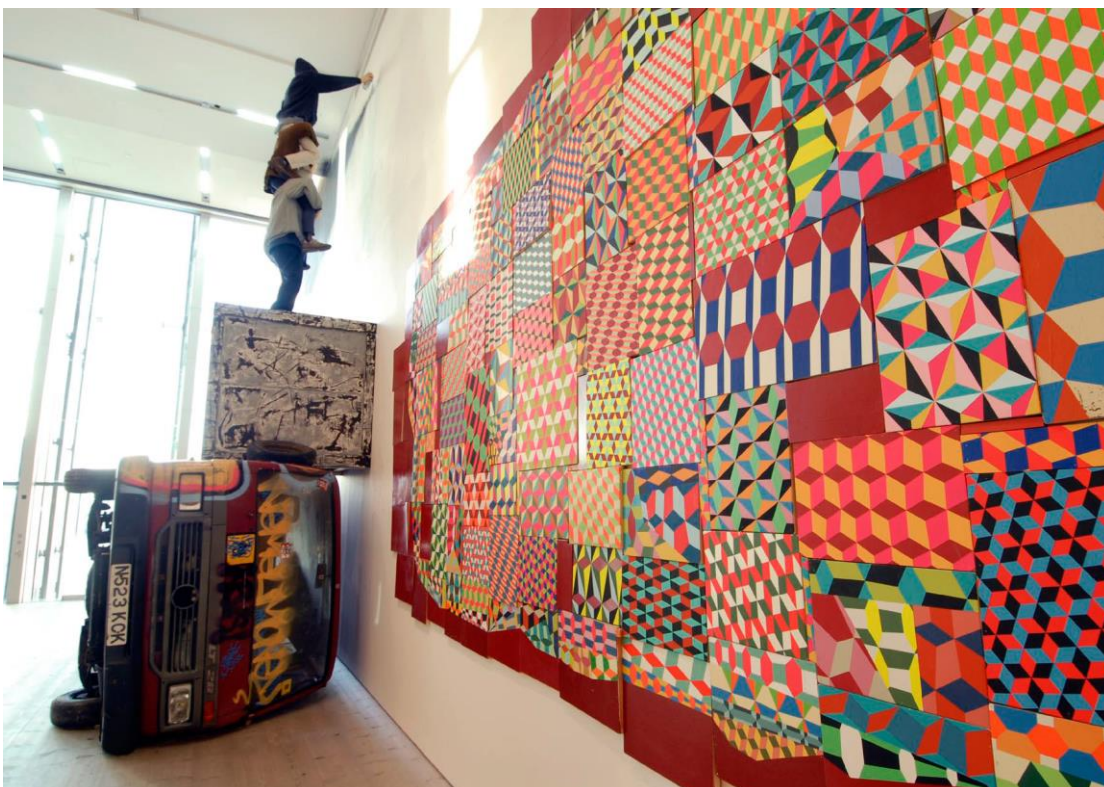
Figure 5.1 Barry McGee installation, Baltic Centre for Contemporary Art, 2008
http://www.balticmill.com/uploads/Barry_McGee_Learning_Resource.pdf

When the group arrived I was able to talk with their adult group leader about how the project would work. In order to customise the chairs, we wanted them to be able to

use certain tools: Stanley knives, hammers etc. and we needed to ensure that this was done safely. There were also further practical issues to discuss. The group leader proceeded to tell me, in a worse than pessimistic way, that all of this work was pointless because there would be no turning around this group, they were all hopeless cases. I was appalled by his lazy, negative attitude and his inability to conceive that it might be possible to offer these young people opportunities which could have positive impacts on their learning. I have never come across anything like it before or afterwards. Given what he had said, it was interesting to see how the work played out.

Most of the group of about 10 students continued to attend the 5 sessions, turning up for school when they usually might not have, simply to come into the gallery. Most of them produced a chair and were photographed with their art work by a professional photographer at the end of the project, receiving a copy of the photo and their chair to take away. There were no knifings, accidents, tool thefts or other major incidents beyond petty squabbles. To my mind, this was not because the group had been told to be on their best behaviour, since being told this had not been successful previously. I would say that the reality was quite the opposite. They had been offered freedom to explore and express something about themselves, in relation to something that was meaningful to them. Some of the students had to finish off their work in the school environment and this was less successful. There was value in them being in the gallery space, different from the norm, with a less authoritarian, less prescribed set of rules and boundaries, with which they had no previous disagreement. Their 'slates' were effectively wiped clean and they were trusted to a level they might not have been in their school, since gallery staff and the artist they worked with has no detailed background knowledge about them and took each student as they found them. They were working with a practising artist and perhaps there was a degree of respect there as well as for Barry McGee, the artist whose work was on show in the gallery due to his being a 'street' artist. It was interesting that this street artist (or perhaps he is an artist who is interested in street art?) was clearly engaging willingly with the more bounded world of art in the form of the gallery setting and to some extent this reflected the situation of the students who were willing to engage with the gallery and with art despite the fact that they struggled with the 'establishment'.

This experience highlights that gallery art experiences can have a special value. How much of this is just because they are 'different' and how much is due to the specifics

of that situation? What might it be about art and art galleries and ways of learning in them which is valuable in terms of imagination and learning?

5.2 Overview

This thesis is concerned with establishing what imagination is and with what is often considered to be a special relationship between imagination and art, in particular, with visual art. This chapter investigates the conditions within art and visual art which create a favourable environment for developing imagination and begins to identify the possible advantages of this in our learning more generally. A discussion of the role of 'imagery', 'free-play' and metaphor, as the material, environment and mechanisms of imagination within art is cohered within the notion of art as experience, drawing on key literature from arts and arts education. We will then return to our scale of imagination in an attempt to consider the kinds of imagination as they relate to visual art, before summarising our findings in relation to the vignette above.

5.2.1 Mental imagery as cognitive material in visual art

Having proposed (Chapters 3 and 4) that imagination is a vital and permeating aspect of all of our thinking, particularly when defined to include as its most basic form 'imaging', it is appropriate to undertake a brief exploration of the psychological nature of mental images, relating these explicitly to art, in order to develop theory which supports learning based on this relationship.

Some (Paivio, 1973, Kosslyn et al 2010) but not all, (Pylshlyn, 1973, 1981) would argue that the basic unit of imagination is the 'mental image', the nature and use of which has been the subject of 'the imagery debate' (Tye, 1991). For Kosslyn et al.:

> *'a mental image occurs when a representation of the type created during the initial phases of perception is present but the stimulus is not actually being perceived; such representations preserve the perceptible properties of the stimulus and ultimately give rise to the subjective experience of perception.' (2006, p.4)*

The parameters of this thesis limit the extensive capacity required to enter into what has become 'the imagery debate' (Kosslyn et al, 2006, p.6, see also: Moulton and

Kosslyn, 2009, Thomas, 1997, Cornoldi et al, 1996) and it suffices here to acknowledge the conflict of ideas around whether mental images are a distinct phenomenon which serve to 'depict' (Kosslyn et al, 2006, p.6) or represent ideas or experiences, as opposed to whether mental representations are 'more accurately referred to as symbolic descriptions than images in the usual sense.' (Pylyshn, 1973 in Kosslyn et al 2006, p.6). Shepard and Metzler's research into the mental rotation of three-dimensional images can be seen as evidence of an 'analogue' model of mental imagery (Shepard and Metzler, 2003) concurrent with Kosslyn's view in which

> *'… mental images are "quasi-pictorial" representations, in the sense that they preserve the spatial or topological properties of the physical objects being represented... mental images are generated in the visual buffer...and can be transformed, inspected, or manipulated, analogously to the physical manipulation of the objects they represent.' (Kozhevnikov, 2008, p.2132)*

Relating these theories to personal experiences, the analogue model makes sense to me as being the likely, or most prominent mode of mental imagery, reflecting our lived experience in its dynamic malleability rather than being a catalogue of 'frozen' instances of experience, (although I would expect this to differ somewhat across individuals and in different kinds of thought). An analogue model enables us to explore cognitively as we would explore sensually in the material world. The sensory is not arbitrary and the 'real' or 'physical' nature of a mental image which works in the same way leaves it open to numerous possibilities in the way that we choose to interpret or apply it. Our mental imagery is not symbolically static and one dimensional but is complex and naturalistic, enabling us to build new thoughts and meanings. It relates to the bodily or sensory origin of our cognition, as distrusted by Plato and Descartes, which led also to a distrust of art (see Ch.3). By extension, we might argue that this implies increased value for the role of visual art in supporting our thinking, considering its sensory origins and outputs and the fact that our cognitive activity depends on sensory experience which has historically led to its relegation.

Like any kind of thinking with mental images, art depends on and makes explicit an 'analogue' exploration based on sensed experience, both in production and in viewing but perhaps this activity of image manipulation is the essential business and nature of art, more explicit and more 'free' than in other subject areas. (Returning to Ch. 1, even 'representation' in art is really *re-presentation,* seldom a direct 'replica' made without

recourse to choice and decision in portrayal or concept and therefore working in the same way as an analogue model of mental imagery). We can consider art and art processes as a visualised and more concentrated model of the way that we think with mental imagery on an everyday basis, particularly in circumstances where meanings are not already 'fixed' as images in their own right (for example, in the case of scientific generalisations). In this way art might be seen as a dynamic and focused 'exercise' for our minds, modelling important aspects of our thinking more generally and allowing us to try this out in a discrete space. In this case, some of arts value for learning would depend on the prominence of the visual or analogue model of mental imagery within our thinking. How much of our thought does imagery occupy and how important is it in practice?

In Paivio's 'Dual Coding' model

'Imagery and verbal processes function as parallel or sequential systems in a static-dynamic relationship with imagery as the more dynamic of the two processes, capable of swift and symbolic transformation into language.' (Khatena, 1984, p.15)

Paivio evidences the superiority of imagery over 'verbal coding' in his research on free recall, concluding that

' ...the usual superiority of pictures in free recall is best explained by dual encoding, or a combination of image superiority and dual coding, both of which are ordinarily favoured when items are presented as pictures.' (Paivio, 1973, p.176)

We organise verbally coded information sequentially, whereas we chunk or cluster images in parallel to each other, possibly because '…pictured objects are simply more available for recall because of higher familiarity or frequency...or their memory images somehow take up less "storage space".' (1973, p.201). Whatever the reason, we can assume that this 'clustering' enables immediacy and flexibility in the way that we associate mental images with each other in the process of forming meaning. In Paivio's theory 'imagery provides the primary cognitive medium for representing end states (goal objects, situations, behavioural outcomes) and "trying out" different behaviours that might achieve those ends.' (Kaufman in Sadoski, 1992, p.272). These

are behaviours which we might readily describe as 'imaginative', bringing to mind what is not (yet) present and are akin to creative or even fantastical imagination on our scale. In combination, all of this suggests that thinking with imagery (as opposed to using 'verbal coding' in Paivio's model), provides advantages in terms of cognitive manipulation and creativity. Since we have identified a similarity between the 'mechanics' of mental images and our sensory experiences of images, we might suppose that mental images and, by functioning in the same way; art images, provide key cognitive components for use in creating new meanings. Within a dual coding model, it is imagery as opposed to verbal coding which enables originality so we can assume that both mental and artistic imagery are powerful, transformative aspects of cognition. If we accept that metacognition operates via the same processes as cognition but at a 'meta' level, we can say also that mental and artistic imagery play this transformative role in metacognition too. Surely it is also imagery that enables us to jump from cognition to metacognition, providing the flexibility of thought which enables us to have an overview. This is borne out in the model we arrived at in Chapter 4, included again here (figure 5.2).
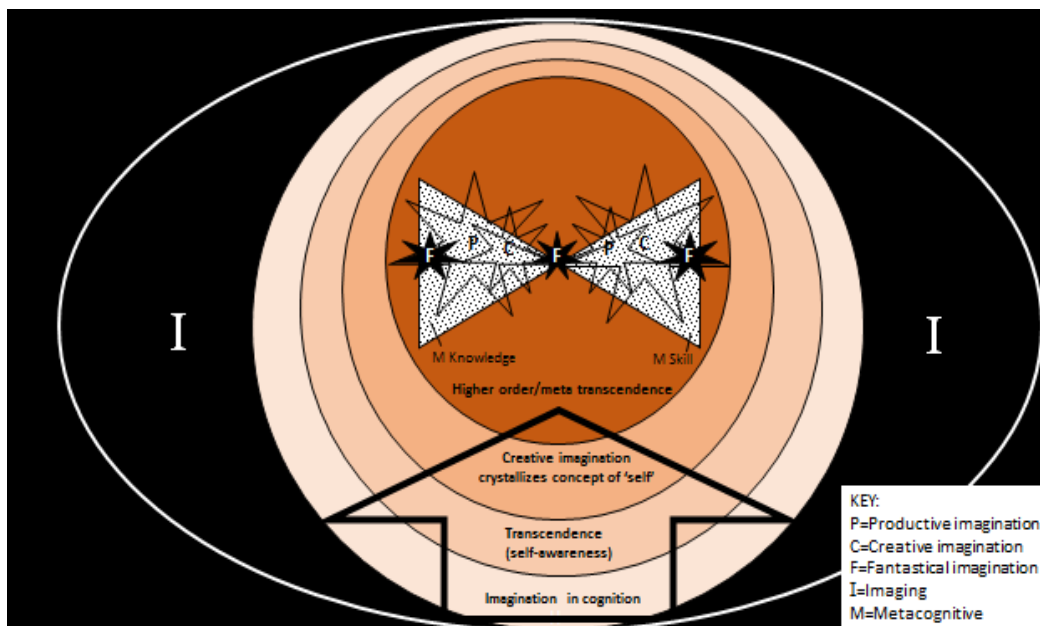
Figure 5.2 Model of imagination leading to and within metacognition

We can start to see art works as visualised models of the imagery-rich processes which Paivio describes, produced via a skilful exploitation of the properties of mental images in order to cohere meanings which may be conveyed to those experiencing them. The art then generates an image-based cognitive process in the mind of the viewer as they draw on the new sensory imagery (the art) and cohere this with their existing mental

imagery in order to arrive at an understanding of the work. Whether it is intended by the artist or not, art is likely to 'open' up and influence thought processes if it is of sufficient interest to provoke consideration by the viewer.

Kosslyn and Paivio's theories both emphasise the prominence of analogue-style imagery and its advantages for manipulation, storage, retrieval and creative cognition. While they bring us closer to an understanding of how imagination encapsulates and operates with mental imagery, without specific theories which relate imagery and art, we can only make a logical speculation that the prominence of our use of imagery and preference for the visual in recall implies that art has a special role in supporting our use of mental imagery within our learning. Arnheim attempts to bridge a gap between 'mental image' and 'art image'. He puts it simply, perhaps too simply: 'Thinking calls for images, and images contain thought, therefore, the visual arts are a homeground of visual thinking.' (Arnheim, 1969, p.254).   Echoing the discussion above, he discusses the malleability and interpretability of mental imagery, exploring the nature of the images themselves and how this accommodates creative thinking. Like Kosslyn, he dismisses the idea that our creativity is limited to combining pre-perceived mental images of the outer world.

> *'It is as though, for the purpose of imagery, a person can call on memory traces the way he [or she] calls on stimulus material in direct perception...the thinker can focus on what is relevant and dismiss from visibility what is not.' (Arnheim, 1969, p.105)*

For Arnheim, the characteristic incompleteness, fuzziness or generality of mental images can be described metaphorically as being akin to Impressionism since

> *'...the Impressionist offered an approximation, a few strokes, which were not intended to create the illusion of the fully duplicated figure or tree. Rather, in order to serve as the stimulus for the intended effect, the reduced pattern of strokes was to be perceived as such.' (Arnheim, 1969, p.108)*

So our mental images might have a similar impact on us as this Monet.
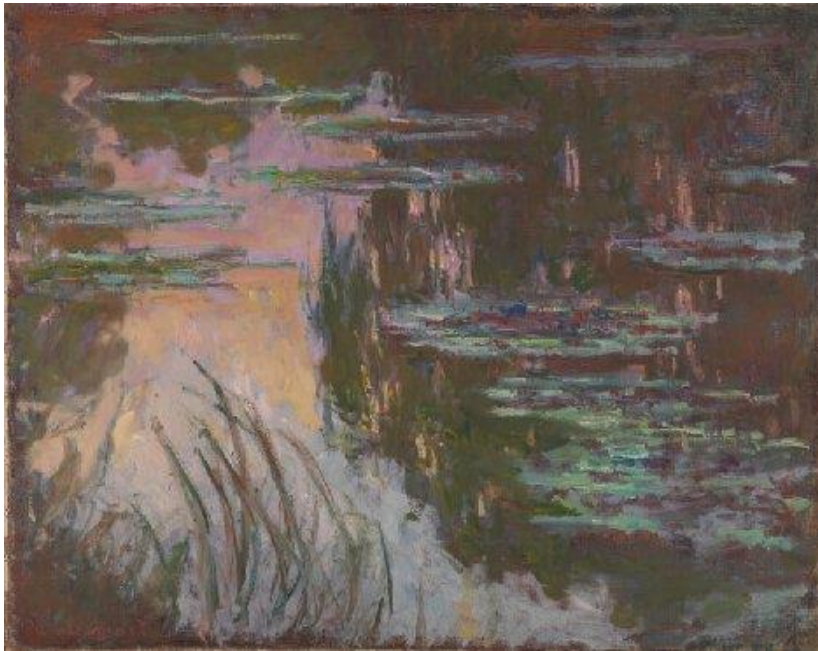
Figure 5.3 Water-lilies, Setting Sun. Claude Monet, 1907
http://www.nationalgallery.org.uk

While succinctly illustrating the attributes of the psychological descriptions of mental imagery discussed above, this use of an art-historic metaphor is thought provoking if adapted and re-applied as a metaphor of Contemporary Art. While an impressionist concept of mental images leaves space for us to complete, manipulate and make something new with those images, a metaphoric application of the 'style' and characteristics of contemporary art provides an interpretive space which is more psychologically explicit (as we might expect in the twenty-first century) and concerned more directly with concept and meaning. Art, as a cultural activity, has moved along to accommodate, interrogate and push the boundaries of a psychologically informed, social ontology. This emphasis provides a more direct route towards exploring our cognition and metacognition within and through art. The process of making or viewing consciously acknowledges, reflects and supports exploration of the conceptual subject matter and pshychology-influenced ontology in hand.   Within this metaphor, Contemporary Art is deliberate in providing us with psychological space, reflecting our use of mental imagery more literally than Arnheim's 'Impressionist' metaphor, which remains strong in providing an aesthetic for the 'space' available. The model of mental imagery conjured up by the metaphor of 'Impressionism' facilitates the (metaphorically speaking) 'spatial' dimensions or 'form' of more conceptual concerns, just as some might argue technique and materials 'carry' the concepts which are largely the

intentions of Contemporary Art. If we apply 'Contemporary Art', rather than Impressionism, as a metaphor for mental imagery, we see mental imagery as a means of cohering and expressing concepts and regard its inherent malleability, or 'Impressionistic' 'form' as what enables this end. We see what it's for and how it achieves this. We use mental imagery and visual art to cohere meaning and they help us to do this by being 'fuzzy'. In both the Monet image (5.3), above and the more contemporary and conceptual Eliasson image, below (5.4), the visual subject matter involves the sun.

Figure 5.4 <u>The Weather Project</u>, Olafur Eliasson, 2003-2004
<u>http://www.tate.org.uk</u>

The more minimal Eliasson piece is designed in such a way as to interfere directly with our sensory experience by changing our sensory experience of our environment, making us think by carefully suggesting an evocative, sun-like symbol, with obvious reference points but with plenty of 'space' for us to contemplate and complete concepts. While we do not know if he has verbalised this or if he intended to express it, the artist seems to understand how experience and mental imagery function and the impact of his art work seems to consciously depend on an understanding of cognition. This is an example of how mental imagery is like contemporary art and how contemporary art is like mental imagery. The closeness *might* suggest that *contemporary* art is more cognitively powerful. On the other hand, the immediacy may be regarded as an antecedent to engaging on a deeper cognitive level, doing more of the work for the viewer by taking us straight into the concept. This is for complex discussion beyond the scope of this thesis.

Emerging from these metaphoric considerations is a sense that mental imagery and visual art are deeply, perhaps uniquely intertwined experiences. The ways in which we make sense of our own minds will ultimately be reflected in our artistic outputs as examples of 'crystallised', socio-cultural cognitions, in Vygotskian terms (Ch.4). We can observe this in art history. Simplistically speaking (I do not suggest smoothness or hierarchical progression), we seem to have shifted from shamanistic approaches to art making in which spiritualism or 'magic' was our way of understanding existence into conceptual art-making influenced by (and sometimes as a reaction against), our cultural belief in psychology and science, in which we consciously manipulate mental images, generally understanding this activity as cognitive to some degree (although notions of divine intervention, 'giftedness' and spiritual practice still exist). This is further compounded by the highly visual, neoliberal culture in which we exist and are continually subjected to highly sophisticated products of conscious image manipulation (advertisement images) inflicted on our environment by those who can afford to adorn it in this way in order to profit from its impacts on our cognition. The substantial investment into the production of these images suggests that they must 'work' on us and therefore so must art images (but towards a different purpose). This makes 'visual literacy' (e.g. Messaris, 1994) and art's place in supporting this, as the manifestation of skilful image manipulation all the more important in order that we can critically confront the mental dialogue which this imposes on us. 'Representation stabilizes the idea or image in a material and makes possible a dialogue with it.' (Eisner, 2002, p.6). Art creates a tangible link between our internal and external worlds by capturing, cohering and re-presenting mental imagery and (to relative individual and social degrees) situating this culturally. In developing and exposing our mental imagery through art, we enable socio-cultural thought which can serve to strengthen our knowledge and understanding at a societal level. Bruner, in his essay 'Possible Castles', tells us that:

> *'…the humanist deals principally with the world as it changes with the position and stance of the viewer. Science creates a world that has an "existence" linked to the invariance of things and events…The humanities seek to understand the world as it reflects the requirements of living in it.'* (1986, p.50)

In seeking not to pin understanding down to generalizable truth but to re-present a way of thinking (or to arrive at one through artistic process) by reflecting the attributes of

the artist's mental imagery in material form, art is likely to generate further thought rather than to 'answer' questions and close down thought processes. The humanities (and therefore art) 'have as their explicit agenda the cultivation of hypotheses' (Bruner, 1986, p.52). Art: processes, represents and reflects the malleable and 'un-fixed' attributes of mental imagery towards the iterative stimulation of further imaginative thought, enabling us to tackle our lives creatively and on our own terms.

5.2.2 Art as an environment for imaginative free-play

From the discussion above we might surmise that visual art provides an environment for thought which both requires and creates cognitive opportunities and compared with our learning more generally, that these are characterised by a relatively large degree of 'freedom'. As making, or as interpretation, art can provoke the shaping and cohering of mental imagery, through which we generate individual hypotheses which contribute to socio-cultural dialogue. If our hypotheses are embodied and expressed as visual art (as opposed to literally) they iteratively provide further 'space' for ideas to evolve, all thanks to the 'fuzzy' nature of the mental images on which cognition and visual art are built. The 'fuzziness' of visual art, in leaving 'space' to generate hypotheses, if related to Piaget's theories (Ch.4), is akin to a learning challenge similar to that faced by a young child as they attempt to construct new schema, where perceptual experience is limited (or focused in the case of art interpretation or production) and possibilities for interpretation or concept construction are less restricted by understandings of material reality than they will become in later life. The child is likely to use fantastical imagination in what Piaget presents as a deficit model but what might be considered by Vygotsky and in the context of art, as creative opportunity for concept construction which largely dispenses with the need for general rules. This notion of the 'free-play' of imagination, as enabled especially well by art, is surely part of its intrinsic value in our learning? As such it is worth reinforcing this concept here. Kant (Critique of Judgement, 1790, 2005) presents us with a fundamental characterisation of imagination within the context of making and experiencing art as 'free play' within a none-rule-governed context:

> *'The imagination (as a productive faculty of cognition) is very powerful in creating another nature, as it were, out of the material that actual nature gives it. We entertain ourselves with it when an experience becomes too commonplace, and by it we remould experience…Thus we feel our freedom*

from the law of association (which attaches to the empirical employment of imagination), so that the material supplied to us by nature in accordance with this law can be worked into something different which surpasses nature.' (Kant, 2005, p.118)

So, art provides a 'space' where imagination doesn't have to follow rules which apply to the tangible world or to other methods of understanding the tangible world. The art object itself promotes mental freedom (and challenge) since, by not pinning down a single concept it enables mental and socio-cultural dialogue.

'The arts…enable us to inspect more carefully our own ideas…The works we create speak back to us, and we become in their presence a part of a conversation that enables us to "see what we have said".' (Eisner, 2002, p.11)

This implies opportunities for supporting metacognitive development through art and its capacity to provoke internal or social dialogue. If we take the (admittedly debatable) perspective that much or all of human experience is a kind of learning, then a work of art is necessarily a means of reflecting on (and potentially a conscious effort to agitate) our learning. In engaging with art made by others we are reflecting upon a human reflection of experience, as related to our personal experiences, so that, taking 'learning' as 'experience', we automatically relate art to our own learning/experience. This *is* arguable, however; if we experience or make art as part of a conscious focus on our learning, or if we have personally embedded the idea that art and engagement with it *is* learning, then we can argue strongly that it is a metacognitive act. Perhaps this argument for art as a metacognitive experience, due to the reflective dialogue which it provokes, is dependent on the degree of conscious intention of the artist or viewer to consider the possibility of art as learning or learning through art? To solidify the potential for this, we might generate and reflect on works of art which explicitly explore learning as subject matter (*if* in fact this *can* be separated from experience – where does 'learning' begin and end?). Through a conscious focus on learning within art experience, we could enhance our understanding of how we learn and of our skills for learning. This, in turn is likely to have a transformative impact on the way we experience art going forwards in our lives, as being inseparable from learning and a source of personal development. If this is the case then it is due to the capacity for 'free-play' inherent in visual art which allows the artist or the viewer to reflect individually and personally through art making and viewing, making syncretistic

connections to their personal experience, which enable them to develop an understanding of and potentially, strategies for their own learning.

The arts provide the opportunity to explore 'learning', along with any other kind of concept or subject matter because they provide *permission* '…to pursue qualitative experience in a particularly focused way and to engage in the constructive exploration of what the imaginative process may engender.' (Eisner, 2002, p.4) Within the realm of art

> *'Imagination… enables us to try things out...without the consequences we might encounter if we had to act upon them empirically. It provides a safety net for experiment and rehearsal.' (Ibid, p.5)*

We see this individual 'freedom' which art provides reflected in the nature of art as a field of knowledge; in its resistance to definition, which Weitz has argued enables '…the very conditions for creativity in the arts.' (1956, p.32)

Of course the development of imagination and with it, creativity through the arts is critically important beyond art itself, as an essential aspect of our human abilities in an uncertain world. In Chapter 3 we discussed the way in which imagination was critical in enabling us to deal with the challenges of survival, with overwhelming concepts such as death and the universe and with our capacity to learn from each other as social animals (Mithen, 2001, Montell, 2002, Donald, 1991). Art provided an external 'space' to acknowledge and explore these ill-fitting and uncomfortable ideas towards individual and social benefits. It is the freedom and 'space' to imagine which enables us to generate '…the capacity to imagine what is not yet.' (Greene, 1995, p.24) both in the context of art and, using this artistic experience as a model for creative thought, in global, societal and individual contexts in terms of our capacity for productive change or transformation (e.g. Eisner, 2002, Ch.1, Atkinson, 2008). As Greene puts it:

> *'People trying to be more fully human must not only engage in critical thinking but must be able to imagine something coming of their hopes; their silence must be overcome by their search.' (1995, p.25)*

The arts offer a space for imagination as a way to develop thinking skills which have the potential to transform on a personal or societal level. In exercising our imaginations without constraint, we undertake self-directed play which cannot be judged as 'right or

wrong'. Superficially, this might imply an 'easy' task where anything goes but in fact this is a challenging way to learn, involving 'complex and ill-structured knowledge' (Efland, 2002, p.84), uncertainty and psychological risk. It requires confidence and building skills of autonomous decision-making, problem-solving and sometimes the construction of a personal set of 'rules' or epistemology. This has been the case in my own work as a painter, in which specific techniques, materials, marks, colours, have acquired specific 'meanings' and needed to be applied accordingly for the work in hand to have artistic integrity.

> *'Work in the arts…invites the development of a disposition to tolerate ambiguity, to explore what is uncertain, to exercise judgment free from prescriptive rules and procedures…In a sense, work in the arts enables us to stop looking over our shoulder and to direct our attention inward to what we believe or feel. Such a disposition is at the root of the development of individual autonomy.' (Eisner, 2002, p.10)*

Reflecting on the vignette at the start of this chapter we begin to see that in engaging the young people in art activities, using the work of a street artist whose artistic ontology implies a deliberate defiance of rules and laws, we provided them with a level of freedom which contradicted their usual, educational experience. They couldn't believe it and did express this. These young people, classified by the education system as untrustworthy and deemed unsuitable to participate in a 'normal' educational context were trusted with autonomy through a context of art. Using a gallery for the activities enhanced this notion of freedom by providing a setting where school rules were not embedded. Rather than chaos, this resulted in engagement and pride from teenagers who seemed to have a deep need to explore and assert their identities and individuality. We can only speculate but perhaps a lack of opportunity for this had contributed to the problems they were experiencing in formal education, contributing to reasons for their referral? Art provided this 'way out' of education as constraint and a space for them to imagine in relation to themselves.   It offered '…opportunities for perspective, for perceiving alternative ways of transcending and of being in the world, for refusing the automatism that overwhelms choice.' (Greene, 1995, p.142). Such transcendence can be more than personal since 'In contradicting the established, or the given, art reaches beyond what is established and leads those who are willing to risk transformations to the shaping of a social vision.' (Greene, 1995, p.30). By exploring and expressing their own identities, the young people developed metacognitive knowledge and in hindsight; this could and should have been reinforced through facilitated, reflective dialogue

focused on their art works as a more intrinsic part of the process. Along with the personal, cognitive or metacognitive transformation which may occur as a consequence of making or experiencing art, the presence of the art work itself provides a potential vehicle for infiltrating culture and society and in order to express or assert our perspectives about ourselves, as 'free' beings. In this scenario:

> *'Imagination may be a new way of decentering ourselves, of breaking out of the confinements of privatism and self-regard into a space where we can come face to face with others and call out "Here we are."' (Greene, 1995, p.31)*

The decentering which Greene describes signals a move away from ego-centric thought towards an abstracted self-view in what Piaget would describe as formal operational thought. We now see art processes as a means of moving from ego-centric to abstract thought, as opposed to being stuck in more concrete stages of thinking. Of course, such a capacity for abstract thought enables metacognition. I would argue that perspectives on art which emphasise technical skill at the expense of cognition imply that art experiences are primarily associated with concrete activities and carry with them the danger that art practices are regarded as less sophisticated and less 'academic' than they should be in an environment which generally doesn't welcome the arts into the 'academic' canon (e.g.; Hardarson, 2013, p.119). This is, in part, a consequence of a hierarchical view of developmental stages but is also simply inaccurate in neglecting to consider art as primarily a cognitive activity. I think that these 'technical' associations stem from the cultural permutation of Plato's suspicion of art as based in sensory experience and Descarte's mind/body dualism (both discussed in Chapter 3). We need to acknowledge and exorcise these associations since the 'free-play' of imagination which art enables can lead to cognitive and metacognitive liberation. I may not have been able to conceptualise it at the time but reflecting on the way that I turned to art as refuge from the rest of experience as a teenager, the inherent opportunities for free use of my imagination were what I was seeking as I tried to address the disequilibrium of trying to exist within what I perceived as a very 'wrong' world.

5.2.3 Art metaphor and imagination

The Cambridge Dictionary defines 'metaphor' as:

> *'an expression, often found in literature, that describes a person or object by referring to something that is considered to have similar characteristics to that person or object: "The mind is an ocean" and "the city is a jungle" are both metaphors.'*

Having established a cognitive model of imagination, including its role in enabling symbolic representation (Ch.4) and in now relating this cognitive model of imagination to art, it seems very likely that metaphor will play an important role. It is necessary to contextualise metaphor within the 'visual art' focus of this thesis and to gain a deeper understanding of it, as it seems to be bound up with ideas about the significance of thinking with images and of 'free-play' described above. If we *can* argue that metaphor has a special role in arts-based cognition, we might still ask 'and so what?' The degree to which a special link between visual art and metaphor matters, beyond understanding how art and imagination function, depends to some degree on the importance of metaphor in our general cognition. For Johnson and Lakoff, metaphor is far more than the literary device as described in the dictionary definition above:

> *'Metaphor is for most people a device of the poetic imagination and the rhetorical flourish – a matter of extraordinary rather than ordinary language. Moreover, metaphor is typically viewed as characteristic of language alone, a matter of words rather than thought or action…we have found, on the contrary, that metaphor is pervasive in everyday life, not just in language but in thought and action.' (Lakoff and Johnson, 2003, p.3)*

If there is something particularly powerful or intrinsic about the way art uses metaphorical language, then, if we accept Lakoff and Johnson's theory, in which metaphor permeates and directs our ways of being, the implication is of increased status for the arts as a way of learning. They argue that 'Our ordinary conceptual system, in terms of which we both think and act, is fundamentally metaphorical in nature.' (Lakoff and Johnson, 2003, p.3). If art is more fundamentally metaphorical in nature than other subjects, there is reason to believe that it might be better than those at supporting fundamental aspects of our thinking and learning. If our metaphorical 'systems' are based in bodily experience (as Johnson asserts, 1987), then perhaps there is a parallel between the way that metaphor supports our general understanding and the way that art processes do this, in that both involve the combination of sensory *and* cognitive experience and methods. Art experience might be seen as a micro-

model of the metaphoric process inherent in our general experience as learners, offering the potential for us to focus on developing our metaphoric capacity in order to nurture our learning within and beyond art. This aligns with Dewey's belief that 'Because experience is the fulfillment of an organism in its struggles and achievements in a world of things, it is art in germ.' (1934, p.19).

Lakoff and Johnson depict human experience as being inextricably woven into metaphor which is culturally reflective and can also direct culture through permeation into cultural values: 'The most fundamental values in a culture will be coherent with the metaphorical structure of the most fundamental concepts in the culture' (Lakoff and Johnson, 2003, p.22). The way in which we have considered works of art, in a Vygotskian sense, as the crystallised products of our thinking which go on to have a socio-cultural impact, aligns with the idea that, in capturing and expressing concepts metaphorically, art reveals and opens up a dialogue with and through cultural ideas, providing a kind of cultural meta-consciousness. The 'meta' perspective, which art models for us, allows an open-ness to interpretation in which ideas are not 'pinned down' and a kind of connotative understanding which is not concerned with scientific generalisation yet shows us something coherent and useful nonetheless. This relationship between art, metaphor and a 'meta' perspective brings us back to art's capacity to support metacognition by revealing tacit, personal and social knowledge. Cognitively, metaphor has the advantage of helping us to address 'blurry' ideas.

> *'Because so many of the concepts that are important to us are either abstract or not clearly delineated in our experience (the emotions, ideas, time, etc.), we need to get a grasp on them by means of other concepts that we understand in clearer terms (spatial orientations, objects etc.). This need leads to metaphorical definition in our conceptual system.' (Lakoff and Johnson, 2003, p.115)*

This helps explain our cognitive need for art, as a metaphorical language. Returning to concepts discussed above, defining art as dealing with uncertain knowledge in order to generate hypotheses (Bruner, 1956, p.52) we can see art as a metaphorical means of dealing with what is otherwise difficult or impossible to understand. A metaphorical exploration helps us to grasp tricky concepts and feelings, arriving, via suggestion, at a hypotheses rather than a 'truth'. A metaphor:

> *'..is an idea expressed by language, an idea that in turn functions as a symbol to express something. It is not discursive and therefore does not*

really make a statement of the idea it conveys; but it formulates a new conception for our direct imaginative grasp.' (Langer in Eisner, 2002, p.98-99)

The term 'imaginative grasp' is in keeping with what has been discussed in relation to the 'open' and analogue nature of mental images and how we use them (5.2.1). From a Piagetian perspective, we are in the realms of autistic and syncretistic thought, associated by Piaget with ego-centric learning, in which mental images are used evocatively, rather than literally (Ch.4). An 'imaginative grasp' implies learning which is unlike 'gathering information' (Moseley et al. p.314) as part of a process by which we integrate experience and knowledge towards establishing a generalizable statement of truth. When we discuss imaginative thought it emerges as characterised by open-endedness, freedom, a hypothetical end-point and enabling this, the cognitive 'tool' of metaphor.

'…complex and ill structured knowledge [such as that in the arts] will likely utilize nonpropositional schemata or symbolic forms governed by a logic that utilizes metaphor and narrative to construct meanings. It is likely to apply to experiences where broad generalizations are unavailable to explain things.' (Efland, 2002, p.160)

So *how* does metaphor support our thinking? Specifically, how does it do this in art? In 'Languages of Art', Goodman portrays metaphor as necessarily awkward:

'Briefly, a metaphor is an affair between a predicate with a past and an object that yields while protesting…Where there is metaphor, there is conflict: the picture [Goodman is describing a 'sad' painting] is sad rather than gay even though it is insentient and hence neither sad nor gay. Application of a term is metaphorical only if to some extent contra-indicated.' (Goodman, 1976, p.69)

Such 'contra-indication' implies a necessary tension within metaphor resulting from the application of one idea towards the understanding of another. This requires an openness in or even a breaking of psychological rules as established schema are re-applied to (what will be in the first instance) a traditionally disparate area of thought. Of course when we embrace metaphors the distinction between their 'home territory' and the metaphor itself, becomes less surprising with application, decreasing the tension.

'Metaphorical force requires a combination of novelty with fitness, of the odd with the obvious. The good metaphor satisfies while it startles. Metaphor is most potent when the transferred schema effects a new and notable organization rather than a mere relabeling of an old one.' (Goodman, 1976, p.79-80)

In creating or experiencing a piece of art for the first time, depending on its degree of originality, the metaphoric experience is usually either brand new or unique and we use it to extend the boundaries of our thought, either as makers or as interpreters. Initially, we may need some kind of help in order to do this and of course there is a role here for art-educators and galleries to facilitate this engagement. Equally, perhaps part of this role is to introduce tension through exposure to challenging works of art or to challenging concepts and techniques. The notion of tension chimes with familiar, professional-practice-based descriptions (for example, education programmes such as 'Creative Partnerships') of the need to introduce tension into learning in order to support creativity or to construct new knowledge, as well as with Piaget's concept of disequilibrium and of the need for 'rupture' (Zittoun and Cherchia, 2013). Perhaps metaphor is a key factor in enabling creativity, through its inherent tensions, which allow us to shift between seemingly none-related mental categories.

'…metaphor suggests some similarities between the two subjects [those being compared and contrasted within the metaphor] and not others, and it is not always obvious which are the most relevant…Therefore a metaphor is not a simple point-by-point comparison nor is it like a scientific truth claim. This, of course, is what provides room for creativity.' (Parsons, 2010, p.230)

Metaphor therefore needs and nurtures syncretism, permitting an act of cognitive 'rebellion', or, at least, 'cognitive flexibility' (Efland, 2002, p.82), through a crossing of categories. We might consider many works of art as an externalised expression of cognitive flexibility, in a context of 'free-play' which permits this. Avoiding a critical discussion (due to limited capacity in this thesis), we might simplistically think of 'Dada' as a prime example. This artistic style seems to reflect the conscious recognition of art as grounded in and with a capacity to enable cognitive flexibility, which is akin to a conscious 'rebellion' in its explicitly subversive approach. We can, like the artist Kader Attia, turn old fridges into dreamy, sparkling cityscapes, such as in his work 'Square Dreams' (shown at Baltic Centre for Contemporary Art while I worked there) through a metaphorical crossing of schema and an understanding of art as a free, cognitive

process. As well as being essential to creativity (defining this here as being necessarily, relatively original), metaphor may be essential or key within our capacity for flexible thought, allowing us to jump freely between and link one seemingly unrelated idea to another, to let thought flow, in the process identifying something essential in relation to the concept in hand.

Figure 5.5 <u>Square Dreams</u>, Kader Attia, 2008

The 'space' for 'free-play' with metaphor which art provides implies that art removes all limits on cognitive possibility, enabling creativity and originality. We have so far not discussed whether *visual art* and its relationship to mental imagery (5.2.1) serves to strengthen the role of metaphor. Given theories of mental imagery such as those of Kosslyn and Paivio (above), we can assume that in our construction of metaphor we rely heavily on mental imagery which operates in the same way as our visual perception and has a bodily, experiential basis (as argued in depth by Johnson, 1987). Visual art therefore becomes a bodily means of experiencing metaphor, perhaps building a cognitive (potentially metacognitive if applied to learning), metaphorical repertoire through this, with the implication that exposure to visual art will lead to a more sophisticated metaphorical 'base' for incorporation into what we have called the 'allusionary base'. In terms of visual art making, this consists of the manipulation of symbols and metaphors through materials (from pencil, paint and clay to film, found objects and performance), towards a visual realisation. We might argue that this is, in a cognitive sense 'meta' in that it provides us with a visualised overview of our idea. Although I am tempted to say that an artist is often conscious of using these methods to reveal something of their self to themselves, this is a sweeping assumption. Neither will I return here to the problem of whether this artistic, metaphorical process is only considered as metacognition if we have consciously focused on the idea of our learning

but let us say that there is at least great potential here for visual art to support metacognition.

An advantage of a visual, rather than a verbal meta-perspective is that with 'visual metaphors…Unlike verbal symbols, the image is read directly, not having to be decoded.' (Efland, 2002, p.153) Images differ from words '…in being recognized "simply by looking"' (Carroll, 2001, p.348). There is immediacy, through the use of visual art, with the visual nature of metaphors themselves, as consisting largely of mental imagery and the cognitive 'space' which that provides. Visual metaphors, within visual art are a more 'direct route' into a metaphorical way of thinking, not enclosed within none-visual language, 'which requires the linear structure of the verbal.' (Parsons, 2010, p.232). The metaphor is not contextualised, compromised or constrained and it can be utilised in a number of forms within a piece of visual art:

> *'Visual metaphors are found at several levels in paintings: at the pictorial level, in representation itself, in painting styles, and in purely visual elements of the media. Visual metaphors can be different from linguistic ones, in that they can often be read backwards and forwards and in that several metaphors can co-exist in the same work without creating confusion. For these reasons, visual metaphors can be more suggestive and ambiguous than linguistic ones.' (Parsons, 2010, p.234)*

It seems reasonable to assume that this visual suggestiveness and ambiguity serves to increase the power of metaphor in how it is able to support cognitive flexibility. This implies a strong role for visual arts, as Efland states boldy:

> *'Education should have as its ultimate purpose the maximization of learners' cognitive potential. This requires recognition of the realm of imagination and the cognitive tools, like categorization and metaphor,that make its operation possible – in all subjects to be sure, but quintessentially in the visual arts.' (Efland, 2002, p.155)*

Having established a fundamental relationship between metaphor and visual art, we see the power which learning in the visual arts could have in the context of Lakoff and Johnson's all-pervading perspective on metaphor. Metaphors are not only socio-cultural reflections, but, crystallised in artistic form, can have socio-cultural impact, enabling personal and social transformations.

> *'Metaphors may create realities for us, especially social realities. A metaphor may thus be a guide for future action. Such actions will, of course,*

fit the metaphor. This will, in turn, reinforce the power of the metaphor to make experience coherent. In this sense metaphors can be self-fulfilling prophecies.' (Lakoff and Johnson, 2003, p.156)

I agree with Efland that, as the key mechanism for meaning making '…metaphor can and should become the principal object of study within the arts' (2002, p.168). This is contentious and difficult in a current UK curriculum context which places emphasis on skill, technique and 'great' art and artists, all of which may seem comfortably reassuring and relatively easy to teach, in contrast to a cognitive stance where value lies in complex uncertainty. This is a significant loss to learning considering the idea that '…only in the arts is the imaginative nature of metaphor explored in full consciousness. And it is this aspect that bestows fresh perceptions and insights as it enlivens thinking.' (Efland, 2002, p.168). The arts give free reign to exploring and experimenting with metaphor and allow us to do this as a conscious and valued act. They allow us to think beyond our accepted realities to create '…possible worlds through the metaphoric transformation of the ordinary and the conventionally "given".' (Bruner, 1986, p.49). Because metaphors are the basis for our thought and action, providing a mechanism for changing individual, social and cultural consciousness, visual art, as our most explicit and potent model of metaphoric, thought should be prized as an indispensable learning asset.

5.2.4 Art as experience for imagination and transformation

We have explored mental imagery as 'material' for art and imagination, manipulated in 'free-play' via art activities which provide a 'space' for imagining. The main vehicle for this imagining is the cognitive mechanism of metaphor, specifically, within our focus on visual art, visual metaphor. It is useful now, in a theory which strives towards pedagogic implications, to think about how these elements cohere within art experiences. We can then build an overview of the advantages for learning which they may offer.

Dewey's 'Art as experience' dispenses with approaches to art which revolve around unlocking a pre-defined, 'hidden meaning' contained within a piece of art, accessible to those 'in the know' and made 'great' by those deemed worthy as part of an inexplicit but undeniable hierarchy in the 'art world' (See Dewey, 1934, Ch.1). Instead, 'Art as

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Experience' focuses on the two way relationship between art and interpreter/maker and on an organic, transformative process of meaning making which occurs as a result of combining the conceptual content of art and human. Imaginative experience like this, while modelled in a focused way within art experiences, is not confined to art and Dewey is firm in his assertion that aesthetic experiences are important because imagination is required in the rest of our thinking:

> *'Esthetic experience is imaginative. This fact, in connection with a false idea of the nature of imagination, has obscured the larger fact that all conscious experience has of necessity some degree of imaginative quality. For while the roots of every experience are found in the interaction of a live creature with its environment, that experience becomes conscious, a matter of perception, only when meanings enter it that are derived from prior experiences. Imagination is the only gateway through which these meanings can find their way into a present interaction; or rather…the conscious adjustment of the new and the old is imagination.' (1934, p.283)*

Imagination is part of our lives, so that art as experience becomes a way of supporting our capacity to use it well, extending our cultural connectedness, which further supports our imagination by 'feeding' it. Dewey differentiates between imagination and other subjects by explaining that in art the product of imagination serves to generate further imagination, as opposed to serving a finite purpose or solve a resolvable problem and herein lies its value.

> *'The work of art…unlike the machine, is not only the outcome of imagination, but operates imaginatively rather than in the realm of physical existences. What it does is to concentrate and enlarge an immediate experience…the meanings imaginatively summoned, assembled and integrated are embodied in material existence that here and now interacts with the self. The work of art is thus a challenge to the performance of a like act of evocation and organization, through imagination, on the part of the one who experiences it…This fact constitutes the uniqueness of aesthetic experience, and this uniqueness is in turn a challenge to thought.' (Dewey, 1934, p.285)*

Again we see an iterative, experiential cycle, like those in related to an evolutionary, philosophical and psychological perspective in chapters 3 and 4. In this cycle, art becomes the vehicle for imaginative exercise, either through making or through engaged, interpretive experience with art. This transforms individual understanding and has the potential, through materialisation into art and into culture, to produce social

and cultural transformations. The 'finite' product of art is only finite in its physicality, since the potential of its subjectivity, the similarity of its presence to that of malleable, mental imagery and the way that this stimulates connections with and challenges the prior experiences of individuals mean that an inestimable range of further meanings can be constructed through experiencing it.
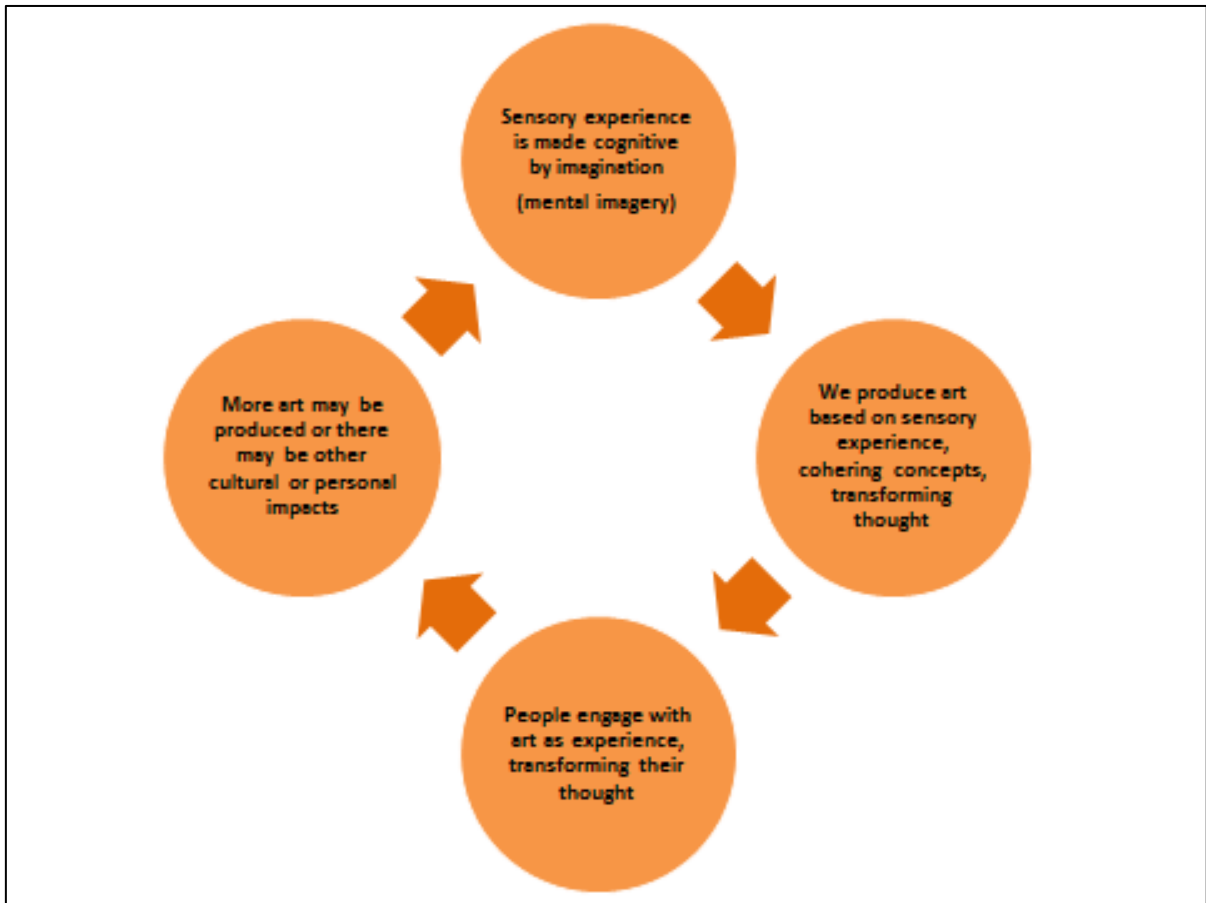
Figure 5.6 Art as Experience: an Iterative Cycle

The uniqueness of the role of imagination in art, for Dewey, lies in its iterative quality and its never-ending-ness, in terms of its impact on an individual who is changed by their experience with it, as well as in a socio-cultural way, which echoes Vygotsky (Ch.4). Art intrinsically offers imaginative challenge in that it invites or requires us to construct concepts. For this we must draw on our existing experiences, so that nobody can tell us if we have arrived at a right or a wrong answer. Being able to unite our experiences (prior life experiences combined with the activity of viewing or making art) requires significant 'cognitive flexibility' (Efland, 2002, p.159) which includes

'…the ability to change strategies as one becomes mindful of the structural demands of each domain, and the ability to activate the appropriate means to secure meaning of understanding. To be flexible one needs a repertoire of strategies from which choices can be made, many of which are learned in the arts.' (Ibid, p.160)

Imagining within art emerges as a demanding and dynamic activity, offering the potential to flex and stretch our cognitive 'muscles' to arrive at experiential interpretations and construct our own meanings through an interaction between the mental and the physical (the art). Art

'…signifies active and alert commerce with the world; at its height it signifies complete interpenetration of self and the world of objects and events. Instead of signifying surrender to caprice and disorder, it affords our sole demonstration of a stability that is not stagnation but is rhythmic and developing.' (Dewey, 1934, p.18)

Art offers an opportunity to develop fluency in imaginative language (of mental images, metaphor and the flexibility these enable) which can support us in facing new experiences, generally. The emphasis on the personal construction of meaning, dependent on previous experiences, which then becomes part of our cognitive being, implies that we can have a valuable experience with art at any stage in our development, since the value lies in the cognitive process – in the experience itself, which shifts our understanding. Art as Experience encompasses our use of mental imagery, acquired through the senses, in the 'free-play' of our imagination, in order to generate metaphors which we manifest in physical form as art, or alternately, manifest in our mind as the generation of new schema. The emphasis of art-based activity is on the cognitive, with this enabled by physical experiences with art and/or with materials, so that the technical aspects of art production are part and parcel of a cognitive process.

'The artist has his [or her] problems and thinks as he [or she] works. But his [or her] thought is more immediately [than that of a scientific inquirer] embodied in the object. Because of the comparative remoteness of his [or her] end, the scientific worker operates with symbols, words and mathematical signs. The artist does his [or her] thinking in the very qualitative media he [or she] works in, and the terms lie so close to the object that he [or she] is producing that they merge directly into it.' (Dewey, 1934, p.14-15)

Art provides a more direct link to sensory aspects of life as we actually experience it than do other ways of thinking. In Piagetian terms, it is more 'concrete'. We might also say that it is also ego-centric in depending on the personal experiences of the artist or viewer, yet it can simultaneously enable us to develop broad ways of thinking about human experience which are very 'meta' (think of Picasso's 'Guernica' for example, personally poignant to him as a Spaniard whose country was being torn apart by civil war but speaking to us generally about a universal human experience of war). In a sense the artist returns to what, in Piaget's hierarchy, would be described as an early developmental stage, in a subjective attempt to construct meaning in an original way. Bruner tells us that 'It is when the child fails to grasp the structure of events that he [or she] adopts an egocentric framework.' (1986, p.68). Perhaps, as adults faced with disequilibrium, artists sometimes choose (consciously or subconsciously) to reject the conventional structure of events with which they are accustomed to in order to generate a new or deeper perspective? They take a step 'back' in order to jump forwards with their understanding. The idea that adult artists might make this choice deliberately, against the grain of embedded structural schema, or in response to a 'niggle' or concern, contrasts with the idea of children using art as an essential and unconscious aspect of development, in order to develop schema. In a Vygotskian model of learning, both explanations make sense: it is useful for adult artists to be 'childish' when they experience disequilibrium in order to address conceptual tensions and construct new meanings by developing and reflecting on metaphors. It is logical that we might return to playful situations in order to break into new conceptual territories.

> *'The theory that art is play…goes one step nearer the actuality of esthetic experience by recognizing the necessity of action, of doing something…children at play are at least engaged in actions that give their imagery and outward manifestation: in their play, idea and act are completely fused.' (Dewey, 1934, p.289)*

Of course technical activity supports this, with the challenge of manipulating materials effectively in order to express meaning (this may be concerned with anything at all, from something as simple as 'prettiness' to a political statement or a complex, philosophical idea) adding tension or offering possibilities through which we work out our ideas.

'In art, the playful attitude becomes interest in the transformation of material to serve the purpose of a developing experience. Desire and need can be fulfilled only thorough objective material, and therefore playfulness is also interest in an object.' (Dewey, 1934, p.291)

The role of physical materials within the cognitive process, while fascinating, is the topic for a whole thesis, varying as it does among artists. What we can say succinctly is that physical materials and technical skill are situated within a cognitive process of art as experience as Dewey describes it. Johnson (1987) and Piaget's (1962) theories reinforce the idea that bodily and concrete experience is the basis of thought. This is in congruence with the perspective emerging from this thesis, where art depends on imagination, which we have established, is cognitive and depends on sensory experience. Using watercolour painting as an example, Eisner describes the development of intelligence through technique:

'This development demands the ability to deal effectively with multiple demands simultaneously. And it is in learning to engage in that process that perception is refined, imagination stimulated, judgement fostered, and technical skills developed. Given the complexities of these demands it is ironic that the arts should be widely regarded as non-cognitive.' (Eisner, 2002, p.15)

The current curriculum includes a significant emphasis on the assessment of developing technical skills. Given that we have established the cognitive nature of artistic development, which is supported by technical development rather than superseded by this, we need to apply different criteria in the assessment of learning in visual art. Imagination, largely via the tool of metaphor, is fundamental to art as experience, so we might ask whether the idea of 'art as experience' implies that quality in art or art-based learning should be judged by the level of sophistication in how well imagination produces and 'moves' mental imagery to create and manipulate metaphors in art production. At a practical level, this would mean finding ways to gain insight into decision making, problem solving and constructive cognitive processes, considering degrees of flexibility, novelty and the conceptual coherence of results. While this is challenging, it might help to overcome problems attached to the subjective nature of art. Considering the act of making art, an immediate problem for educators accepting 'art as experience' is that as it is subjective, an artwork might mean nothing to one person and the world to someone else. A painting of a green pepper *might* be

meaningful to someone, while it is recognised as a symbol of unimaginative art teaching and the dreary repetition of elements of a skills-based curriculum by many in the arts education community.   It is difficult to assess progress through product and in art, the product is deliberately created to be noticed, so that aesthetics could distract from what has been either a complex or perhaps a very unoriginal cognitive process inherent in its production.   This suggests that evaluating quality requires an understanding of the artist/learner at an individual level.   We could say this of the experience of thinking arising from experiencing art made by others as well as of making experiences – conceptual development and critique will be relative to the individual, situated in their previous life experience.   Of course, this is part of what makes making and experiencing art so valuable, in that its subjective nature and the extent to which the individual is intrinsic to production or interpretation mean that there are opportunities for constructive and creative, autonomous cognition.   It is this dependence on a connection with the self which suggests that making or experiencing art have value in supporting metacognition, since these are opportunities to reflect on what we know, what we are trying to work out and what we find when we finalise a concept as an art work or as an interpretation.

The dependence of transformative art experiences on individual context is true in the 'art world' or in 'high art' as well as in schools. When teaching Primary PGCE students art and design, I ask them to decide whether Dali's 'Lobster Telephone' (amongst other art) is 'good' or 'bad', or to make up a different classification for it.

This exercise is designed to illustrate the subjective nature of this task and difficulties inherent in the notion of 'great art' as laid out in the national curriculum. Students consistently decide that it is 'bad', usually based on the notion that it is not a technically skilful piece of work and are suspicious that, because it looks deliberately bizarre, it is designed by the artist to 'test' them. When contextualised with Dali's paintings, the students begin to consider the work in a different light, understanding that the juxtaposition of found objects was an artistic choice rather than the result of an inability to paint or sculpt. This exercise helps us to overcome mental barriers in relation to understandings of art as being primarily concerned with technical skill and lays the contextual foundations for subsequent discussion of more conceptual, contemporary art.

Context, or experience, becomes very relevant and perhaps what is important in judging Dali's (or any artist's) success is the degree to which their imagination developed or transformed through the process of making the art, rather than relying on subjective judgement of the art itself. We may like or dislike the art, based on our personal experience and what it means to us (technical skill may be part of that for some people) but in considering the learning of the artist, a paradigm of 'art as experience' leads us towards an assessment of developing cognition.   In this, imagination is ordinarily fundamental but it has increased significance in art due to its 'never-ending' qualities (as discussed above) and in visual art, the 'closeness' of the 'fuzzy', or 'analogue' (Kosslyn et al, 2006, p.6) nature of mental imagery to art as an object. Essentially, we are looking for evidence of some kind of transformation, at a personal level for the individual learner, or on a socio-cultural level if we are considering the value of a work of art.

In the context of the poetry of Wordsworth and Shelley, Dewey says that:

> *'…in both production and enjoyed perception of works of art, knowledge is transformed; it becomes something more than knowledge because it is merged with non-intellectual elements to form an experience worthwhile as an experience.' (Dewey, 1934, p.302)*

This relates to what we have discussed in terms of the analogue and 'open' nature of mental images, extended into concepts via metaphor, which, again, leave space for something which is more than knowledge because it is not fixed but remains open to the imagination beyond initial perception.   While there is 'space', there is also some sort of loose boundary or area of focus, suggested by the nature of the metaphor and the associations it is likely to raise, so that while we are given freedom, we are also guided towards a particular area of thought. This recalls Aristotle's idea of 'essence', discussed in Chapter 3, offering a different way of knowing than logical thought, which is more linear. We are given 'space to move about' within a certain area. The boundaries, rather than constricting, provide conceptual security and introduce a useful tension/disequilibrium by drawing us into this space, fertile with cognitive challenge. Of course I am speaking metaphorically and it is our choice as to whether to engage or walk away. Part of the skill of the visual artist, for me, is in skilfully tailoring fitting metaphors, cohering concept with aesthetic, through techniques aligned with desired

meaning, in order to engage us and convey a kind of conceptual 'essence', which is potent through its integrity. As Dewey says

> *'A work of art may certainly convey the essence of a multitude of experiences, and sometimes in a remarkably condensed and striking way. Selection and simplification occur for the sake of expressing the essential…'* (Dewey, 1934, p.306)

The artist makes a series of choices towards the cohering and visualisation of a concept, solving all sorts of cognitive problems and using concrete experience (materials and techniques for manipulating them) towards the emergence of a manifested idea which seems somehow to be 'right'. In seeing this balance achieved in art, I am reminded of Kant's 'principle of finality' (Ch.3). Art experience, as we have discussed, is highly subjective, but perhaps when art embodies this kind of conceptual essence, it can be an especially powerful agent of transformation, particularly if it resonates with our personal prior experience or enables us, as artists who achieve this, to finalise a concept in an especially satisfying way. Langer puts this well:

> *'Artistic form is congruent with the dynamic forms of our direct sensuous, mental and emotional life; works of art are projections of 'felt life,' as Henry James called it, into spatial, temporal and poetic structures. They are images of feeling, that formulate it for our cognition.'* (Langer in Eisner, 2002, p.12)

'Images of feeling' brings us back to Hume and his assertion of the connection between emotion and mental imagery (3.4.6). If we accept Hume's theory that the 'strongest' (which I take to mean the most persistent, memorable and likely to be selected or recalled) images are those which impact on us emotionally, we begin to see that art and artists use the emotive power of mental imagery to produce art as 'essence' which is likely to engage us through resonance with our emotions. (I see emotion as a form of cognition, so I do not differentiate here between emotion and thought). It seems that art and artists are adept at tapping directly into the fundamental workings of our imagination, as mistresses and masters of the mental image, using the emotive qualities of visual metaphors to express meaning and (intentionally or otherwise) engage the imagination of the viewer. It is through this power to engage that some kind of cognitive transformation is likely to occur. As a bi-product of considering this we also get to see, through art, that cognition, emotion and imagination are bound

together to a degree which makes them difficult to separate and discuss. Their separated classification seems almost unnatural and only helpful for the purpose of unpicking the mechanics of the cognitive processes of imagination and art. This leads to an understanding of why we are often reluctant to define imagination.

Within the kind of cognitive transformation through art experience which we have been discussing, if we take the view that 'experience' is the same as 'learning', in 'transforming', we have learned something new through the experience of art, which changes our understanding and potentially influences our thought and action going forwards. More than this, we have learned something which, as also discussed above, is entirely subjective and personal, related to our own experience and therefore, automatically, to our own learning. We have learned something about our learning. This would surely equate to metacognitive knowledge? If we reflect on this experience we might then produce strategies for our future learning which would equate to metacognitive skill. To provide a simple example, after seeing David Shrigley's work (below), we might laugh at ourselves but then go on to think we have a need to extend our experience and maybe even make some slight change in our lives. (Of course this is only my personal interpretation of this work.) Some might describe this as a life-skill development as opposed to metacognitive development but as discussed above (5.2.2) this depends on what each of us defines as learning. For me, metacognition is broader than an ability to understand how we learn in formal learning tasks and how we might get better at this – this kind of metacognition is a sub-set of broader metacognition regarding our understanding of and strategies for thinking about life as a whole. Life-long and life-wide learning.
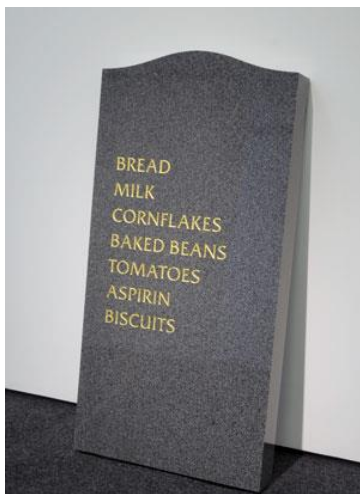

Figure 5.7 Gravestone, David Shrigley, 2008 http://davidshrigley.com/sculpture/

Following its construction, in experiencing the finality of art (either self-made or as we view and interpret it), we have identified and explored personal connections which necessarily require us to 'stand outside' of ourselves in terms of being human beings and of being 'me', so that the transformation of our thought through art necessarily involves a transformation of our understanding of ourselves as learners. Atkinson describes this process in his useful description of 'real learning':

> *'As a move into a new ontological state, real learning implies puncturing or modifying established patterns of understanding and assimilated configurations of knowledge on a local level. It is a process in which there is a firm challenge to see beyond current vistas of practice and formulate new ones.' (Atkinson, 2012, p.9)*

The positioning of art 'as experience' enables this 'real learning', which can also be described as metacognitive development. In education, this makes it all the more important to nurture visual art and through it, imagination, which it deals in to an extent unparalleled in other subjects through its intrinsic dependence on mental imagery and metaphor.

> *'…the language of education…must express stance and must invite counter-stance and in the process leave place for reflection, for metacognition. It is this that permits one to reach higher ground, this process of objectifying in language or image what one has thought and then turning around on it and reconsidering it.' (Bruner, 1986, p.129)*

It seems, that when authors (e.g.; Eisner 2002, Dewey 1934, Efland 2002, Atkinson 2012) describe transformation via art, there is a significant overlap with the more scientific, psychological concept of metacognition. The experience of visual art and its inseparable relationship with imagination provides a constructive and reflective space in which to transform ourselves metacognitively. I have argued in Chapters 3 and 4 that transcendence, in an evolutionary sense as well as in a Kantian sense, depends on imagination and have described metacognition as second-level transcendence (3.4.7). This resonates with art. We imagine *and* re-imagine ourselves through art, with the potential for this to continue almost without end, as we embed art images into our cognitive and metacognitive repertoire. I have come to use the Bruegel image, below, in my teaching, as it provides a good metaphor with which to illustrate this point. The painting allows us to 'stand outside ourselves' as humans, seeing ourselves re-

presented but if we look and think harder, we see something more, relating to the 'essence' of human experience, which provokes personal contemplation.

Figure 5.8 Landscape With the Fall of Icarus, Pieter Bruegel the Elder, 1569
http://www.fine-arts-museum.be

Reflecting on my gallery education practice, I return here to the Yoko Ono exhibition I described at the outset of my thesis, which enabled learners to contemplate aspects of their own humanity and to imagine a more peaceful way of living. Similarly, the Yoshitomo Nara exhibition instigated and exploration of our 'childish' selves, while the Duck for Mr. Darwin show nurtured an ecological perspective of our existence.

5.3 Art and our scale of imagination

Having explored some major ideas about how imagination relates to visual art and what this implies for learning, we will now return to our scale of imagination and apply this to imagining in and through visual art. This will allow us to enrich this thesis by incorporating further theory as well as to reinforce it through methodical consideration, from the starting point of imagination.

What is imagination?

Fantastical imagination: creating images which have never existed in real experience. To help us push at boundaries? E.g.; *the horse can talk, fly and be Minister for Education*

Creative imagination: combining and applying imagery with relative originality. E.g.; problem solving, making something new: *a black horse with a white star in the courtyard of your own castle*

Productive imagination: Combining imagery/mental representations from existing experiences. E.g.; connecting, categorising: *a black horse with a white star*

Imaging: bringing to mind what is not present but which exists in experience/has been perceived. E.g.; memory: *a horse*

Figure 5.9 A scale of imagination

5.3.1 Imaging and art

We have established that all thinking is based, initially, on sensory perceptions. We store these largely as mental images and that, in a model where mental images constitute the basic units of imagination, imagination is fundamental to most, if not all, of our thought (Chapters 3 & 4). In this chapter, we have identified mental images as the dominant mode of representation within our thinking and established that they share similar properties to visual art images, in leaving mental 'room' for continued interpretation. Visual art itself is, of course, the product of a conscious visual language, applied for maximum effect in conveying the meaning in hand. Its production will require all of the forms of imagination listed above (figure 5.11) but in terms of 'imaging' we will be considering its role and value as sensory perception which we store as mental images. As visual art is the product of conscious visual language, we might expect that, as sensory experience, works of visual art have additional potency through their designed, aesthetic qualities and they are recognised for this in the concept of 'art as experience', above. It is reasonable to assume that by incorporating visual art into

our cognitive repertoire as mental image, we might nurture our imagination. Since we have established that imagination is fundamental in and permeates almost all (if not all) kinds of cognition and metacognition, we will therefore nurture all of our thinking and learning.

Broudy's concept of an 'allusionary base', for which he asserts the supportive role of the arts, is useful in considering 'Imaging' and visual art. It connects with Aristotelian ideas of an 'image store', discussed in Chapter 3, from which we draw on 'images' of sensed perceptions, or on collections and formations of images which we have made via productive and creative imagination, driven by the desire to construct meaning.

> *'The allusionary base refers to the conglomerate of concepts, images, and memories that provide meaning for the reader or listener…When attending to discourse that includes references (explicit or implicit) to these concepts and images, the reader or listener raids the allusionary base for relevant words, facts, and images. If the allusionary base is meagre and disorganized, the reader or listener has to let much of what is heard and read go by as just so many words.' (Broudy, 1987, p.18)*

The allusionary base (a convenient metaphor for a very abstract concept) is an internalised product of our own experience, critical for our ability to understand and learn. If we nurture it and are able to organise it in some way, we might become better learners. It might be especially well supported by visual art as experience since '…in art these images are expected to be connotative also, images not only of recognizable things but of their human import as well.' (Broudy, 1987, p.21). Because art supports us to become fluent in the use of metaphor, it offers us a sophisticated repertoire of images, as well as a means of organising and manipulating them without the need to 'freeze' them. Art offers a route to enhancing a 'meta' level of imagery within the allusionary base through what Broudy describes as their human import. Works of art are 'second hand' interpretations of experience in the form of an 'essential' reflection, which remains active in terms of meaning when combined with the pre-existing allusionary base experience of the learner. In that it suggests a fixed foundation which we can build on, 'allusionary base' is useful as a label which helps us to get to grips with a slippery and dynamic aspect of thought, necessarily un-fixed and always in play. Metaphorically speaking, the reality is more like a stew pot which we continually tend to and feed from. There is an 'art' to making a good stew, involving concept, good ingredients, technique and creativity. In becoming adept with visual art images, which

model mental imagery in a powerful way, we can learn to make a good metaphorical stew (and while I use the concept of a stew as a metaphor the metaphorical ingredients of this are quite literally, metaphors in the context of this discussion about images and art). Artists are 'Master Chefs' with mental imagery. Having described arguments for this theory, attached to the similarities between the visual nature of visual art and the way that mental images work in a way which can be compared to the experience of sight (although they might be based on any kind of sensory perception, sound, touch, taste etc.), we should also consider the cultural nature of visual art. This is in keeping with a need for cultural experience as described by Dewey (1934) and Bruner:

> *'…meanings provide a basis for cultural exchange…It is culture that provides the tools for organizing and understanding our worlds in communicable ways. The distinctive feature of human evolution is that mind evolved in a fashion that enables human beings to utilize the tools of culture.' (Bruner, 1996, p.3)*

Of course 'culture' has a range of definitions and breadth of interpretation but we can use it here in the context of the arts, related to broader human culture, in which '[cultural]…transactions take place, and end[s] by being a reflection of the history of that culture as that history is contained in the culture's images, narratives, and tool kit.' (Bruner, 1986, p.67).

Considered as cultural tools, visual works of art, integrated into our allusionary base, enable us to incorporate socio-cultural products within our own thought, connecting us with broader human culture. Such cultural enrichment should not be seen as an 'add on' or as a luxury in our learning but as an essential ingredient in building our cognitive and metacognitive 'core'. Stored as mental images within our allusionary base, to be manipulated in response to experience, the reflective, metaphorical nature of visual art imagery enables access to 'meta' understandings, which in turn may provide exemplars of 'meta' approaches, useful to us in developing understanding and creating strategies for metacognition. A lack of linear structure within the metaphoric system of visual art and its capacity to evoke a number of concepts simultaneously, as opposed to being constrained to some degree in narrative or dialogue (and not to deny that these forms may have their own advantages), is advantageous in enabling additional cognitive flexibility, essential in a challenging human environment.

'Culture is probably biology's last great evolutionary trick. It frees Homo sapiens to construct a symbolic world flexible enough to meet local needs and to adapt to a myriad of ecological circumstances.' (Bruner, 1996, p.184)

In our discussion so far, the idea of 'space' and 'freedom' for thought has emerged as a key, cognitive advantage attached potently to visual art. This relates to the need for cultural experiences of visual art, in intimate encounters with experiencing or producing it. It also provides a rationale for the use of 'spaces' deliberately set aside for cultural, visual art experience: art galleries. We begin to see the gallery as an opportunity to add to our allusionary base, or to collect super-rich ingredients for our cognitive 'stew'. These ingredients are metaphorical and therefore, accepting that metaphor '…is pervasive in everyday life, not just in language but in thought and action.' (Lakoff and Johnson, 2003, p.3), are not simply 'enrichment' but are intrinsic to and essential in everyone's learning. Reflecting on the vignette at the start of this chapter, I wonder whether young people such as those who seemed to benefit from making art as part of a discrete project in a gallery space might be more rewarded by their learning and become more able to contend with life's challenges if they were provided with regular experiences in art and culture which would feed their imagination and therefore enable coping strategies and the satisfaction and sense of achievement that these enable.

5.3.2 Productive imagination and art

Given what has been discussed in terms of 'art as experience' (Dewey, 1934) and the notion of art as 'case based learning' (Efland, 2002, p.160-162) – 'one off' situations which require the production of individual interpretations, we begin to see how productive imagination manifests in art. Through experience of viewing or making and in cohering concepts towards meaning, embodied in or interpreted from art, we are required to adopt syncretistic modes of thought, as described by Piaget (1926). Within art as experience, we make syncretistic connections between pre-existing and new experiences of interpreting or making art. In interpreting art, we connect with the expressed conceptions of others, based on aspects of the artist's personal experience, increasing the possible numbers and kinds of possible meanings associated with an artwork. It is as though what is most important is neither the viewer nor the art but what happens in the invisible space between them, where the combination of conceptual implications has the potential to produce new thoughts, thereby flowing into

the 'Mini-c' (Beghetto, 2007, p.267) version of creative imagination, as described in section 5.4.3. Imagine then, the syncretistic potential of a whole gallery full of art and of a group of learners, functioning as a community of enquiry, as opposed to a single learner (although the intimate intensity of a one-to-one relationship between art and viewer should also be prized). Experiences of art as related in different ways to the personal experience of individuals can produce a multitude of cognitive connections, which, if shared, can lead to the enrichment of an allusionary base in both a personal sense and within the culture of the group involved.

Our experiences with art (I apply this here to interpreting and making) nurture our ability to make connections elsewhere in our thinking by acting as a form of exercise for this cognitive procedure. In making art we also develop this connective capacity, as we connect mental imagery towards the creation of concept through a process of decision making in which decisions are taken in accordance with the manifestation of that concept. This is a complex relationship. The technical aspects of the artistic process sometimes help with the realisation of concept, as opposed to being selected according to a pre-defined meaning. The realisation of concept can happen in different ways for different people. Concept can be all, with materials and techniques selected accordingly, or, materials and techniques can play a more prominent role in producing the resulting work by imposing possibility and constraint on what can be made. However this works, what we can say is that the artist is constantly connecting thought to action in balancing conceptual intention with visual production and aesthetic. There is a dynamic, syncretistic interplay which combines existing mental imagery with concrete experience in a process which generates productive imagination but which slips fluidly into creative imagination as new and unique connections are made. There will be significant interplay of imaging, productive and creative imagination within the process of making art. Productive and creative imagination seem particularly difficult to separate if we consider originality as relative to the individual as opposed to in a socio-cultural sense. It is really only the *act* of combining which is separable as productive imagination. Once in combination, it is likely that this 'new' thought (in the sense that it is relative to the individual) will be original and we would therefore classify it as creative imagination. This helps us to see productive imagination as the 'movement' described by Aristotle (Ch.3). Art making and interpretation inspires and drives this movement.

As discussed, metaphor, particularly visual metaphor, is a major part of the 'language' of art and visual art. The production or comprehension of a metaphor is sure to require what we have called productive imagination, in that to arrive at it we will need to combine mental images within a cognitive process.

5.3.3 Creative imagination and art

In the context of art, a discussion about creative imagination could quite easily become the subject of many theses and the literature on creativity in general is extensive. This is especially so because of the way in which creative imagination is generally considered: broadly and *featuring* imagination as opposed to being an aspect *of* it. In order not to wander from our focus we will try to be faithful to what defines creative imagination in the 'scale' above (Figure 5.9), namely: originality. As Kaufman and Beghetto point out, originality is not enough. We must consider appropriateness to a contextual situation as well as novelty in defining creativity (2013, p.156), since otherwise we acknowledge potentially nonsensical yet 'new' configurations of thought as amounting to creativity. So we mean novelty as appropriately applied to a defined problem, issue or theme. We have used originality to distinguish creative imagination from other kinds of imagining. So our question becomes: how does visual art help us to imagine in novel and appropriate ways and what is this process like?

The answer must lie initially in the idea of art as experience, discussed above. Art as experience, either as interpretive experience of existing art, or as the self-production of new art which is inspired by a need to 'work something out', creates a tension or disequilibrium (in a Piagetian sense, Ch.4), stimulating a need in us to construct meaning by arriving at a 'finality' (Kant, Ch.3) of concept. We have discussed how art as experience creates a cognitive 'space' as well as 'boundaries' for imagining. In this way it creates a sense of purpose which can help enable the 'appropriate', or applied originality which we have defined as being creative. Within art, 'Imagination provides the initiating conditions that make genuine purposes possible' (Eisner, 2002, p.99). Art experience and the inspiring disequilibrium and 'space' for making or for interpretation it provides, leads to the construction of something 'new' either in an individual sense or in a socio-cultural sense. Beghetto calls this individual creativity 'Mini-c creativity', where it takes place as 'the novel and personally meaningful interpretation of experiences, actions and events' and as 'Little-c creativity', where it is concerned with

'…accessible and ubiquitous levels of creative expression'. 'Big-c creativity' relates to socio-cultural manifestations, concerned with 'eminent or revolutionary creative contributions on the level of Mozart, Einstein, or Dickinson' (2007, p.267). Cognitively and therefore imaginatively, we would expect all of these kinds of creativity to involve the same imaginative processes, (otherwise we lose our definition of creativity as a cognitive act) but that the degree of imagination, as the major constituent of cognition in this creative context (enabling us to make connections so as bring to mind what does not yet exist) is what will distinguish their 'magnitude' (Ibid). Quality in imagination, including the quality of lived experience as the major 'ingredient' of mental images, seems likely to lead to quality in and the magnitude of creativity, given that creativity depends so heavily upon it. We have discussed (5.2.3) that art operates largely through the imaginative activity of interpreting or making metaphors, so we will return to metaphor as a key imaginative agent within art and creativity, to consider how it supports the production of novel and appropriate concepts.

Goodman provides insight into what constitutes quality in metaphor: it 'requires a combination of novelty with fitness…satisfies while it startles…is most potent when the transferred schema effects a new and notable organization' (1976, p.79-80). This aligns remarkably well with the idea that creativity requires originality and appropriateness and reaffirms the close relationship between metaphor and what we have defined as creative imagination. Metaphors are especially powerful if they involve transferring and manipulating properties of seemingly disparate schema, so that the resulting symbolic comparison is particularly remarkable. To provide a tangible, visual art example: Jeff Koons transposes categories of materials onto one another in his sculptures of balloon animals, made from metal (e.g.; Figure 5.10).

Figure 5.10 Balloon Monkey, Jeff Koons, 2013. Mirror-polished stainless steel
http://www.jeffkoons.com

Koons uses the super-imposition of materials almost as a 'trick', in the knowledge that it will surprise our senses and be impactful. The idea of such a magic trick is coherent with the concept of a balloon animal which a magician would normally produce. The artist becomes magician, using the transformational power of metaphor to create an impactful performance, in the process, revealing concepts which relate to metaphor, transformation and magic. This is art as a magic trick which changes something ephemeral into something long-lasting, something cheap into something very expensive, something disposable into something precious, something childish into something adult, flimsy into solid, material into conceptual. This is the visualised power of metaphor, as imagination, as art. We see the artist as 'fluent' in the use of metaphor, using this consciously within his 'palette' (we need only look to the surrealists to find a plethora of further, overt examples). Of course this is my personal interpretation but it serves our purpose in discussion here, to illustrate the idea that the effective construction of metaphor necessitates freedom for syncretistic thought which over-rides cognitive schema. Art provides unhindered opportunities for this and builds on a rich historical tradition which stretches back 50,000 years.

Art, through its subjectivity, provides the freedom to imagine. The freedom to imagine enables and necessitates metaphor. The lack of need for an objective conclusion and the usefulness within art of hypothetical propositions, create a learning environment which encourages us to make free use of syncretistic connections, prompting us to think divergently and thereby increasing our chances of producing novel concepts or original art works.

> *'…metaphor requires a distinctive form of reasoning…Metaphoric similarity…is a cross-category phenomenon and can only be apprehended if objects and events typically unrelated are brought together by virtue of some shared feature. The foregoing description of metaphor has much in common with the intent of "creativity" assessment by means of divergent-thinking tasks…' (Kogan et al., 1980, p.6)*

The process of developing metaphor, using a rationale for selection and combination of mental images will depend on evocative and connotative potential. This is productive thinking which intentionally seeks difference in categories while cohering mental images from our allusionary base, breaking category boundaries in our thoughts while simultaneously uniting categories through the mechanism of metaphor.

In art, the 'tension' of metaphor, implying, all at once, similarity and difference, shifts us from productive to creative imagining. Images cohered through productive imagination are relatively original since existing mental categories have been broken and joined in novel ways to reach this point. This then is creative imagination. We can differentiate this further using Beghetto's Mini, Little and Big c creativity to describe personal-cognitive, expressed and influential socio-cultural expressions should we choose.

In art interpretation, we will need to interpret, assimilate and accommodate metaphors in order to arrive at a finality of concept which may or may not be metaphorical, depending on what we take from our experience with art. Whatever we integrate within our thought is likely to retain flexibility for further manipulation in future cognition due to the 'open' nature of visual art, stemming from its direct relationship with the functionality of mental images. Even if we don't retain a whole metaphor, just elements of it, those elements, in having been situated in a metaphorical context, retain shades of its interpretability. For example, we can learn about geometry through maths and through art but within an art context, the understanding we have of geometry is much more 'open' to further associations than the more 'pinned down' definitions which will be mathematically useful.

In art making, creative imagination is focused particularly on symbolic representation expressed materially, using metaphor. While productive imagination provides us with syncretistic associations and connections, creative imagination goes further in interpreting or applying metaphor to transform these connections into original combinations towards the symbolic representation of a concept or set of concepts.

Our whole definition of creative imagination rests on the properties of originality and purpose. We have seen that creative imagination produces, at least, the transformation of individual thought as 'Mini-c' creativity. Above (5.2.4), we have discussed the idea that what is often described as the transformative power of art in learning is difficult to distinguish from 'metacognition', if we accept that 'experience' (in Dewey's terms) equates to 'learning'. Given our classification of creative imagination, which at a minimum relates to changes in personal cognition and at its full extent, to socio-cultural contribution which can in turn stimulate further cognitive transformation (Mini to Big C creativity in Beghetto's terms) it is appropriate to situate metacognition here too and to

propose that creative imagination and metacognition are very closely related, at least in the context of art as experience and perhaps elsewhere in our learning.

> *'Creative thinking can be defined as a metacognitive process – of generating novel or useful associations that better solve a problem, produce a plan, or result in a pattern, structure, or product not clearly present before.'*
> (Hargrove, 2012, p.492)

It is the notion of 'transformation', applied to our learning/experience, which is the parallel aspect of metacognition and creative imagination as cognitive processes. While these types of thinking, discussed within their own paradigms, acknowledge the contribution of imagination, if viewed *from* a perspective of imagination which is grounded in the basis of our (to differing degrees) predominant use of mental images throughout cognition, it becomes difficult to see metacognition and creativity as consisting of much other than imagination. We have been able to establish, via our consideration of art and imagination, that it is largely creative imagination which is in play within metacognition (acknowledging that this kind of imagination is inseparable from 'imaging', 'productive' and 'fantastical' within our scale). The creation of something novel in 'creative imagination', in response to experience/learning in art is akin to developing a 'meta' understanding in metacognition. This argument hinges on the concept that experience equates to learning and that, in art experience; we are engaged in an activity which is immediately 'meta' due to its explicit representation of human experience. It would be more difficult to claim that creative imagination as applied in other contexts could be automatically classified as 'meta', since those other subjects may not inherently seek to 'remove' us from our human contexts in order to reflect upon them. This subject distinction is debatable to some extent, considering all subjects in some way reflect on human experience of the world. Art does this explicitly. Reflection through art is hypothetical and open, rather than deductive and specific, so that it demands further, personal reflection, rather than the assimilation of information. Art presents information and asks questions, all at the same time, not separating experience from an additional form of questioning, such as experiment or calculation. It is much more closely related to the reality of human experience, physically and cognitively, since it visualises the reality of the inseparability of the physical and the cognitive in lived human experience, allowing us to see and consider ourselves *as we exist* in the universe. Reflection and provocation is art's business and it is this, along

with the potential for personal interpretation, which makes it especially useful for developing metacognition.

Art enables metacognition by engaging us in situations in which we 'step back' to think freely and personally about our experience/learning. In viewing art, we do this by 'seeing' (understanding) partially through the eyes of other artists and comparing this vision (understanding) with our own, thereby developing metacognition. In making art, we engage in an activity of negotiating cognitive and physical realities towards the finalised expression of a concept which is a metaphorical reflection of some aspect of our lived experience (and therefore our learning), thereby we develop metacognition as this new, reflective knowledge results in a shift in our understanding of ourselves. In the first instance, we will develop metacognitive knowledge but armed with creative imagination which has been further developed through art processes, we will be more able to develop strategies for learning which constitute metacognitive skill. I am reminded of my training as an art student in which we were told to 'keep stepping back' from our paintings or to turn them upside down, so as to be better able to see where they were going wrong and be able to improve them. This activity seems close to a kinaesthetic version of a metacognitive act.

5.3.4 Fantastical imagination and art

Because of the way that art provides space and freedom for the free-play of imagination, it is easy to see that fantastical imagination will benefit from the context of art as experience and the fluid, unlimited interactions it enables. In art, fantastical imagination does not usually suffer from the stigma that it sometimes does in scientific subject areas, which can privilege deductive reasoning. Fantasy is allowed and even encouraged in art. There is permission for the exercise of imagination, even in its most extreme form:

> *'...the arts provide a kind of permission to pursue qualitative experience in a particularly focused way and to engage in the constructive exploration of what the imaginative process may engender.' (Eisner, 2002, p.4)*

As we have seen, this can cause art to be dismissed as none academic, thanks, initially, to Plato's Divided Line. Returning to Chapter 4 and to Bettelheim (1976), we

have seen that fantasy enables us to deal with the problems of reality through its removal from materially possible contexts and its presentation of the 'essence' of our human experiences. Art is one of fantasy's natural homes then, considering previous discussion of the way art enables us to 'step back' from experience, in order to deal with it.

We saw in Chapter 4 that fantastical imagination, rather than presenting itself only as a *result* of a process of imaging, productive and creative imagination, is a useful ingredient in cohering images in productive and creative imagination. It is by being able to introduce the impossible into our thinking that we are often able to achieve originality and this will be the case in the highly cognitive activity of art as it is in our wider cognition. We can suppose then, that fantastical imagination within art will also support metacognition by enabling us to consider 'far out' examples which we can compare and contrast with our lived experience towards a new understanding of and new possibilities for that experience.

We have said that metaphor is our vehicle for imagination in art, so how does fantasy interact with metaphor? Fantastical imagination would seem to enter into the creation of metaphor where this does not only involve a crossing of categories but also the introduction of 'impossible' categories to cross. Completed metaphors can be fantastical or not, depending on whether they contain elements of the materially impossible in their manifestation. As well as providing space for fantastical imagination to be used in cognition towards the production of metaphors, art enables us to crystallise and express these metaphors in a context where they will be at least tolerated and often valued. This in turn, allows fantastical imagination to be shared in a socio-cultural sense.

Works such as the Chapman brothers image below (Figure 5.11), use fantastical metaphors to potently reveal and share extreme aspects of human experience or human concern.

Figure 5.11 <u>The Sum of all Evil</u>, Jake and Dinos Chapman, 2012/13
http://www.jakeanddinoschapman.com

In the case of images like these (not necessarily 'dark'), the metaphoric and fantastical expression serves to maximise the impact of inherent concepts through their none-literal presentation and evocation of an emotional response. In part, they draw their power from their connection to emotion, as described by Hume more than 200 years ago (Ch.3). The Chapman brothers and other artists are 'safe' in exploring the dark (or ecstatic, or otherwise intense) territories which they do because art enables them to do this 'at arm's length'.

> *'Imagination also enables us to try things out...without the consequences we might encounter if we had to act upon them empirically. It provides a safety net for experiment and rehearsal.' (Eisner, 2002, p.5)*

The externalising aspect of art enables fantastical exploration which might otherwise be more psychologically challenging, or even damaging due to a lack of separation from 'ordinary' thought and experience. (While guarding against clichés concerning art and mental illness we can see that for some, art offers support for mental stability, hence the existence of art therapy). For some, this 'exorcism', understanding and control of emotion may be part of the compulsion to create. In this scenario art enables the individual to deal with emotional challenges. I do not suggest that art is this for every artist but it is useful to understand how it can have this role. Art does not need to be fantastical to be emotional, but where the fantastical imagination is allowed to

manifest, cohering appropriately with concept, it can enable an emotive, cognitive, experience which connects us powerfully with an 'essence' of human experience. It does this by presenting the 'impossible', arresting our attention and stimulating disequilibrium which leads us to seek meaning. Fantastical art agitates, interrupts and creates new possibilities in our thought in the way that fantastical imagination does, with fantastical visual art, as ever, physically manifesting the way we use mental images in our internal, mental worlds. When art works become cultural objects this can happen at a social level. Art provides a space to use fantastical imagination which may produce emotive, fantastical expressions which, in contradicting lived experience, can help us to consider it more clearly, expanding our allusionary base so that we can go on to imagine and hopefully create other 'possible worlds' (Bruner 1986).

Table 5.1 summarises what we have discussed as a visual arts perspective of imagination and its implications for practice, aligned with the psychological perspective we discussed in Chapter 4.

Type of imagination	Associations	Implications for practice	Implications for visual-art education
Fantastical	Fantastical Non-truth-bound, flexibility, boundary-crossing, coping, well-being	Fantasise For learners of all ages, provide examples of the fantastical and metaphoric. Encourage thought about the 'impossible' in problem solving contexts. Exemplify 'category crossing'	Freedom for ideas Encourage the use of fantastical ideas within the construction of visual metaphors. Expose learners to fantastical art and further sources of fantastical information (e.g. literature). Art as concept not technical representation
	Creative Originality, disequilibrium, syncretism, crystallisation, reason, emotional motivation	Play For learners of all ages, as relative to them and their context. Provide materials and resources as opposed to/as well as representational objects. Encourage dialogue which promotes reasoning	Interpreting and making art Freedom to experiment and construct new ideas by cohering concepts into metaphorical representations. Interpret the art of others and make our own art via physical, material activity
	Productive Symbolic thought, generalisation, syncretism, disequilibrium	Connect Provide associative challenges, encourage divergence, subjectivity, pattern forming, allowing the learner to arrive at and justify their own connections	Art as Experience Nurture learners capacity to make connections between art works and with themselves. No right answers
	Imaging Image store, building blocks, perceptions	Experience Provide opportunities for socio-cultural experience	Cultural Experience Provide cultural experiences of visual art. Nurture engagement with visual art. Look for ways to make it personally relevant. Engage learners in and with art

Table 5.1 Imagination and cognition revisited via visual art

5.4 Summary and response to vignette

This chapter began with a description of my experience of a contemporary art project with a group of teenagers, excluded from ordinary school, who seemed to benefit greatly through contemporary art engagement in which they explored their own identity through interpretation and making. We asked 'what is it about art and galleries which make them valuable for imagination and learning?' Subsequent discussion has enabled us to identify some favourable conditions, within art, for supporting imagination:

- **Art is a predominantly cognitive activity which reflects our use of mental imagery**. Understanding that mental images are essential, cognitive MATERIAL for visual art, inseparable from art activity and without which, art experience could not take place, we see that art is predominantly a cognitive activity, supported by its intertwined relationship with technical skill (which in itself involves significant cognitive activity). While the use of our hands or bodies *can* be a significant part of art processes, when compared with cognition this is a relatively small part of the processes involved, even within an act of making art which depends on manipulating materials. The malleable, connotative and evocative nature of mental imagery enables us to make new meanings. This attribute is reflected in visual art, which, because symbolic thought is (to differing degrees in individuals) predominantly visual, provides a very direct route to our thought. This implies that by nurturing a rich vocabulary of mental imagery we will increase the potential of our imagination and that cultural experiences, such as those in galleries, are very likely to be useful for this.

- **Visual art provides 'freedom' to imagine**. In visual art, the dominance of malleable, mental imagery, which supports the generation of hypothetical, as opposed to deductive knowledge, necessitates syncretistic thought (productive imagination). This is necessarily based in previous experience, so that acts of meaning making are always personal and self-directed. Because there are no 'right' or 'wrong' answers, art creates an ENVIRONMENT in which there is freedom to think subjectively, to take risks and to make mistakes. Art, treat as the imaginative, cognitive activity which we have seen that it is, is a largely autonomous activity. This can nurture self-direction which is valuable within learning (as the example in the vignette illustrates) in helping us to establish our understanding of ourselves, our place in the world and the universe, also enabling us to imagine and instigate change.

- **Metaphor as symbolic representation.** Metaphor is the VEHICLE for symbolically expressing meaning through art. It is also a fundamental aspect of our conceptual system. This alignment suggests that because art develops our capacity to use metaphor, art can support our general, cognitive capacity. By learning to manipulate our mental imagery and productive thought towards the production of metaphor through creative imagination (possibly accompanied by fantastical imagination), we can develop more flexible cognition which is useful throughout our learning. This implies that as educators we should be conscious of this metaphoric process and consider ways of nurturing and evaluating it as part of pedagogy and assessment in art.

- **Art as Experience.** Understanding learning in art as 'art as experience' acknowledges a two-way relationship between art and viewer/maker which can result in imaginative transformation. Visual art as experience uses mental images, formed from sensory experience, as cognitive MATERIAL, in cognitive SPACE provided by the freedom for personal subjectivity in visual art, exploiting the malleable nature of visual metaphor as a VEHICLE for imagination. In the creation of visual art, the cognitive and metacognitive processes of art as experience are often supported by physical activities and technical skill. 'Transformation' through art as experience, is a transformation of our understanding of ourselves and is similar to the development of metacognition, seen through a psychological lens.

- **Art as a meta-perspective on human experience**. Making and interpreting visual art enables us to 'stand back' and reflect on our own and others' human experience. If we equate human experience with 'learning', then art allows us to reflect on our learning, often forming a new understanding of this and shifting our ontology. This is very similar to the psychological concept of metacognition. If we then strategise our future cognitive actions according to this new understanding, we develop something akin to metacognitive skill. In terms of imagination, both the activity of developing understanding and that of developing strategy consist largely (not exclusively) of creative imagination, since both require us to produce relatively novel thoughts. All of this aligns with evolutionary views of why we developed art and how art helped us develop, connected to the way in which it helps us to externalise, see and share our ill- fitting, perplexing, emotional or otherwise remarkable thoughts in a socio-cultural context. Art as cultural object has the potential to extend our meta-perspective on an unlimited scale. It can change the course of human development as it engages with and permeates the

imagination of individuals, in an iterative cycle which results in further art or further conceptual development.

- **Contemporary art for relevant, conceptual engagement.** In (largely) dealing more consciously with psychological concepts than more traditional forms of visual art; contemporary art (defined here as art of our time, made by living artists) as a cognitive process, is even closer to our process of manipulating mental images than those other forms because it is often more consciously and explicitly concerned with generating visual concepts. This implies increased potential for it to support our cognition, since the exploration and expression of concept is often more overtly acknowledged as part of the process of contemporary art, leading aesthetic and technical processes rather than being contained by them.
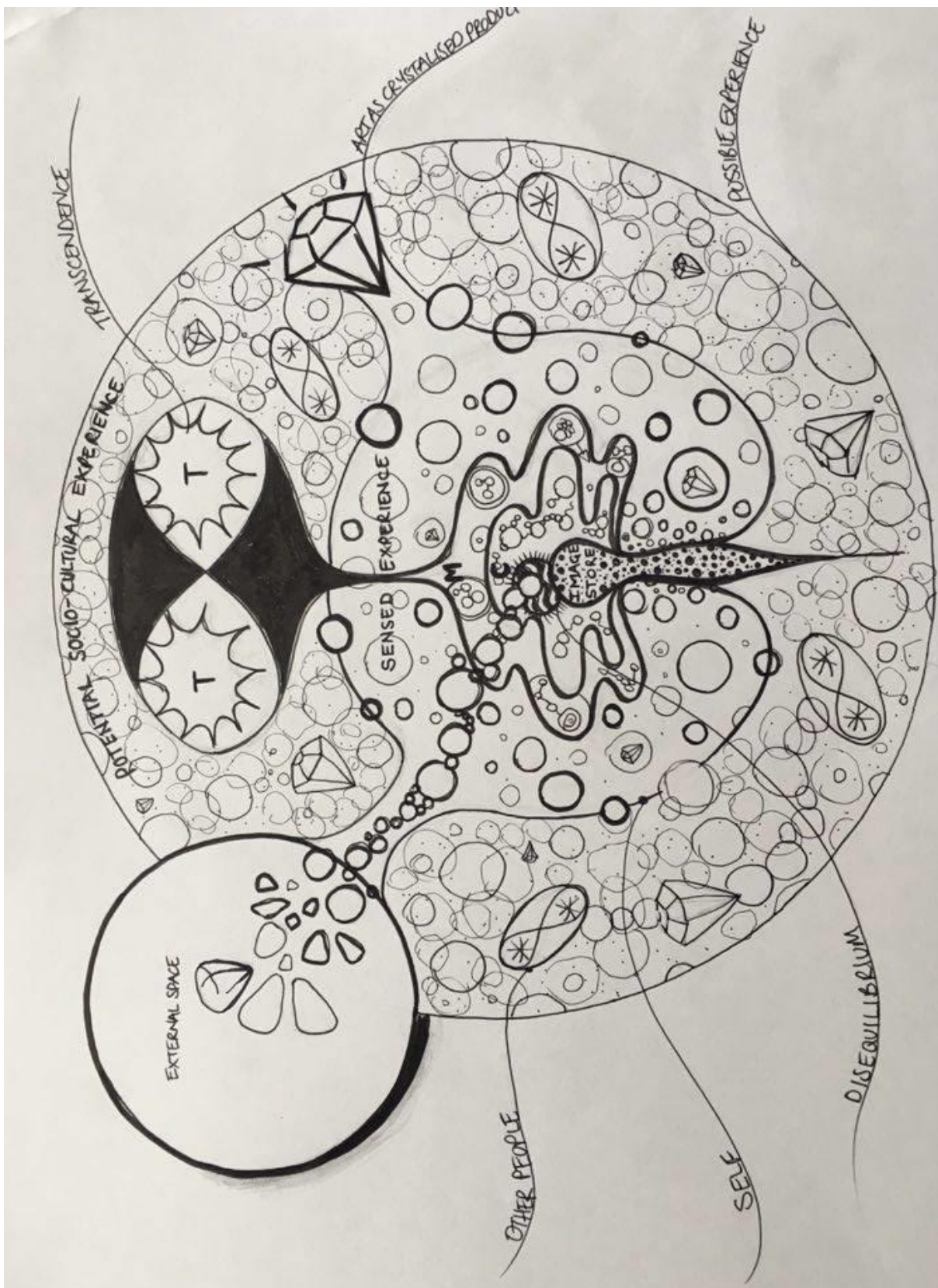
5.5 Visual re-presentation

Figure 5.14 Re-presentation: Visual Art imagination

Chapter 6. Conclusions and Implications for Pedagogy

6.1 Vignette: evolving pedagogies

In the years since I began writing my thesis on a part-time basis I have become an academic researcher. I have been able to incorporate some of the learning arising from my thesis into pedagogies which I have applied in education research projects. One project: 'Mapping Transformation through Contemporary Art' used contemporary art experiences to develop metacognition. This drew on ideas evolving through my thesis about how art experiences might help to make tacit thinking processes explicit, allowing learners to reflect on their own learning and potentially, develop or improve their metacognition.

In 'Mapping Transformation', myself, my colleague, an artist and gallery staff worked with ten Year 4 children over six, 2 hour sessions. The aim was to use art experiences to support children in developing metacognition and to create a visual map of this process, so that we might begin to get to the heart of what we knew, from experience, to be transformative processes. We began by familiarising the children with the contemporary art gallery where all of the sessions took part, providing them with 'ways in' to the art through associative games, questions and discussion, trying to encourage them to ask questions and emphasising that there were no 'right' or 'wrong' answers. We then needed to enable the children to talk about their own learning, which meant providing a vocabulary for this along with skills for collaborative discussion. We did this by loosely using Philosophy for Children (P4C) pedagogy (e.g. Gregory et al. 2017), adapted to be highly visual, creating mind maps and using drawing as 'talking', in a large collaborative art work. This helped us to establish a community of enquiry to work in. We then went on to encourage the children to associate thoughts and feelings with art works in a visual classification exercise in which they effectively wrote interpretation in association with a selection of art works. This was intended to move us towards an understanding of concept and visual metaphor, so that we could work with art in the gallery spaces and make connections between this and the concept of learning. On show were short films by the artist Salla Tykka, which provided opportunities for these connections. One film showed horses running free and then being trained to perform 'airs above the ground', another showed water-lilies opening up in the dark and a third showed child gymnasts training in a gymnastics school.

Figure 6.1 <u>Airs Above the Ground</u>. Salla Tykka, 2010
(http://www.balticmill.com/whats-on/exhibitions/salla-tykka-the-palace)

Figure 6.2 <u>Victoria</u>. Salla Tykka, 2008
(http://www.balticmill.com/whats-on/exhibitions/salla-tykka-the-palace)

Figure 6.3 <u>Giant</u>. Salla Tykka, 2013

(http://www.balticmill.com/whats-on/exhibitions/salla-tykka-the-palace)

In group discussions, we talked about how the films were like learning. Having grasped a basic understanding of visual metaphor, the children then designed and made sculptures which were models of their own learning. In our final session, we reverted to our adapted P4C pedagogy and each child presented their sculpture to the group, explaining how it was like their learning. Through the use of practitioner and researcher journals, a number of visual research methods, an interview with their teacher and '6 week post' follow up interviews with each child, we arrived at a set of individual case studies which established that all of the children had developed metacognitive understanding to some degree and some had also developed metacognitive skill.

"A war robot with lots of dents...{representing} not giving up because even though your team might, it doesn't mean you should."

"Before, I gave up but now I know not to {because} I might be faced with a really hard Test"

Figure 6.4 Example of child's art from 'Mapping Transformation', with the child's quotations explaining their work

This was admittedly a piece of pilot research on a very small scale. While the impacts need further investigation, we were able to develop a sense of the cognitive processes which developed in line with the artistic experience. The resulting map is general, (produced to be accessible by the general public in the gallery) and further research would seek more detail, but it is a starting point for visualising what is usually a tacit, cognitive process.
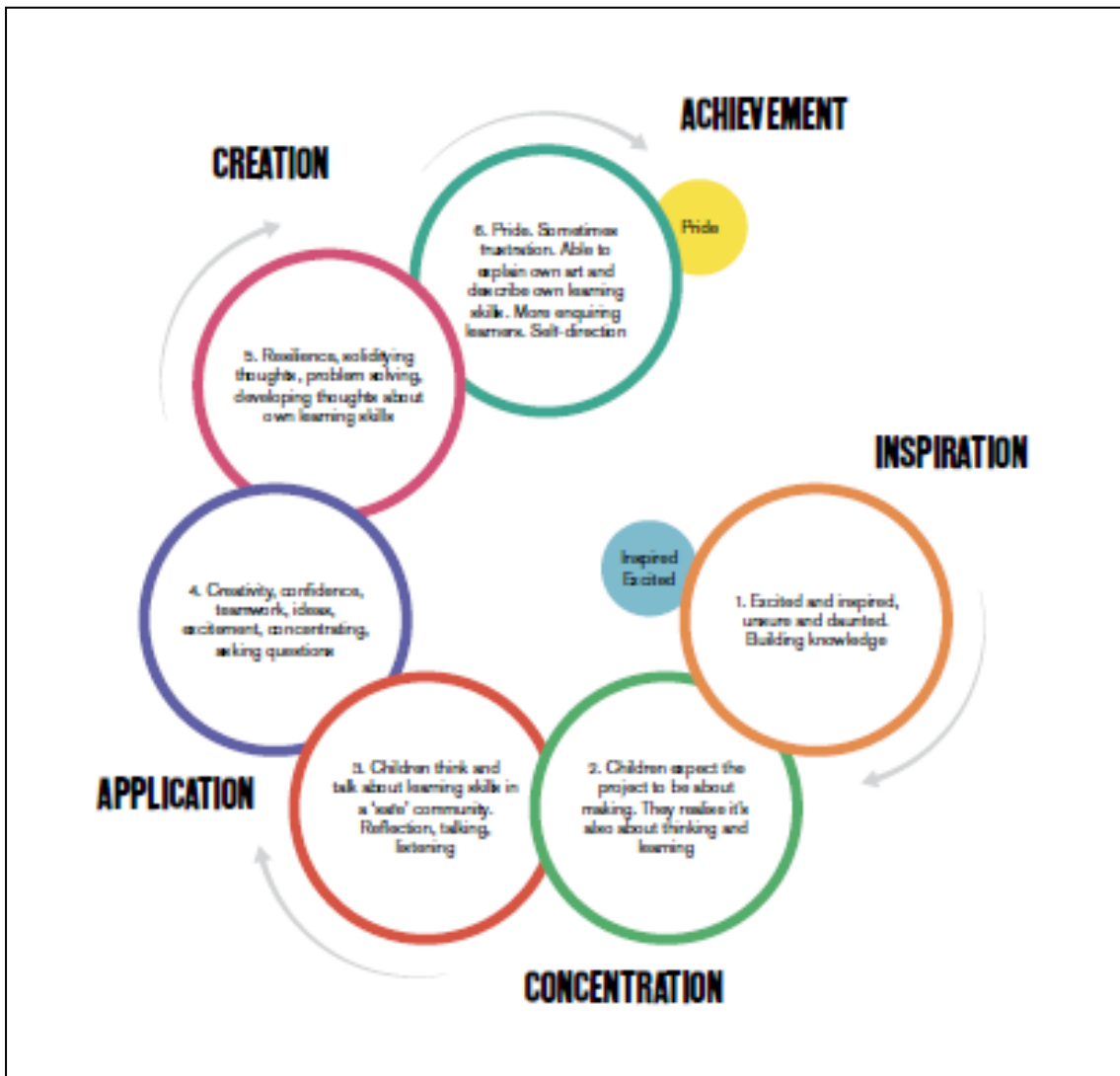
Figure 6.5 Map of thinking in 'Mapping Transformation' (poor text quality due to available format of archive image)

In light of the completion of my thesis, it should be useful to reflect on this pedagogy to ask if and how it could be further improved and if the emergent theories provide any further insight into the developmental processes it sought to nurture.

6.2 Imagination

This thesis asks, primarily 'what is imagination?'. By discussing and combining emergent findings from three paradigmatic perspectives we have arrived at the point of understanding how imagination has been seen historically and how we should see it now, in light of what we have discovered. What follows in this section is: a summary of historical understanding and its implications for our understanding of imagination in

a visual arts education context, a definition of imagination as cognitive, with a description of this and of how it supports metacognition and finally, a summary of the relationship between imagination and visual art in light of previous exploration of imagination from historical, psychological and art perspectives.

6.2.1 *Historical understanding*

There has been a historical tension between paradigms of imagination which either: nurture a suspicion of and seek to repress imagination or value imagination as an essential aspect of cognition and knowledge. The episteme of the first paradigm is that truth/knowledge already exists and we must strive deductively to find it. The truth is 'out there'. This paradigm favours deductive reasoning towards inherent, fixed 'truths' and awards imagination a low status in the process of revealing them, often seeing it as a threat to this revelation on the basis that sensory experience interferes with our capacity to reason. The second paradigm is more accommodating of the idea that human beings *construct* knowledge. Even if the proponents of this second way of thinking were not interpretivists and still believed in the existence of essential truths, they saw imagination and its foundation in sensory experience as fundamental and intrinsic in building understanding towards reaching them. This second paradigm asserts that human beings *construct* knowledge and that this activity is fundamentally and intrinsically dependent on imagination. Without the existence of imagination we could not order and combine our sensory perceptions towards understanding and we would have nothing to imagine with, without exposure to sensory experience of some kind.

The model of imagination as a constructive, developmental force is in evidence if we look at imagination through an evolutionary lens. Our capacity to imagine enabled us to become self-aware beings, with a need to deal with this awareness of ourselves by externalising our fears and organising ourselves through shared, cultural belief. In an iterative process, this shared cultural belief generated further individual and social transformation. By looking at imagination on the scale of the human species, as well as looking at historical perspectives of how imagination functions in individuals, we have seen that imagination enables human capacity for cognitive development and the construction of knowledge in an evolutionary sense as well as in everyday, individual cognition. Imagination emerges as a transformative force for humanity and for

individual humans within their life experience. This corresponds very well to Aristotle's conceptualisation of imagination as 'movement'.

We have seen that approaches from the deductive paradigm lead to a distrust of sensory, bodily experience and because this is the material for imagination, to a suspicion of imagination as distraction or divergence from reason. The bodily basis of imagination and concern over the use of mental imagery as being 'second-hand', mimetic representation has, for some, led to the arts acquiring low status as a field of understanding. This is due to the implication that, in being concerned with the manipulation of these second-hand images, art itself becomes 'third-hand' and therefore even more distant from inherent truth. Where art is 'good', it has somehow materialised from a direct connection with divine essence or forms. It is from this theoretical position, originating with Plato, that conceptions of art as innate, natural 'talent' as opposed to developed skill and understanding seem to have arisen more strongly than in other subjects.

On the other hand, a constructive paradigm has provided a cognitive interpretation of imagination and by extension, of art. In this paradigm art is seen as the essence or distillation of sensory experience (after Aristotle), or the externally manifested finalisation of a developed concept (after Kant). Both of these interpretations imply that art is a way of knowing. Art can help us to know through the process of making or by experiencing it, with both of these activities requiring imagination to order, connect and build our understanding. The fact that, in art, this understanding is subjective and individual does not negate its value – it is simply a *kind* of knowing. What becomes apparent when we begin to look at subsequent psychological perspectives, is that the subjective and individual nature of art offers further benefits to the learner in terms of developing mental flexibility and the capacity for autonomous thinking. From this historical, constructive paradigm what emerges as key for current practice is that within such an episteme, both imagination and art can be nurtured and developed. It is worthwhile to try and teach them.

As has been discussed, current curriculum approaches to visual art emphasise the development of technical skill. While these do at least suggest a constructivist, rather than a divine or talent-based perspective, they fail to reflect the prominence of cognition within the experience of art. We only need to do a quick search for academic papers,

using search terms including 'academic' and 'art/s' to see that arts are often considered as supplementary to 'academic' subjects at best (e.g.; Peppler, 2014, Young et al. 2014). The identification of art as a technical skill, given the historic relegation of imagination as an activity dependent on sensory experience, means that it is often considered 'non-academic' or as an alternative to 'academic subjects', presumably because it often involves our senses and is subjective. While I am yet to find an adequate definition of what constitutes an 'academic' subject, if this means that a subject involves our minds as opposed to our hands, this makes a non-academic definition of visual arts problematic, since within the visual arts there is more emphasis on the cognitive than the technical. We could not acquire technical skill in isolation from our mind and it is usually developed towards a purpose related to expressing a concept of some kind rather than in isolation from ideas, even if we are talking 'green peppers'.

The reality of 'imagination' and of art in education is complex and we need to be pragmatic in order to understand it, rather than reverting to inaccurate and rigid divisions which were initiated by Plato in his 'divided line' more than 2000 years ago. While some (notably Robinson in the Gulbenkian Report, 1989) have argued for the legitimacy and inclusion of arts in schools on the basis that they offer unique, educational advantages which support 'non-academic' students, cater for a wider range of learning styles or provide expressive outlets and a more holistic education (e.g.; Eisner, 1981), I think that this approach has an unintended outcome of reinforcing the notion that art is still somehow intellectually deficient in those areas of cognition which some would regard as superior capacities. Presumably this intellect would involve the ability to reason, think in an abstract way, solve problems, be critical, arrive at reasoned conclusions, evaluate and apply ideas. These higher forms of thinking are not possible without imagination as it has been defined in this thesis; as cognitive activity which uses mental imagery to organise images in order to hypothesise, evaluate and create ideas. These imaginative processes take place throughout acts of making and interpreting art, so it *is* an intellectual activity. Does this also imply that it is an 'academic' subject, or rather, does it begin to reveal this term as a nonsense and the divisions still in place between areas of learning as inappropriate or obsolete?

As imagination has a particularly direct relationship with art (summarised below), then art is an intellectual subject. It should be treat as such, with the additional potential it

holds (expression, holistic learning, learning styles etc.) adding even more value to the cognitive and metacognitive enhancement which learning in and through art can nurture. We should recognise that developing imagination through art means increasing our general imaginative capacity and therefore improve our learning as a whole. Perhaps we need to think more holistically and more flexibly about what constitutes a good education, using imagination in order to try to escape the rigid, hierarchical approaches which we have inherited from the likes of Plato and Descartes. This might also imply a need for new approaches to pedagogy which accommodate and value the unruly, individualistic learning pathways of imaginative and creative thinking. We may need to find ways of evaluating and valuing learning which, rather than being concerned with measuring the degree to which a learner is right or wrong, or which, in recognising the irrelevance of this within art, revert to assessing technical capabilities, instead address criteria related to the capacity for subjective, flexible, critical and original thinking.

6.2.2 *Defining Imagination: what it is and is not*

In this thesis I have arrived at a concept of imagination as a fundamental aspect of cognition and metacognition, grounded in sensory experience, which produces and coheres mental imagery towards the creation of concepts and understanding. I believe it is the basis of our self-awareness and of our ability to construct understanding and learning strategies. Such a conception negates a perspective of imagination as an 'ingredient' within cognition, which is somehow distinct from general, cognitive processes. The all-permeating, cognitive aspect of imagination, as this thesis presents it, implies that while imagination is complex and slippery, it is not some mysterious, undefinable force which is impossible to unpick or understand in our attempts to provide educational experience. It is also not an 'optional extra' in terms of educational experience, since all learning requires cognition, which we have seen to be related to and sometimes inseparable from imaginative operations at every level.

Returning to the examples of gallery practice at the very start of this thesis, when children came to Baltic and experienced the Ono and Nara shows, at what point did they become imaginative? Was it only when they made their own drawings in relation to the shows? Was this, in fact, imagination, considering that it was not wholly original but inspired by someone else's ideas? Or were they being imaginative when they

made links between Nara's painted and sculpted characters and the 'village' they were in, to themselves, to people and to places they knew? Were the older students engaged in debate about evolution and creationism being imaginative when they compared and contrasted opinions, or only when they thought about potential futures in a world where genetic manipulation is on the increase? While we might typically think of imagination in relation to fantastical and creative thinking, when we understand it as a means of translating sensory perceptions into internalised imagery which is essential throughout almost all of our thinking, it becomes practically impossible to say when we are not 'using our imagination' in some way, or to say where an act of imagination begins and ends. In fact it might not be possible to talk about 'acts' of imagination. It seems that we are imaginative almost all of the time and that what we need is a deeper, shared understanding of and language for imagination.

Within the argument we have arrived at, imagination works fluidly and dynamically within cognition and metacognition, organising, producing and connecting imagery in order to create concepts, driven by our desire for knowledge in the face of cognitive disequilibrium. Images and ideas contained within imagination are especially potent (more easily recalled and more likely to produce further associations) where they are emotionally charged. Take, for instance, Charles Avery's art work 'One armed snake' which provoked such a strong response from the young people experiencing it. It seems likely that part of this was due to an emotional reaction which we might speculate consisted of surprise, fear and disgust (with the snake as a fairly primal symbolic image with multiple connotations) but perhaps also concern, moral anxiety and even empathy; a stimulating, emotional cocktail.

Fig.6.6 One Armed Snake, Charles Avery www.balticmill.org

While we can identify different kinds of imagination (imaging, productive, creative, fantastical) and know that to produce a new meaning we will at least need to use imaging, productive and creative forms, these do not operate on an entirely linear, regular or hierarchical basis. Rather, they interact with each other fluidly, in 'back and forwards' operations, in order to cohere a meaning.

We can say that imagination comes into play in response to disequilibrium in our understanding, prompted by a new sense experience. Also consistent in the imaginative process is that imaging is a pre-requisite for the rest of imagination, that productive imagination is necessary to unite these images for classification and sense-making and that this productive imagination is necessary for creative imagination, which draws on classified 'schema' towards original combinations and concepts. Fantastical imagination, while requiring imaging and productive imagination, is not necessarily novel and so does not necessarily need creative imagination unless we have actually 'made it up' (e.g.; while 'Game of Thrones', accommodated within our minds, is fantastical imagination it is not a novel idea which we have created). Fantastical imagination enters into imaginative processes at points of transformation, supporting us to change productive imagination into creative imagination and creative imagination into fantasy, by enabling us to envision impossible connections which we can compare and contrast with the 'ordinary', accepting or rejecting these differences and similarities towards the production of something new. Avery's one armed snake might be seen as an example of fantastical imagination which, by provoking questions about possibility and realities, enabled the young people who experienced it to arrive at novel ideas related to issues inherent in their real life experiences.

Although we have identified some successive stages of progression across our types of imagination, the reality of their application within our thought is more complex and interwoven. For instance, we might bounce from creative imagination back to imaging in order to recall an image which can contribute to the emergent concept we are creating, then return to productive imagination in order to assimilate and accommodate this new connection. This instance of productive imagination may be emotive, recalling impactful experiences which we have converted from sensory perception to thought within Imaging, which we then connect in productive imagination and feed into the production of an original concept in creative imagination.

In metacognition, the same processes are in play as with ordinary cognition, though creative imagination, with interjections from fantastical imagination, plays a special role in enabling the transformation of our thinking about ourselves. It is by producing a novel idea about ourselves and our experience/learning, that we are able to reflect on our learning and develop metacognitive knowledge. Metacognitive skill is also dependant on creative imagination, which is applied towards constructing strategies for learning in response to metacognitive knowledge. If we were not able to imagine, it would not be possible to conceive of a 'meta' level within our learning, where, psychologically speaking, we stand outside of ourselves in order to see how we learn and how we could do it better. This imaginative capacity has enabled our self-awareness at a first level of consciousness, so that we can consider our situation in the world. In metacognition, imagination enables a second-level consciousness, in which we metaphorically stand outside of ourselves, while still inhabiting our material bodies.

Imagination allows a negotiation *and* coherence between the material and the psychological and this supports our self-transcendence. While in one way this seems fantastical, in that we cannot generally leave our bodies and remain conscious, it is actually a psychological reality and therefore not fantastical at all, while undoubtedly imaginative. Thus the child's image of himself as a battered but resilient robot in the vignette at the start of this chapter is imaginative and metacognitive but is it fantastical? It is a psychological reality for that child. He understood that he was representing his psychological reality and in psychological reality, all things are possible. However, his psychological reality was produced using fantastical imagination to arrive at a metaphor for 'real-life' experience, since the boy is not really a robot and could not become one in real life (as much as he might have liked that!).

6.2.3 *Imagination and visual art*
As part of their psychological development, children often turn to concrete experience in order to support imagination in addressing disequilibrium. This approach to developing imagination can also be useful for adult artists, for whom physical and material experience complements cognitive activities towards the mental cohering and physical expression of a metaphorical concept. Like imagination, visual art overlaps

and moves across each side of our imagined border between sensory and cognitive experience. The dependency between sensory experience and cognitive activity is made physically explicit in visual art, which models internal imaginative processes that are concerned with converting sense perceptions into understanding. As these internal imaginative processes are inherent in all of our cognition (way beyond the parameters of art) and since art has a direct relationship with imagination, it has huge potential to support the development of imagination towards increasing our imaginative capacity *throughout* our learning.

Through *contemporary* art, we are often able to experience the prioritisation of concept above a concern for the use or display of particular technique. This is not to say that technique does not matter in contemporary art, rather; it is often the case that 'technique' consists of a considered selection of method and material in order to carry an idea, not vice versa. As in the description above, there is an interplay of mind, senses and materials but materials and technique tend to serve, rather than lead or frame ideas. From a more traditional (and perhaps in a less experienced) perspective of art there is a tendency to see it as being concerned primarily with and to judge it on the basis of technique, with this constituted by the adept manipulation of a certain material. In this perspective, a given technique and the effect it produces can seem like a container for the portrayal of ideas. Having only one or two possible 'containers', or techniques (such as drawing or painting) to hand could be limiting in terms of how ideas can be most powerfully shared. While I would not deny that such limitations can have creative benefits which have produced exciting and influential art, the point here is that in such works, we are required to see through the lens of the technical idea of a painting or a drawing in order to find the idea which the artist is presenting (such as in the Monet example given in Chapter 5, fig.5.3). Ideas must be expressed in accordance with material and technique and (while of course this can work) are potentially constrained by these. For some, this accepted 'formatting' of artistic ideas may provide a safe, more accessible way in to art but with support, there is potential to expand learner's boundaries to accept a more concept-based perspective where all forms of expression are embraced as possibilities. This might provide more freedom for imagination and cognitive development, with such newly acquired open-mindedness constituting a form of mental liberation.

In contemporary art, which often prioritises 'concept' and finds a suitable technique through which to manifest this, we see more clearly that art is primarily a cognitive activity, when it is allowed to be. We see artists as being concerned with ideas, as opposed to obsessing over the act of painting or sculpting or other art forms. The role of the artist is that of a creative, free-thinker and we see art as the result of a cognitive process, supported by method and skill, towards a 'finalised' (as Kant might say) concept. When children visit a gallery and see the work of Yoshitomo Nara, Salla Tykka, Yoko Ono or others, they are engaged by the aesthetic experience of the work and (in my own experience) begin to think about ideas, as opposed to focusing on how skilfully something is made (with 'skilful' meaning here how close to real life the representation is).

Of course children are also engaged by materials and by the physical act of making but this complements and supports the thinking which is taking place rather than seeming like an activity which is isolated from the rest of learning as 'something we do with our hands'. This was certainly the case in 'Mapping Transformation', where children used materials and artistic techniques to explore concepts of thinking and learning. The work they were focused on was primarily ideas-based but the materials and tactile experiences engaged them and enabled them to understand and produce ideas about learning and about their personal learning which were very new to them. Contemporary art in this kind of setting leads directly to personalised engagement with ideas and thinking. In part this is because in contemporary gallery education children are often working with artists or gallery staff who instigate activities which provoke thought around the art on show and seek individualised responses. Additionally, contemporary art deals with contemporary issues which may be of direct relevance to these children, using metaphoric cues which they are able and excited to connect with (the One Armed Snake for instance). Children are not asked to copy a Picasso or a Van Gogh, as I have seen often in primary schools and as an activity which is perfectly aligned with the current national curriculum. By over-emphasising technique in the curriculum and by not encouraging the use of contemporary art in education we are in danger of denying a large part of the value of art. We may be denying children experiences which could help them to develop their thinking and imagination in relation to all subjects and to life in general.

Returning to visual art more generally, the direct relationship between visual art and imagination is enhanced through its focus on the visual and its use of visual metaphor, which mirrors the 'open' and malleable characteristics of mental imagery. Using and developing a language of metaphor through art might therefore result in an increased capacity to use our imagination and to think more flexibly, since metaphor requires us to break through the boundaries of mental categories and make agile comparisons between seemingly disparate concepts. Such mental activity is likely to require complex interactions between every type of imagination described in our imagination scale: imaging, productive, creative and fantastical. Art therefore optimises the possibilities for imagination through metaphor. Simultaneously, through its subjective and hypothetical nature, it allows us to manipulate imagery without the need to adhere to 'truth' or rule. What is more, through visual art these imaginative process are tangibly manifested. Visual art processes replicate and mirror imaginative processes and in so doing, enable complexity, freedom and visibility of imagination. Adding yet more value for learning and taking visual arts' potential in this to a much larger scale, processes within visual art, through the crystallisation of metaphorical concepts into cultural objects, enable imagination to spread and 'spawn' beyond the individual who produced the work of art, with potentially endless imaginative repercussions entering socio-cultural consciousness and generating socio-cultural imagination.

6.3 Cognitive and metacognitive imagination and visual art: key themes

Embedded within the description above (section 6.2.1, 6.2.2, 6.2.3) are some recurrent themes which have emerged in relation to the historical, psychological and art perspectives which we have explored. These are highlighted and summarised below to provide a complementary means of understanding imagination, with each theme followed by discussion of its implications for arts education.

6.3.1 *Transcendence*

The concept of transcendence arises in the context of human evolution; first, as imagination enabling the development of human self-awareness and then as our means of coping with the potential to be overwhelmed by being self-aware in a massive, complex universe. While pre-dating a theory of evolution, Kant's theory of

'Transcendental Imagination' relates to this evolutionary perspective, in asserting that imagination is the basis of our ability to arrive at knowledge and understanding.

If we understand our imagination as a means of creating concepts, this includes the ability to create concepts about ourselves and enables us to see how imagination can help us to transcend our lived experience by conceptualising this. In discussing how imagination supports metacognition, we have seen that creative imagination in particular, enables us to produce novel interpretations of personal experience which enable us to 'rise above' that experience, thereby gaining understanding of and being able to plan strategies for improving our learning. There is a strong relationship between the concept of metacognition and that of transcendence. Differentiation between the two lies in metacognition's explicit focus on how we think and learn, rather than on general experience, though as we have discussed, general experience and learning can be hard to separate other than by specifying the active or engaged nature of the latter. What we can be sure of is that both transcendence and metacognition depend on imagination.

Visual art, as the materialised expression of concepts which have arisen through engaged reflection on some aspect of sensory experience, is integrally transcendent, enabling us to see aspects of human experience from outside of the human experience represented. If we produce a piece of art personally then this is an act of transcendence. It can also be described as metacognitive if we consider personal experience to be the same as 'learning'. If we experience and engage with art made by others and this results in the 'transformation' of our thought, shifting our ontological position, then this is transcendent and metacognitive because art, by its nature, has caused us to reflect on human experience/learning and relate this to ourselves as learners. Of course this can be enhanced if we explicitly introduce the concepts of transcendence and metacognition to learners and raise their awareness of art experience as comparable to learning.

This explicit introduction of metacognitive/transcendent concepts happened in 'Mapping Transformation through Contemporary Art'. Children were aware from the outset of the project that the focus was on their own learning. Enabling this awareness involved the introduction of a vocabulary for learning. We used art to explore the concepts which that vocabulary represented, making connections between works of art and kinds of learning and experimenting with ways of visually symbolising personal

learning through group and individual drawing and sculpting. We explicitly connected visual art to concepts of learning through games, discussion and making. This process was guided by a practising artist, who modelled a way of working which provided an overview of artistic thought, lending credibility to the activities and supporting the children's confidence in the experimental and 'risky' (no right answers) decision making they were undertaking: if a real artist works like this then it must be a good thing to do. Supported by the artist, children were encouraged to select materials and make artistic choices towards the creation of sculptures which represented their own learning. Through this process they transcended themselves, seeing themselves *as* learners, seeing *how* they learn and with this newly acquired, transcendental viewpoint enabling them to 'think forwards' and strategise about how to improve their capacity to learn. While the research was time-limited, if given the opportunity to follow up longitudinally, it would be interesting to see whether such a transcendental perspective can be sustained so that young learners might automatically make connections between art and human experience/learning, with this providing faster access to a transcendental perspective of art experience and through this, increased self-awareness which it might otherwise take many years and a sustained interest in art to arrive at.

These theories relating to transcendence (and by extension, to metacognition) rely on imagination. It is imagination which allows us to 'step outside' of ourselves, since it enables, through the cognitive and metacognitive manipulation of mental imagery; the material and temporal shifts which we require in order to conceptualise a notion of 'self'. In this way Imagination also enables the production of novel concepts, by means of which we can reflect on aspects of this notion of self.

There is huge potential to use art experiences in order to support the development of metacognition in learners. This would have cross-curricular and lifelong learning value. By providing art experiences which focus explicitly on the concept of learning and which allow learners to explore their personal learning, educators might maximise on the potential of art for developing metacognition. While there are many ways to support metacognition, art has advantages in terms of its inherent subjectivity, its flexibility and lack of 'rules', which are bound up with its use of visual, metaphoric language. Of course it is also an engaging option for many learners, sometimes due to the productive and tactile use of materials, sometimes due to the freedom for thought which it allows.

Adopting such an approach, in the first instance, will require the provision of support for learners to develop a symbolic repertoire for concepts related to their own learning, to be able to associate this with the art of others and to be able to express it in their own art. By nurturing reflection and visualising the processes of interpreting and making art, learners can come to understand how they learn and develop strategies for their own learning. Such an approach implies an emphasis on formative assessment, where process is awarded higher status than product and in which learners will be given ample opportunity and the means by which to assess themselves. Tools for self-evaluation can be 'catalytic' (Baumfield et al. 2009) in making the imaginative processes taking place explicit to learners through visualisation or discussion. There are opportunities here to develop visual evaluation tools which fit neatly into visual-arts pedagogy while also utilising the opportunities which visual communication affords: providing an overview of a situation, not needing to rely on a sequential or hierarchical flow of information and instead being able to visualise multiple concepts all at once. Criteria for assessment embedded within such tools would include aspects of imagination, perhaps based on the 'productive, creative, fantastical' categories used in this thesis, translated into accessible language for learners. A version for younger learners might read 'making connections, having new ideas, thinking the impossible'.

As argued earlier in this thesis, metacognitive development may occur through art experience even without explicit or exclusive pursuit. If we accept learning to be the same as human experience, which is represented by art, then we can argue that art experiences will inherently lend themselves to opportunities for increased self-knowledge if learners have the capacity to access and interpret art. We could leave the learning experience there and it would still have value, however; there is a facilitatory role here to amplify these experiences by supporting the application of what is learned about other people or humanity through an art experience to then be applied to or compared with 'self'. This is likely to include both social and independent activity including questioning, dialogue and artistic exploration. Where the educator's intention *is* to support the development of metacognitive strategies learners may need to be encouraged to turn what they have learned about themselves into approaches to or strategies for their learning. There is an inherent opportunity for developing metacognitive understanding through art, with a role for the facilitator in maximising

this, ensuring that learners reach higher order thinking in their self-application of arising ideas and the creative construction of strategies for their own learning.

The role of the educator emerging here is problematic in the current education system. In my experience, art teachers often think that it is challenging enough to teach curricular art, never mind also teaching thinking skills. Teachers of other subjects don't usually feel confident or want to teach through art or necessarily see themselves as responsible for developing metacognition. The challenges may be slightly reduced in primary schools but even there, developing metacognition/transcendence via arts experience requires time, which would be taken away from a focus on maths and literacy, which seems to threaten the 'success' of a school as judged by Ofsted.

It seems to me that there is something very wrong with an education system which sacrifices rich and valuable learning experiences in order to produce systematic results which supposedly demonstrate the quality of a school by narrowly focussing on supposedly 'most important' subjects. Maths and English alone don't make a rounded, creative lifelong learner with C21 skills. Until the education system changes it seems vital that those who are able: gallery educators, on the boundaries of formal education and particularly researchers, pursue the development of arts-based pedagogies for metacognition/transcendence along with ways to evaluate and demonstrate the value of these. As Chomsky argues (2017), it is better to proceed with optimism that we can instigate change at some level rather than sink into disempowering despair and succumb to a system in which it is impossible to believe but very possible to become dominated by. It is by being able to transcend that we might be able to achieve this. This highlights the importance of supporting metacognition/transcendence, which will in turn enable the capacity for autonomous thought and action, in the learners we are responsible for.

6.3.2 *Imaginative Space*

Mental images are the basic material of imagination. They operate as 'analog' (e.g.; Kosslyn, 2005, Kosslyn et al. 2006) models of sense impressions and are malleable and changeable, rather than being fixed, photograph-like impressions. They are not the mimetic copies of material experience which Plato proposed, being evocative as opposed to representational. Through this basic 'currency' of mental imagery, imagination offers a kind of 'space' within our thinking, which opens up possibilities for

producing novel ideas through the joining, disregarding, and trying out of cohered mental imagery. The use of these mental images in the creation of metaphor exploits this malleability, permitting a breaking of schematic boundaries within a familiar and useful form of symbolic language. Visual metaphors go even further than verbal metaphors in providing 'space' for imaginative thought, in that they allow us to connect ideas without the constriction of linear or hierarchical structures. Visual metaphors as art, leave us 'space' for interpretation, requiring personal associations and leading to self-directed learning. We might see this as 'space' to develop personal autonomy in an education system which increasingly restricts this through an emphasis on accountability and testing.

Due to its fundamental action being the manipulation of mental imagery, the property of providing space for free thought is inherent within imagination. This translates into visual art, as the physical manifestation of this imaginative activity which also manipulates mental imagery, so that art making and viewing becomes space for personal and self-directed thinking. The subjective and hypothetical nature of works of art ensures that thought is not closed down. Art making and interpretation may evoke an area of focus but there are no real boundaries as to the syncretistic associations which viewers make, based on their personal experience. Because there are no boundaries in a subject area which does not seek to reduce or generalise, fantastical imagination can run free, so that we have a safe and legitimate space in which to try out our most extreme ideas.

We have made art for at least 50,000 years and this act is believed to be linked to our evolutionary development (e.g.; Mithen, 2001, Montell, 2002), so we see that it is advantageous for us to externalise our thoughts through art. Art provides a physical space where our imagination can utilise the concrete in order to work through and cohere the cognitive. So the notion of space, in connection with art and imagination, is also connected to concrete and material opportunities. This is unsurprising in that we have said that the basic business of imagination is the cognitive integration of sensory perception. Some (e.g.; Donald, 1991, p.335, Hattie and Yates, 2014, Ch.15) think that physical action frees up space in our memories so that we can work through challenging thoughts and this seems congruent with visual arts experiences. We turn to the sensory experience of art to address disequilibrium as it gives us the space and materials to put our imagination into action without constraint.

Imagination in itself gives us 'space' for thinking. This does not mean that it gives us 'nothing', or wipes away the problems in hand but rather, that in providing us with malleable images and unrestricted ways to manipulate them, it provides metaphoric space for the personal and the original. Because visual art processes model imaginative processes without restriction and make these explicit for further reflection, visual art provides physical artefacts and the process of making them as space for cognition.

I propose that the current emphasis on 'Great Art and Artists' in the national curriculum is a threat to our imaginative space. It limits the learner's range of cultural experience and can disempower self-conceptions of being an artist by asserting a hierarchical and exclusive perspective which serves to reinforce stereotypical ideas of artistic genius. This condemns children's art making to being continually sub-standard or of a low class. I would go so far as to say that this is abusive and a children's rights issue, since I see art as intrinsic to child development. Not that we cannot or should not learn from the work of other artists and from artists themselves, rather; their work and working processes should be used to support the development of our autonomous artistic pursuits.

What would this pedagogy look like? It would not look like a class full of primary children copying Van Gogh's sunflowers. It might look more like that group of children engaged in a critical discussion of Van Gogh's work, or using a thematic approach which included the work of numerous artists, including contemporary artists and other children, facilitated by a teacher in such a way as to ensure that discussion is critical, deep and democratic. Some sort of disequilibrium would be introduced, perhaps using a challenging question related to an artist's work. Philosophy for Children (P4C) would be one useful way to support this. This discussion might be followed by opportunities for learners to extract what is meaningful to them personally and to use elements of the ideas they have explored to develop their own art work. Even the youngest children would have opportunities to develop visual and technical understanding through the pursuit of their own ideas. Given that we often consider young children to be very imaginative, this should not be a problem! Even if we take a Vygotskian approach and consider children's' imagination to be less sophisticated than mature imagination, imagination is still there to be used and developed in an age-relative way.

Such an approach would be situated in a way of learning in art which considers artistic development as a personal continuum, rather than a set of projects or topics focused on the established 'greats' which the learner must perform in. Learners of all ages would develop portfolios or bodies of evolving work and each of these would look quite different in both format and content. Learners would be encouraged to reflect on and critique their own work, provided with, or co-creators of vocabulary and criteria for this. These portfolios would span areas of focus and continue across multiple school years, so that learners can see their own unique development and 'know themselves'.

Pedagogies would embrace the work of contemporary artists, well placed to reflect the world of the learner and connect with personal ideas, along with experiences of working with practising artists who can discuss and demonstrate their creative processes. Classrooms, corridors and art rooms would be adorned with work in progress, at different stages of completion, as opposed to only the neatest or most technically skilful examples of finished work. 'Risk' and experimentation would be encouraged. There would be no more 'green peppers' and instead, studies of objects selected by learners. Artistic capacity would be evaluated in terms of cognitive and metacognitive, conceptual development along with the ability to select and apply materials in order to pursue relatively original ideas.

6.3.3 *Iterative Experience*

Whichever lens we use to look at imagination, we see an iterative process which begins and ends in experience and disequilibrium. In a visual art context, we are able to see this process explicitly, since art works are the physical manifestation of the end and beginning of a cycle, the result of past and the beginning of new experience. Art models imagination in a physical way, in the world, as culture, evoking imaginative processes by becoming sensory experience. In doing this, art as experience becomes a potent means of exercising and understanding human imagination. The usefulness of this became apparent to us as humans who began making art at least 50,000 years ago.

From evolutionary perspectives we have seen that attempts to cohere our understandings of experience through art led to the production of cultural objects and through these, to a social sharing of ideas which propelled us down a historical path

as a 'successful' (in the sense of surviving and thriving) species. The fact that contemporary art might be more likely to focus on ecological issues as opposed to hunting animals suggests that we use cultural objects to share ideas about relative issues which are experientially concerning and produce disequilibrium for us, so that we can try and imagine our way out of current problems. We can imagine this process taking place on any scale, from the evolutionary to the individual, (for example; young people exploring issues of personal identity, inspired by the Barry McGhee show [Ch.5 vignette]) and to something as practical as, for instance, working out how to apply paint to a wooden chair (in the case of the young people above, in order to express ideas of identity). We will use imagination for even this relatively simple, practical act, recalling previous experience and predicting the impacts of actions such as adding too much water or using too much pressure with the brush. When we have solved these problems, the resolution is an experience which will be stored as mental imagery in our 'allusionary base' and will feed into the way that we respond to new experiences, going forwards.

Returning to applying paint to a chair, if the experience of addressing this problem leads to the invention of a tool or technique which can help us with this job, then we have crystallised our thoughts into a product which can be transferred and have socio-cultural impacts. While these may be immediately linked to practical actions those actions could enable more deeply conceptual, socio-cultural impacts if applied appropriately. The chair/work of art itself can be seen as a tool in that it is used to share ideas about identity with fellow members of society, potentially becoming a cultural artefact. By experiencing the artwork made by the young people working with the Barry McGhee show, we might be able to gain deeper insight into issues affecting our young people and become more able to tackle those issues. Vygotsky's concept of crystallization relates to the production of tools and cultural artefacts, with imagination cohering ideas and then working to crystallise them materially, as socio-cultural products, which then help shape society. This aligns with Dewey's idea of Art as Experience in which art, as a goal or as a stimulus, is a material catalyst for active engagement which leads to transformative thought. This is the key to its value.

'Art as Experience' gets to the heart of the concept of an iterative, imaginative process which has emerged through this thesis, in that there is an imaginative flow which occurs through the combination of 'self' and material experience which is much more than the

sum of its parts. The malleability of mental images, leading to the hypothetical potential of imagination, along with the 'pull' of a desire to build knowledge, are what enables this flow, in which ideas, once cohered, can influence and be built on, ad infinitum, in our thinking. This imaginative thought is so in-built and constitutes such a large part of our cognition that we hardly recognise it as a distinct set of operations (hence our usual negligence in defining it). Imagination behaves organically and iteratively in flowing cycles which respond to cognitive disequilibrium, making syncretistic connections in order to cohere meaning and arrive at a concept which becomes an 'experience' whether it is manifested as art, as a tool or exists in our minds. Of course this is over-simplistic. We must assume that there are a great number of these iterative cycles flowing simultaneously, overlapping, merging and dissipating, in order to account for the breadth of our imaginative activity.

By providing deep and broad educational experiences with art it might be possible to expand the imaginal range of an individual in terms of their ability to contend with problematic situations from the most modest, practical level to the level of undergoing personal transformation/ evolution. As we have seen above, such experiences may benefit not only that initial individual but go on to have socio-cultural impact. In the first instance it may help to increase opportunities to engage in and with art in the curriculum, perhaps returning to ideas of a compulsory 'cultural offer', which prioritises cultural experiences as an essential part of learning. This might encourage schools and teachers to avoid using occasional gallery visits as an 'add-on' to learning or an end of term treat, often seeming like a somewhat wasted opportunity.

Personal development via cultural experiences is likely to be reinforced if we provide experiences for learners which have personal significance, so that they can connect and extend their existing mental imagery. Of course contemporary art can be especially helpful here, covering contemporary issues which are relevant to learners' lives. Teachers and gallery educators are likely to have a significant role to play in terms of scaffolding these experiences, enabling access and active engagement through exploratory activities. Learners could be encouraged to make cognitive connections between art and personal experience by providing them with template questions, introducing mapping techniques, word and image association games. The use of sketchbooks and video diaries to nurture and reflect on developing ideas could

help learners to 'see' and understand the transformative processes taking place, thereby enabling them to exploit this metacognitively.

Treating personal development in art as on ongoing, never-ending process, rather than basing it in discrete projects, would also serve to support an understanding of artistic development as an iterative process. Within this approach, gallery and art experiences, socially shared and personally applied, can reveal the relationship between art and society to learners, so that they are able to understand the value of art for humanity and begin to grasp the idea of art as a potential form of personal and social transformation and empowerment.

6.3.4 *Visual power*

We have identified a direct relationship between the visual nature of visual art and the nature of mental imagery. This is not to say that mental imagery is constituted only from visual experiences – imagination can convert any kind of sense impression into mental imagery - rather; the cognitive behaviour of stored, mental images reflects the cognitive behaviour evoked by material, visual images (and other kinds of sense impressions), in the way that we can manipulate and shape them to cohere meaning. This is not surprising given that we have identified an interdependent and productive relationship between body and mind, dispelling Cartesian dualism and Platonic suspicion of bodily influence on thought. We would expect that our cognitive experience reflects our physical experience and that we are able to manipulate mental images based on 'rules' or patterns which apply in physical experience (of course, in imagination, we are free to break these rules but they are nevertheless the models for our cognitive operations involving imagery). What this means is that visual art provides a very direct route into our cognitive imagination, modelling this explicitly, so that we can use it as a model of imagining in support of our learning.

Given the argument above, to discuss the power of mental imagery is also to discuss the power of visual art imagery. This power comes from the malleable nature of imagery which is not 'fixed' in terms of its meaning or of what it can go on to mean. Based on actions and relationships which we have learned through our physical experience, we can manipulate these images in any way we like, unrestricted by material constraints. Concepts constituted largely by mental imagery, existing

cognitively, can be developed through the manipulation of this (mental imagery) coding. While we also use verbal coding in these developmental processes, it is imagery which enables transformation through its flexibility which supports re-interpretations, additions and edits. In being further abstracted from materiality than mental imagery, verbal coding, which uses second-level, symbolic representation as language, lacks the immediate connection to the material world which is what imbues coding using mental imagery with cognitive room for manoeuvre. This flexibility is reflected in visual art if we consider how it involves interpretive and decision making processes in which we are free to combine our previous experience with art experience in order to cohere meaning, either through viewing or making.

Meaning is not fixed, in art or in imagination, until we fix it for ourselves. Even then we can go on to change it. The malleable nature of imagination which stems from its 'currency' of mental imagery and the visual nature of visual art empower our capacity for the creative production of personal meaning. The origin of the malleability embodied in both mental imagery and visual art is bodily experience which leads to imaginative cognition. This capacity for creative, self-direction is empowering in learning generally.

So, if visual art, built on the meaningful manipulation of visual imagery, exemplifies a kind of 'visual power' consisting of the flexible application of imagination based on visual coding, it might be useful to regard it as a visible, cognitive model which we can use pedagogically, to develop imagination and therefore, our thinking more generally. The role of the educator in this context is to enable learners to fully engage with those art experiences, to uncover the cognitive processes and symbolic language which constitutes them and to relate this to personal understandings of their life-worlds. This might be the case in experiencing the work of other artists (for which there is a strong rationale given the idea that they model cognition) but is also applicable to reflecting on personal art work. Educators will need to help learners to find ways to look at and think about art, using a process of critical and reflective enquiry and built on an acceptance that there is not a 'right' answer.

By engaging deeply with a rich range of art and by making art, the learner could become more cognitively fluent. This does not suggest that we should be exploring a limited cannon of 'great' artists. It suggests breadth and variation and looking at

innovative ways of manipulating imagery which are a response to our contemporary world. It also suggests artistic engagement with the environment generally, engaging in acts of physically sensing and mentally representing our individual realities in order to make sense of the world. Perhaps we need to take learners out of the classroom far more often, to engage in cultural experiences and general, sensory experience of the world around us. This will be a more urgent need for some than others. I recall that for some children in areas of social and economic deprivation, a visit to the gallery from school was for many the first time they had left their village or been 'into town'. They were aged 12 and 13. Art, as a means of sensing and making sense and galleries, as a reflection of myriad responses to human experience, can provide a means of experiencing and understanding a wider world, thereby expanding cognitive possibilities, fluency and capacity.

6.3.5 *Practical imagination*

Having established the malleable, cognitive capacity which imagination supports in enabling us to cohere and shape our thinking and world view, we begin to see it as a practical and pragmatic force, which allows us to cognitively and metacognitively configure our experience in a 'common sense' way. Having discussed negative impacts on our understanding of imagination arising from well-intentioned attempts by Plato and Descartes to classify and rank experience, we might conclude that, while these perspectives can be helpful, it is useful to step back and open out our thought, thinking inductively and hypothetically in order to arrive at an accurate reflection of and new possibilities for experience.

Deductive reasoning is valuable in helping us to understand existence but it is not an ultimate. Perhaps no one way of thinking is. We need imagination to be able to see around the edges of our deductions, to consider the complexity of the material universe as context for those rationales and try to understand those aspects of it which are not so easily reduced. The syncretistic and creative aspects of imagination allow us to bring together different perspectives and cohere them into something new and unclassified. Plato might have contested this but his imaginative metaphor of the allegory of the cave is testament to the usefulness of imagination in coming to understand things. He relied on imagination to demonstrate his theory. This need for the pragmatism which imagination enables indicates that it is extremely important to

nurture it. By not respecting and encouraging imagination in education we limit our capacity for understanding experience and therefore, for human development and survival. Through a lack of imagination we set up unnecessary tensions and conflicts which our ability to think backwards, forwards, from the perspectives of others and the application of currently impossible or fantastical ideas, could help to resolve.

An over-reliance on hierarchies and rigid categorisation seems to characterise our current education system and serves to marginalise the arts. Currently, education seems to misunderstand or worse, to deliberately ignore and even repress the potential of art in learning. Narrow, curricular conceptions of art serve to negate a large part of its cognitive and metacognitive value and result in it being demoted and under-funded in schools. I would argue that we need to reconsider the current emphasis on core subjects. We could then add visual arts opportunities as part of a practical, imaginative approach to constructing learning experiences which support the development of imaginatively adept human beings, able to cope with the complexity of real life. In the discussion above in the context of transcendence, I touched on the notion of art supporting the development of thinking skills, another fundamental area of learning which is difficult to fit into current curricular without the presence of a teacher with a strong belief and a pragmatic approach. A more pragmatic and imaginative approach to curricula is needed generally, in order to better support thinking and learning. There are interesting possibilities to follow the lead of research in academia, to work in multi, inter and transdisciplinary ways, as exemplified in this thesis by the alignment of experiencing art and developing thinking. Art may have a special role in enabling, cohering and driving these integrated or overlapping ways of working, due to the way that it models imagination and with imagination as Aristotle's dynamic 'movement' of thought within our mind-sets.

6.4 *Summary of implications for pedagogy*

By considering imagination and its special place in visual art, we have been able to contemplate how best to support its development through art. By extension of this and through imagination's implicit, dynamic role within our thought, we can also support the development of cognitive and metacognitive capacity. It seems that art-based pedagogies might best enhance imagination by: nurturing personal approaches to experiencing and making art, providing a rich range of cultural and sensory experience

and recognising that art is cognitive and metacognitive, scaffolding activities accordingly. A further advantage of art as a vehicle for imagination is that often, one kind of activity will practially satisfy more than one of these kinds of action. For instance; providing cultural experience is likely to support the development of an individual artistic approach as well as help a learner to understand the relationship between imagination, art and society. Developing an understanding of art as a metaphorical language is part of understanding it as a cognitive process but will also support the development of a personal approach, etc. Implications for pedagogy arising from discussion of key, emergent themes are summarised and categorised below, however; the reader should bear in mind that each category could easily accommodate implications listed in the others and that the summary is not intended as a generalised model for practice across contexts:

Nurturing personal, imaginative approaches
- Nurturing an understanding of learning in visual art as a personal, developmental continuum
- Providing opportunities to pursue, develop and relate personal ideas through enquiry-based learning approaches
- Using some kind of portfolio, across topics and across school years, to reflect the learner's unique path of artistic development
- Facilitating art experiences in such a way that learners are able to apply artistic concepts to their personal experiences and in their own cognitive and artistic development
- Self-evaluation of creative practise and products, with support to develop criteria and methods for this

Providing rich experience for imagination
- Ensuring deep and broad cultural experiences which are compulsory and become 'natural', as part of a 'cultural offer'
- Providing opportunities for artistic engagement with sensory experiences beyond the classroom
- Providing contemporary art experiences and other experiences with art, selected on the basis that they connect with learner's lives

- Developing approaches and frameworks for critical discussion of art and artists, including contemporary artists, child artists and each other
- Exploring and nurturing understanding of the relationships between art, imagination, culture and society

Supporting imagination as cognition and metacognition
- Helping learners to see art as a cognitive and metacognitive process
- Helping learners to 'see', understand and apply the metaphorical language of art
- Formative, self-evaluation of art-making as a cognitive process
- Developing criteria for evaluating the use of imagination and other thinking skills in visual-art contexts
- Using 'catalytic' evaluation tools, which aid reflection and support development
- Developing pedagogies which focus specifically on using art experiences to develop metacognition, focussed on the concept of individual learning
- Considering innovative approaches to integrating visual arts experiences with further areas of learning in order to support imagination, cognition and metacognition more effectively

In short, in order to maximise on their potential to support the development and application of imagination and the potential which this offers in learning, we need to develop pedagogies which are personalised, experiential and cognitive.

If we are to truly pursue these pedagogic goals, we will need to influence, instigate or make changes to many aspects of current practise in arts education. Considering such changes from a policy perspective, there is a need to shift the current curricular emphasis on technical skill towards valuing and assessing visual art in terms of its potential to support cognitive, imaginative development. Such a shift, implemented at policy level, might enable a recognition of the true value of visual-art in learning, as opposed to being an optional or luxury 'extra' or as an activity which is useful primarily to enable 'non-academic' learners to achieve. These approaches also need to be embedded in initial teacher education, where, particularly in primary teacher education (in my own experience of teaching this), there is a frequent perception that achievement in art, more than other subjects, is dependent on innate, natural talent,

associated with stereotypical ideas of artistic genius. These ideas could also be combatted by the removal of the curricular emphasis on 'great' art and artists and its replacement with a more diverse, relevant and less canonical approach, embracing contemporary art and recognising the relative achievements and potential autonomy of learners as artists.

A key implication for teaching is that teachers need to act primarily as facilitators of learning, as opposed to transmitters of expertise in artistic skill. Currently, this will often be conceptualised as technical and representational skill. Since we have acknowledged the hypothetical, subjective nature of art and its primarily cognitive nature, a model of teaching as concerned with transmitting information is inappropriate.

With art conceptualised as a largely cognitive activity, facilitation will involve scaffolding experiences in order to develop art-based cognition and through this, metacognition, utilising and nurturing capacities for the metaphorical creation of individualised concepts. In growing their own knowledge of metacognition, its value, constitution and application, teachers could maximise on the value of their teaching in and through art. They would need to be prepared to provide the imaginative space which art can offer, willing to leave control in the hands of learners while ensuring that those learners have the capacity and tools to work like this. This would also require leaving the comfort and security of the classroom in favour of cultural and sensory experiences in the world beyond school.

There is a role for teachers, gallery educators and artists in enabling learners to access and engage with works of art in relation to their own lives and the lives of others, experiencing from an individual to a species-wide scale. During these experiences, in order to help learners nurture their ability to imagine (and therefore to think and to think artistically) teachers would need to be explicit about the relationship between visual-art and imagination, finding ways to communicate this relationship to learners by providing and using a vocabulary for imaginative processes. Teachers might also go beyond the application of these processes in the subject of art, finding ways to discuss the application of imagination across learning and throughout life.

While we have discussed already the need to expand arts experience beyond the canon of 'the great' and we have dismissed the idea of the art teacher as an 'expert',

it might be that in revealing their own artistic practises, teachers are able to tangibly demonstrate imaginative processes while helpfully diffusing the idea of the artist as an unreachable genius, thereby helping to empower learners in their own artistic pursuits. While this may seem a more applicable option for secondary art teachers, I would suggest (and do suggest to Primary PGCE students) that even where teachers have no formal training in art, sharing their own pursuit of artistic development with learners can encourage more confident and more 'free' experimentation and risk taking in the pursuit of artistic development. For some individuals in teacher education, this concept is challenging, as they are often pre-instilled with an idea of teaching in which the teacher is a conveyor of superior expertise. While breaking down this notion is attractive to some, for others, the dissonance is frightening, particularly in light of the doctrine which the current education system emits and under the pressure of an ITE course. It seems to me that the answer to these problems is to support teachers and those learning to be teachers to become more imaginative and creative, therefore more able to take an open-minded and flexible approach to teaching. This has led me to develop HE modules in education towards this end. These modules use thinking skills approaches and borrow from artistic practices towards the development of personal imagination and creativity.

Moving on to consider evaluation, we arrive at a well-used phrase: 'process over product'. In order to ensure that we fully use the value of visual art as a means of supporting imagination and cognition, we will need to use an evaluation framework and criteria which reflect learning in those terms. We need to evaluate a cognitive process which culminates in the production and expression of a visual metaphor, evaluating final pieces of art in regard to their degree of sophistication as a visual metaphor in relation to that process. All of this suggests a formative approach and a need to embed formative evaluation as an intrinsic aspect of an imaginative and constructive process, requiring us to create the means of reflecting on and assessing progress. The development of our capacity to reflect and evaluate on our own learning processes can not only provide data for formal assessments in art but also develop critical aspects of our own thinking and learning, associated with higher order thinking and with the personal practices of artists who will naturally evaluate their own practises and outputs.

We have a further opportunity for evaluating learning and imagination *through* art processes if we ask learners to make art which represents their personal learning.

Learner's works of art and the dialogue which they can enable can then be used to evaluate and thereby develop metacognition, propelling individual learning further and faster. In this way and using a framework for learning (e.g.; an on-going, portfolio approach, digital journals, sketchbooks used routinely over the course of school years) which nurtures and reflects continual development by connecting one piece of learning to another as part of our individual constitution, we would be able to support a general capacity for learning while simultaneously supporting the development of artistic skill and personal autonomy. Such an approach reflects the iterative processes which we have discussed as already inherent in art and imagination (in terms of art processes resulting in socio-cultural artefacts which generate further thought). This kind of reflection might reinforce those imaginative processes by revealing them to us in order that we have metacognitive knowledge of them and can create metacognitive strategies to improve them. The beauty of this is that, since we have discussed cultural experiences as relatable to 'learning', this reflective, self-evaluation of our own art enables our self-reflective evaluation of ourselves and our learning more generally, whether we have specifically intended this or not. Applying a conceptual focus on learning would serve to amplify the inherent value of cognitive, imaginative, visual-art processes.

6.5 Reflection on vignette

In many ways the 'Mapping Transformation' project described at the start of this chapter reflected the practices which this thesis implies are appropriate for supporting imagination and learning. On reflection, it could have been better. Before critiquing the project, it is important to explain that what could be achieved was substantially limited by circumstance. Even though having repeated gallery learning sessions is an unusual luxury in the current educational context, particularly in state schools, what we were trying to achieve would have been more fully realised if embedded within on-going learning, as opposed to being a discrete project , which was inevitably seen as a 'treat' by both students and teachers.   Children embarked on this 'art project' with an understanding of art as a technical process, expecting it to be all about demonstrating and improving their technical proficiency, due to the way art is taught in schools. We had to work hard to overcome this, especially since the school had selected its 'best artists' to take part, despite us explaining that this might not be the best approach. The whole notion that a school can identify its best artists at age 8,

based on a misconception of what art is, was depressing and difficult to contend with without upsetting the school partner and undermining the work. We were severely challenged by attitudes to art-education inherent in the current context for education and were actually very lucky to get a school to agree to release children to take part for as much curriculum time as the project took.

Reflecting on what we did right; our focus on metacognition, through the development of metaphor related to children's personal understandings of their learning, is in keeping with the findings of this thesis and should be further developed. Our approach to learning through visual art was grounded in an understanding of art as a cognitive process and of art as experience. Co-facilitation with an artist and gallery educator worked very well, with the artist facilitating artistic process and decision making and the gallery educator enabling active engagement with art through a series of playful activities and an enquiry approach. Working in a contemporary art gallery with art which used present-day imagery that the children could connect to (containing, for example, film footage of other children of a similar age engaged in learning), helped them to feel confident in making connections and expressing their views. Using P4C helped us to develop a community of enquiry and a way of working which emphasised respectful, open discussion, supported the development of individual perspectives and the capacity to vocalise this. Opportunities for reflection were built into the project through the use of catalytic (Baumfield et al. 2009), visual tools, so that to some extent, children were able to build an understanding of their learning through the project.

A key problem with the project was that its discreteness and isolation from the normality of children's learning in school limited the learning benefits which would have emerged through a more integrated approach. This would have accommodated the iterative process of imaginative development through visual art. Ideally, children would have been introduced to vocabulary relating to metacognition or learning skills in advance of this focused piece of work and the implementation of the project would have been more diffuse and integrated, so as to meaningfully merge aspects of learning through the art experience, as opposed to having to also introduce them. We hadn't fully considered the role of imagination within the cognitive process, since, at the time, I hadn't cohered my understanding of this. In similar, future work, it will be worth developing and experimenting with a vocabulary for imaginative processes for use in reflection and evaluation. For instance, we might discuss finding, connecting and

creating ideas. We also needed to find better ways of discussing the concept of metaphor, particularly with these fairly young children, with more exploration of symbolic representation and more discussion of how one thing is like another while at the same time they are different. This is a complex area to break down and describe and is for further contemplation following this thesis. Unlocking it and providing a practical language for it seems key to the construction of successful, imaginative experiences in visual art.

Although there were good opportunities for reflection embedded into the process throughout the sessions, it would have been advantageous to follow up with the children more thoroughly, perhaps using the 'map' of cognitive processes as a starting point for discussion, getting them to produce more personal maps or responsive drawings for instance. Of course this work could have been extended endlessly, with learners re-visiting their art-works at regular intervals to explore how their learning has developed, thereby building their metacognitive knowledge. The art works and the thinking they generate could then be used towards the production of explicit, personal learning strategies, constituting metacognitive skill. With further funding, it would be useful to include more development opportunities, for more teachers, with a commitment from schools to integrate this learning with their teaching practice.

While the project was successful in supporting metacognitive development, its situation as a 'one off' and a 'treat' in an educational context which offers very limited opportunity for learning in and through visual art, meant that children did not get the maximum benefit of the approach. This could be realised through educational understanding and accommodation of the iterative nature of imaginative, cognitive, visual arts experience and its alignment with learning in general.

6.6 Conclusion and next steps

I have argued that imagination is a fundamental aspect of cognition and metacognition, grounded in sensory experience, which produces and coheres mental imagery towards the creation of concepts and understanding. It enables transcendental thought and provides cognitive space which facilitates creative thinking through iterative cycles which support our on-going human development. It underpins flexible meaning making, as reflected in visual art, so that visual art has the potential to unlock and

improve our imaginative capacity. It is through imagination that we can accommodate and cohere seemingly disparate perspectives towards better learning and a better existence.

The conclusions we have arrived at seem very much at odds with the reality of visual arts education in its current context in schools. There is much to contend with in advocating a cognitive perspective of imagination and its implications for practice. By defining, verbalising and visualising imaginative processes this thesis can support the argument for more and better experiences of visual arts learning but large amounts of imagination will be required in order to find effective pathways to impact. In the first place, impacts will happen on a relatively small scale through research and teaching. Additionally, the experience of writing this thesis has encouraged the author to return to artistic practice. The re-presentation images which conclude each chapter will be a starting point for artistic development. This may in turn, be incorporated into research practice which is inter or transdisciplinary, combining education and art-based research with participatory research in educational settings. This research will involve exploring and developing imagination, metacognition and autonomy in learning.

As a final thought we shall return to a concept introduced in Chapter 1 (1.3.5): imagination does not just happen by magic. It is cognitive. It can and should be nurtured. However, it is through the pragmatic capacity of imagination that I can consider how, in fact, the psychological processes which it supports might be reasonably described as magical if we dispose of the need for a purely scientific explanation (after all, I see this as only one way of understanding). I refer to those processes of transcending ourselves, of changing physical materials into meaningful art, of creating culture, of social and individual development and the fluid and dynamic way in which imagination supports all of these transformations. These transformative qualities of imagination are akin to a definition of magick as 'the Science and Art of causing change to occur in conformity with Will' (Crowley, Thelema, 1904). Of course, quoting Crowley is unlikely to go down well in education (and he is no personal hero) but I would argue that the lack of ability to freely contemplate such a perspective reflects the frequent lack of imagination in the field. This said, given that our education system is so lacking in imagination and in art, defining imagination as magic is simply not helpful in the current context. Continuing to describe imagination as some kind of magical happening without being able to state and describe its *vital* cognitive and

metacognitive role, is unlikely to 'cause change to occur in conformity with Will' (Ibid). This is not to negate the amazing potential of art and artists to use imagination to influence and impart change via cultural means, for instance; tists like Banksy [figure 6.9] and the socio-cultural awareness his work generates, or graphic novelist Alan Moore and the impact of 'V for Vendetta' in creating the global 'Anonymous' movement, or Bob and Roberta Smith and his artistic campaign for art and art education. From within education a cognitive and metacognitive explanation of imagination has the potential to cause positive change. It is vital to find ways to instigate this, since from this perspective imagination is absolutely fundamental to learning and to life.

Figure 6.7 Dismaland, Banksy. 2016
http://www.bfnn.co.uk/banksys-dismaland-to-close-after-people-realise-that-they-can-go-to-warrington-for-free/#
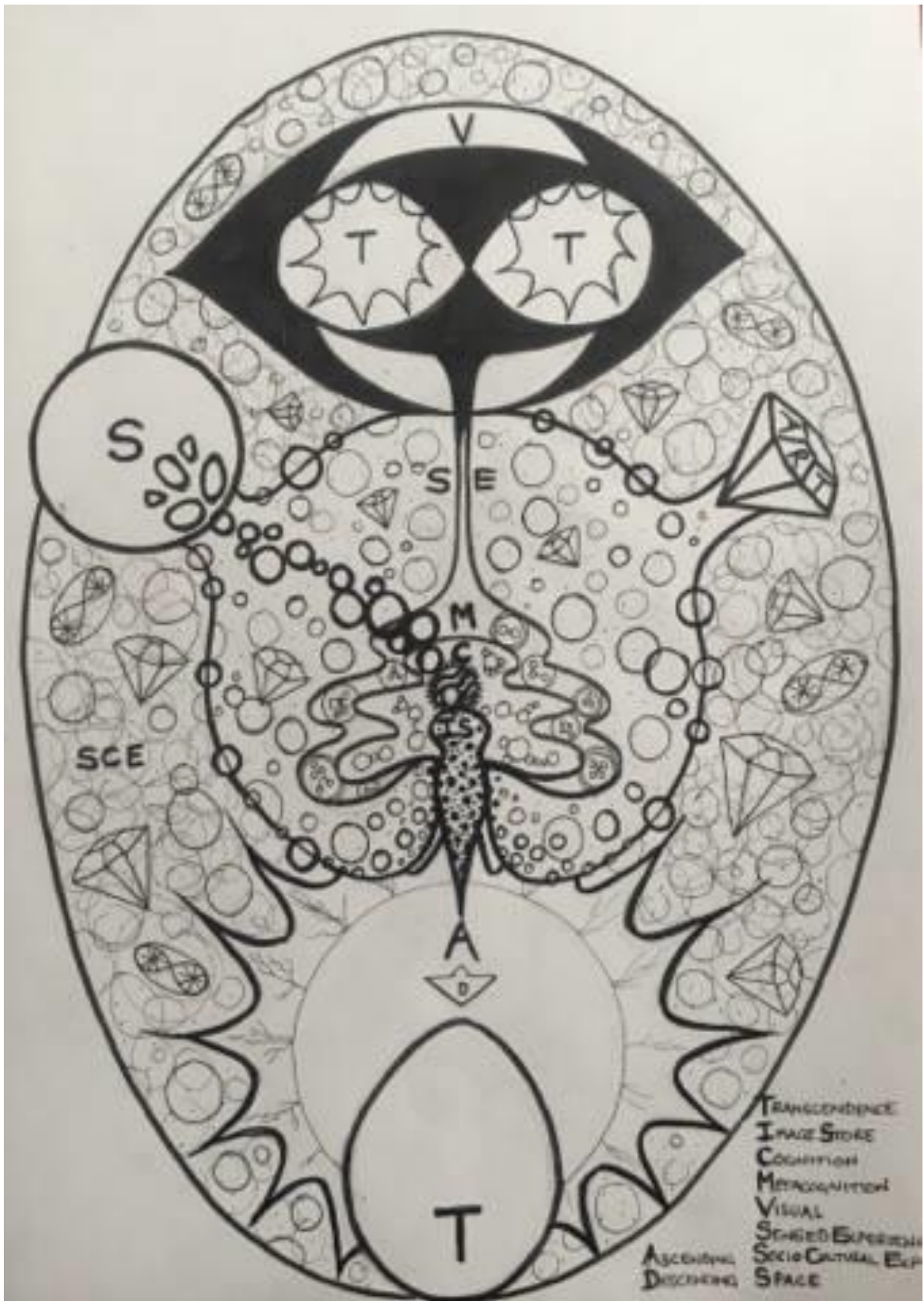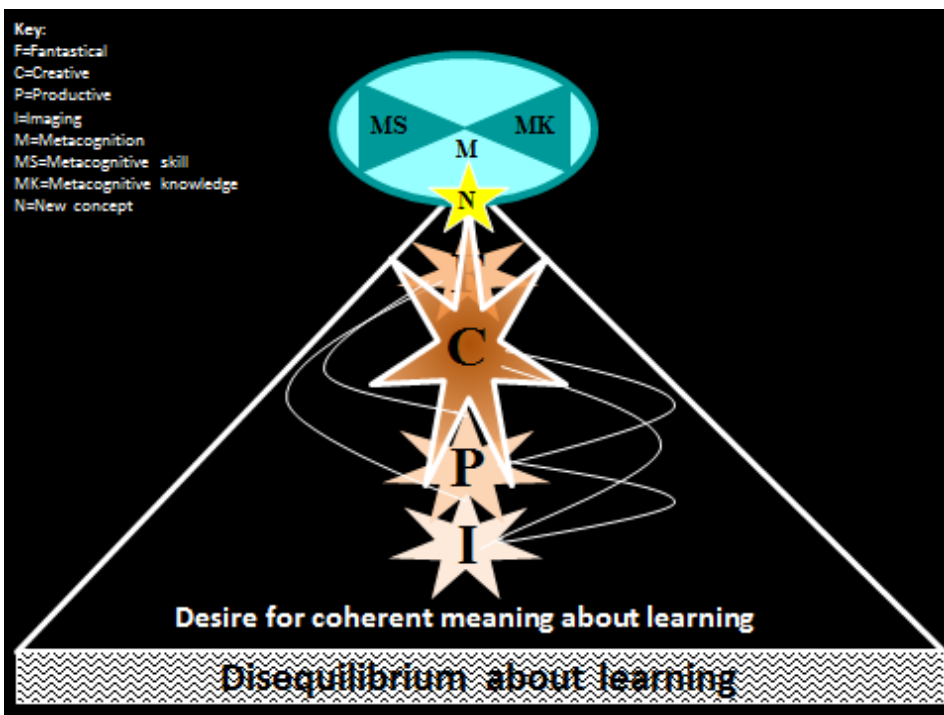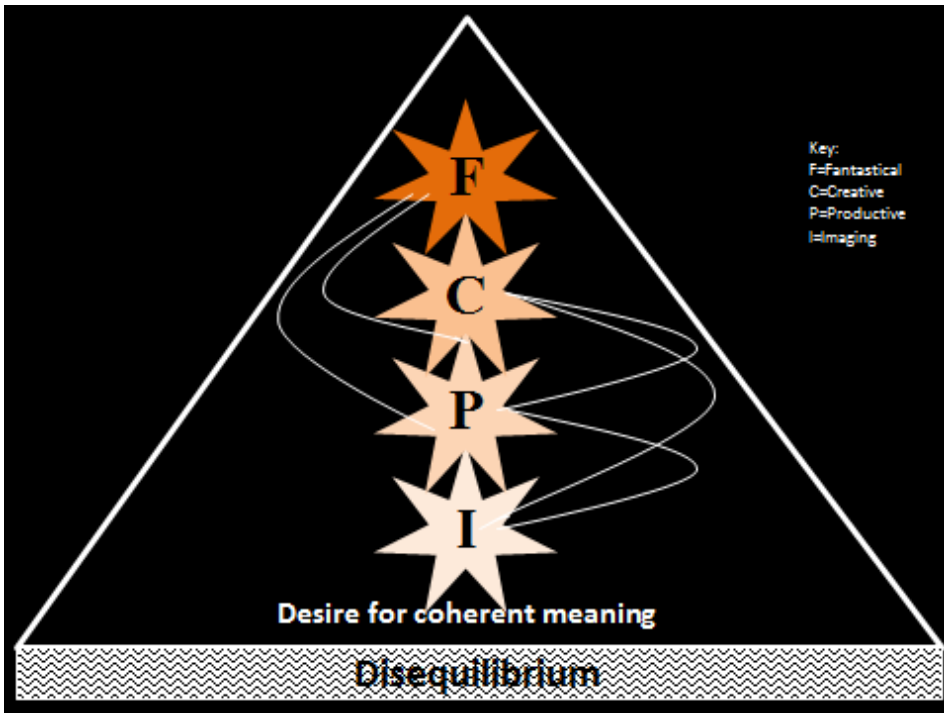
6.7 *Visual re-presentation: summary of concepts*

Fig 6.8 Re-presentation: summary

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