1: INTRODUCTION

This chapter discusses the relationship between *individual* creativity and creative *cultures*.

Creativity is often thought of in individual terms. We can think of particular figures, such as Leonardo da Vinci, Virginia Woolf, Ai Weiwei, or Steve Jobs, who are thought to have possessed so much creativity that they were able to transform the world around them. And we can buy books which tell us how to become 'more creative' and therefore change our own lives. Certainly, individual creativity can be nurtured, supported, and developed, as we have seen in previous reports from the LEGO Learning Institute. But we can be equally sure that creativity does not flourish in a vacuum.

Culture is the soil in which the flowers of creativity grow; and on top of that, conversations, collaborations and networks are the fertiliser which gives a great boost to creative processes. Even apparently single-authored ideas and innovations are typically built on principles established by others, and are then sharpened and improved through sharing and dialogue.

A striking example is presented by Mihaly Csikszentmihalyi (1997: 32-36), who notes that during a short period of time, 1400—1425, in Florence, Italy — a thriving but (in today's terms) reasonably small town — a number of art works and buildings were produced which not only seemed impressive at the time, but which are still regarded as some of the finest and most influential achievements of Western art and architecture, ever, 600 years later. These include the Branacci Chapel fresco cycle by Masaccio, sculptures by Donatello, the enormous dome of the cathedral Santa Maria del Fiore engineered by Filippo Brunelleschi, and many others. However you look at it, the range and number of these masterpieces, produced over a couple of decades in one small place, is astonishing. But if we think of creativity only in individual terms, it is really inexplicable. Was there something in the water? Or one inspirational leader whose charismatic creativity was so incredibly powerful that it could somehow be beamed into everyone else?

CREATIVITY: BETWEEN INDIVIDUALS AND CULTURES

Although talented and imaginative individuals were central to the Florentine achievement, the explanation of why there was such an incredible flourishing of creativity in this one place, in a short space of time, is unsurprisingly broader and more cultural. Csikszentmihalyi suggests that a combination of social, cultural and economic factors came together in a 'perfect storm' of innovative potential. This involved a new-found prosperity; plus leadership from authorities who made a decision to make the city beautiful and distinctive; plus knowledge — new and rediscovered techniques; plus support and encouragement of the artists and architects, who were not micro-managed, but knew that the city leaders were behind them, and were watchfully interested, and wanted them to do great things. These cultural forces combined to create a very powerful environment in which creativity could grow. Of course, it took brilliant individuals. But many brilliant individuals, in the wrong places at the wrong times, have not achieved the same results. It was the combination of individual imagination and skill, plus the several dimensions of the highly fertile environment, which enabled such memorable results. As Csikszentmihalyi says: 'It is because of this inseparable connection that creativity must, in the last analysis, be seen not as something happening within a person but in the relationships within a system' (1997: 36).

Cultures themselves are *made*, by definition. Any culture is the product of human creativity, of one sort or another. So then, any new creative act is built and appears within the context of a particular culture.

THE EVOLUTION OF CREATIVE HUMANS AND HUMAN CULTURES

Cultures themselves are *made*, by definition. Any culture is the product of human creativity, of one sort or another. So then, any new creative act is built and appears within the context of a particular culture (or perhaps a fusion of cultures). The ingredients for creativity include materials, tools, ideas from a culture, and a creative mindset. This is not new. The neuroscientist and anthropologist Merlin Donald has shown that humans developed the ability to make tools almost two million years ago. In particular, they worked out that what you really needed was the 'master toolkit' — tools that can make other tools. (As he explains in his essay, this meant using the sharpest and hardest materials, flint and obsidian, to make other tools from materials such as wood, hide, and bone: 'diggers, spears, tethers, simple clothing, and eventually, shelters and boats' (Donald, 2013). The idea of the 'master toolkit' remains attractive today — as seen, for instance, in the excitement about a 3D printer which can 'print itself').

The ability to make things is central to human development. Donald states that 'the most ancient defining characteristic of the human mind is the ability to make things with other made things', and this forms the basis

of our ability to create meanings, communicate, and build bridges. This continues to be true: creative human thought producing things is still central to our lives and cultures, whether the 'things' are trains, clothing, power stations, meals, cities, music, writing, or software. Use of tools led to the development of the 'mimetic imagination' — the unique human ability to rehearse and refine skills. We can imagine an ideal outcome, and then develop our performance over multiple attempts. This, Donald notes, is the basis of fantasy play, 'which entails imagining a virtual world, and acting out various roles in it'.

Donald's unique contribution, however, has been the emphasis on the fundamental role of *culture* in human development. Evolutionary psychologists had previously tended to emphasise the features of human physical and cognitive development, including skills and abilities; but Donald emphasises that the human mind is a 'hybrid' product of biology and culture: 'The human mind is unlike any other on this planet, not because of its biology, which is not qualitatively unique, but because of its ability to generate and assimilate culture' (Donald, 2001: xiii). This culture provides the framework in which the individual develops, and is thus a wonderful set of resources as well as forming a kind of envelope around that which can be imagined:

The word 'culture' usually connotes something other than its cognitive aspect. It usually refers to a set of shared habits, languages or customs that define a population of people. It may be those things, but on a deeper level, any given culture is a gigantic cognitive web, defining and constraining the parameters of memory, knowledge, and thought in its members, both as individuals and as a group.
(Donald, 2001: xiv)

This 'cognitive web' is not simply a mass of thoughts or learned, shared meanings. Crucially, it is the human ability to communicate and store thoughts — through innovations such as drawing and writing — which has really enabled us to evolve. The individual human brain is an incredible thing, but can become immeasurably more powerful through the use of tools which enable us to set out and review ideas. As Donald suggests, we typically cannot hold all the parts of a complex argument in mind at once, and do not tend to have extensive and precise mental reference libraries ready for instant consultation. But we *do* have pens, and books, and the internet. The individual working memory may be relatively weak, but our cultural symbolic storage systems are strong. Once thoughts are put into 'external storage' (such as writing, a diagram, or a model) they can be shared, developed and worked on.

We can arrange ideas in the external memory field, where they can be examined and subjected to classification, comparison, and experimentation, just as physical objects can in a laboratory. In this way, externally displayed thoughts can be assembled into complex arguments much more easily than they can in biological memory. Images displayed in this field are vivid and enduring, unlike the fleeting ghosts of imagination. This enables us to see them clearly, play with them, and craft them into finished products, to a level of refinement that is impossible for an unaided brain. Thus the display characteristics of the external memory field expand the range of mental operations available to a conscious mind.
(Donald, 2001:309)

Making our thoughts and ideas external, through shareable symbols — drawing, writing or objects — was therefore an extraordinary evolutionary strategy, which means that we are able to 'off-load' vital survival information, as well as important aesthetic, ethical and cultural matter, into what Donald calls our 'cultural memory systems' (2001: 12). These systems take on a certain life of their own, and mean that the human mind has evolved into a 'hybrid' form which depends, to a significant extent, upon these 'collective storage systems' which now contain so much of our everyday reality. This argument takes on a heightened significance in the digital age, of course, as we increasingly 'off-load' our thoughts, and their representations as images and texts, into online networks — the 'upload' side of the equation — and we expect that we don't need to carry so much general knowledge in our heads because — on the 'download' side — such know-how is always accessible on Wikipedia, or helpfully indexed by Google. Donald's notion of a shared storage system prefigures the technological notion of 'the cloud', of course, but they refer to something similar, although the latter tends to be massive but individualised, and often owned by corporations — a significant shift from the cultural cloud-commons that Donald presents.

FROM THE ESSAYS:

‘Cultures of creativity thrive wherever there is respect and space for multiple styles to flourish and play together, where novices can construct their own expertise by building from their own experiences and knowledge-base, and where “experts” remain open to learning.’
(Wesch, 2013)

One thing that Donald's work makes clear is that human life is crucially collaborative and based on shared cultures. It is not that individuals go about their business, and that collaboration and culture are perhaps pleasant layers on top, adding character and sociability to everyday life; rather, our everyday life would not exist without that collaboration and shared culture. As Donald explains: 'We may have the feeling that we do our cognitive work in isolation, [but] we do our most important work as connected members of cultural networks' (2001: 298).

DEFINING CULTURE

Culture, then, is a necessary context for creativity. We have seen Merlin Donald's suggestion that culture is 'a gigantic cognitive web' which relies on networks of individuals drawing upon and interacting with the vast amount of material in 'external storage' — books, films, archives, exhibitions, the internet, and many other places. In a similar way, but with more emphasis on culture as a shared mindset, Geert Hofstede et al (2010) define culture as 'the collective programming of the mind, distinguishing the members of one group or category of people from others'. This does not mean that cultures are exclusive and wholly different, but indicates that they are at least *distinctive*, with particular flavours and tones which mean that one culture is not the same as another. This would include an orientation to learning and knowledge, which may be more 'top down' (we must learn from respected experts) or more 'bottom up' (I can work things out for myself, and by asking or collaborating with my peers).

Hofstede's notion of 'mental programming' can seem overly deterministic — we might instead say 'conscious or unconscious cultural identification,' to leave more room for individual flexibility. These identifications occur at different levels (Hofstede et al., 2010: 18), such as national, regional, generation, class, workplace or school, and lifestyle. On the other hand, modern societies are often characterised by disruption to the former stabilities of national or class identities, with globalisation and a less constrained attitude to lifestyle choices meaning that particular identifications based on such classifications can no longer be taken for granted (Giddens, 1991).

Nevertheless, Hofstede offers a valuable model for thinking about the composition of cultures, with the manifestations of culture at different levels of depth.

At the centre of a culture are *values*, a core set of beliefs and preferences. These values are implicitly learned by children from an early age. Moving out from the centre are three kinds of 'practices' — ways in which a culture is manifested (Hofstede et al, 2010: 7-9)

RITUALS: Collective activities, carried out for social rather than functional purposes, such as polite greetings, social and religious ceremonies

HEROES: Role models (real or fictional, alive or dead) who are seen to possess aspirational characteristics

SYMBOLS: Words, gestures, and things that carry a particular meaning within a culture

This way of breaking down the elements of culture can provide a useful way of describing what is important within a culture; and it can be used to flesh out the detail of what a culture is most concerned with when considering cultures at the level of class and regional identities, or different generations, each of which will have its own values, rituals, heroes and symbols.

Culture plays a fundamental role in shaping the development of young children, especially since the human child is born so relatively unformed. As Hayes (2000: 660) puts it, 'Human infants are born at an earlier stage of development than other animals, and have to spend a longer period dependent on their caretakers. This means that they can learn more about their surroundings, and are therefore better equipped to adapt to a wide range of environments' — and that culture will make a huge impression.

In terms of the relationship between culture and creativity, Lubart and Sternberg (1998: 69) posit that 'Creativity is not in the person, or in the culture, but in the interaction between the two'. This mirrors the 'relationships within a system' approach highlighted by Csikszentmihalyi above. Rather than suggesting that creativity is 'nowhere', it should be taken to indicate the crucial importance of the imaginative individual, but also the inescapable influence of culture(s) on that individual, meaning that creativity can be said to arise from the interaction of both.

CULTURES ARE NOT ISLANDS

There is no obvious way to draw a line around human life in order to say 'here is one culture' and 'here is a different culture'. We can pull the lens to its widest, and say that all human life is a culture, or focus in very closely, and talk about the 'culture' of a particular classroom, or a family.

Most simply, 'culture' refers to a shared layer of understanding, and despite the common focus on 'cultural differences', human beings around the world have much in common. Research supporting this view is cited in several of the commissioned essays. For instance, David Whitebread and Marisol Basilio offer this summary of how play is manifested around the world:

The study of play through time and across cultures has consistently demonstrated two characteristic features of play in human societies.First, it is clear that play is ubiquitous among humans, both as children and as adults, and that children's play is consistently supported by adults in all societies and cultures, most clearly in the manufacture of play equipment and toys. Second, it emerges that play is a multi-faceted phenomenon, with a variety of types that appear in all societies, but that there are variations in the prevalence and forms that the various types of play take in different societies.
(Whitebread & Basilio, 2013)

Here, as in other cases, we find that the general experience is common to diverse cultures and places, but that in each of those different cultures it is infused with a very distinctive character and flavour. So the main message is about commonalities, rather than differences, between people — but at the same time, we can celebrate the incredible ability of humans to do things in different ways.

We began this study by posing questions such as 'How are creativity, play, and making valued differently in different cultures?'. Perhaps inevitably, questions of that kind can appear to set up cultures like islands ('between cultures', 'different cultures'), but this was not the intention. Cultures are important, and exist, in the blurry world of human creativity and relationships. To separate out 'different' cultures, in a scientific manner, is both impossible and undesirable. Rather, we aim to explore the relationships between creativity and culture in a way which is rigorous but sensitive, and which accepts the delightful complexity and interconnectedness of human life.

2: THE CREATIVE MINDSET

This chapter discusses the creative mindset, and the ways in which different cultures manage to support or erode that potential.

We see that the creative mindset is delicate and rather too easily damaged, and consider the mindfulness necessary to keep it alive.

THE CREATIVE MINDSET AND THE UNIVERSAL POTENTIAL OF CHILDREN

Every child begins their journey through life with an incredible potential: a creative mindset which approaches the world with curiosity, with questions, and with a desire to play, make and share. The creative mindset is summed up by Beth Hennessey, in her essay, as 'a playful attitude and a willingness to take risks' (Hennessey, 2013).

A creative mindset is about playing, making and sharing. As Mitch Resnick suggests in his essay, these three concepts are not just forms of activity, they are stances for engaging with the world (Resnick, 2013). Play is not simply a particular activity which occurs within a specific bit of time during the day, but can describe a playful attitude towards the world, which will infuse relationships, judgements, and willingness to take risks. Similarly, 'making' is not just about the activity of creating and building, but refers to an attitude that the world is constantly being built and rebuilt, and that there is an active role to be played in that building and rebuilding. Sharing is about a capacity for connection and collaboration — to do the playing and making with others, to build on other people's ideas and to offer up one's own work in the same spirit.

The creative mindset, then, is a universal starting point, but is easily lost. This observation has been memorably made by Ken Robinson, in his 2007 TED talk which has been viewed millions of times online, in which he argues that schools typically 'squander' children's creativity and talents, 'pretty ruthlessly' (Robinson, 2007). Children begin school unafraid to experiment, to tinker, to get things wrong; but over time, they learn that mistakes are highly stigmatised, and often associated with a kind of humiliation that every child would want to avoid. A strikingly similar point is made by Beth Hennessey:

I began my career as a primary school teacher and immediately began to worry that our schools were killing children's motivation and creativity. Almost without exception, the five-year-olds in my mixed-age classroom began their educational journey wide-eyed and excited about everything put in front of them. They took risks and were blissfully unconcerned about what might happen if they made a mistake or got a wrong answer. [...] Yet by the time these same students had reached the age of 8 or 9, far too many of them had become rule-bound and self-conscious. (Hennessey, 2013)

There is much agreement in the research literature that the creative mindset is all too easily closed down by the apparent demands of the education system. At the same time it is clear that a creative mindset can be nourished and sustained, if we are especially mindful of its supreme importance.

> As life goes on, if this creative mindset can be sustained, it enables a person to confidently get to grips with challenges in memorable ways, rich with ingenuity or self-expression. Although the creative mindset resides within an individual, it can be seen as one of the most crucial building blocks for a vibrant and developing culture.

THE CREATIVE MINDSET IS NECESSARY

The creative mindset is not a luxury. And the creative mindset is not a new requirement of the modern world — although it can be especially valuable in our complex, interconnected existence. It is this creative mindset which has enabled the human race to survive over thousands of years — both on a day to day level, through imaginative approaches to providing food and shelter, and at a broader level, through necessary solutions to dire threats affecting the whole population.

So the creative mindset has always been necessary. But today, more than ever, we have the opportunity to choose ways to develop and support this mindset depending on the future we envision. That we should 'choose' to do this seems so obvious that it might barely be worth mentioning — but in fact, we often do things to support one favoured outcome which do damage to another outcome. For instance, being able to assess and compare the performance of schools appears to be a desirable goal: the sense of competition should drive teachers and pupils to do better, and parents should be able to make informed choices about schools. However, assessment of schools

typically means repeatedly testing the performance of pupils; and the importance of the 'league tables' that result is likely to mean that teachers devote time to preparing their pupils to do well in specific tests, rather than focusing on nurturing particular creative talents, or iconoclastic thinking. The rational intention of helping the children do better in these important, consequential tests, is at odds with the rational intention of supporting creative thinking.

So the *choice* to nurture creative mindsets remains meaningful, and uncertain. Government representatives from the US to Scandinavia to China speak passionately about the importance of creativity and the creative economy, but education systems often fail to support the flourishing of a really creative mindset.

CREATIVE MINDSETS WITHIN CULTURES

The individual person's creative mindset develops, inevitably, within culture; but of course this culture was built through the collective efforts of individual people, and so this system is in a permanent loop. People shape culture, and culture shapes people.

Although cultures and approaches to child development may vary considerably, the creative mindset that children begin with appears to be much the same around the world. Every child has the *potential* to flourish, to be inventive, to make great new things. Conversely, the power of social norms and cultural values is strong — and the influence of parental preferences and choices cannot be overstated. As Eduardo Chaves notes in his essay — and as noted above — human children 'are all born, as it were, prematurely and ill-equipped to live', lacking the most basic skills for survival (Chaves, 2013). We depend on those around us, and so the universal potential of the human child is almost immediately, from birth, led down a path shaped by culture.

We have a capacity and desire to learn, and so the young child hungrily absorbs all of these cultural inputs, alongside the more general skills such as how to walk. As the child gets older, as Chaves suggests, the creative mindset develops within their whole-body experience of the world. We are not merely 'thinking machines', but have the pleasure and joy of running, dancing and making things within a purposeful body. Although Western education over the past 200 years has tended to see learners in terms of their brain-based skills and experience alone, there is a much longer story of learners as people with skilled bodies and minds in combination.

Chaves suggests, in common with other contributors, that the creative mindset develops from exploration — not just of ideas but of physical things and environments — or rather, as is often the case, exploration of ideas *through* the exploration and use of materials. And we need space to play, to experiment, to be disorderly. His view from Brazil is that learning in the 21st century 'needs what we used to find in football in Brazil: creative improvisation, freedom, challenge, the union of passion and talent, [and] fun'. This is echoed by accounts from elsewhere.

From the US, Beth Hennessey sets out the challenges of preserving a creative mindset in the face of classroom factors which tend to destroy this kind of intrinsic motivation: 'expected reward, expected evaluation, competition, surveillance and time limits' (Hennessey, 2013). Central to this is her idea that students should feel like 'agents' rather than 'pawns' — determining their own activities and learning, rather than having learning 'done to' them. This is not — or at least, not *simply* — 'do whatever you want', but a process where learners are supported to reflect upon their learning, and to monitor their own progress. This therefore encourages a thoughtful, creative approach to fostering one's own creativity.

From China, Keang-ieng Vong records that Chinese schools often see creativity as being primarily of significance in relation to children's artwork, rather than across the curriculum (Vong, 2013). Creative play is not perceived as being central to learning, and the Chinese noun meaning play, *you xi*, describes activity which for adults would be the *opposite* of learning (a situation not especially different to that in many Western schools, of course, for children above kindergarten age, or in adult business life, which is rarely truly playful). Nonetheless, Vong notes a changing emphasis which might support the development of creative mindsets, based in an approach to creativity as 'novel ideas to solve everyday problems', and building on the Chinese definition of creativity which we can paraphrase as 'the power to infuse any event or object with new ideas'.

We might also expect to see, over time, a trickle-down effect from China's booming creative industries. In the 2011 book *How Creativity is Changing China*, Li Wuwei writes:

By developing creative industries, individual creativity is nurtured. Moreover, creative industries are beneficial in maintaining and protecting historical and cultural heritage, improving cultural capital, and fostering communities. This leads to the improvement of the cultural assets of cities, the establishment of city brands and identity, the promotion of the creative economy, and overall economic and social development. It is in this context that creativity is changing China.
(Wuwei, 2011)

Here the individual creative mindset is seen as the root of a broader cultural transformation, with — interestingly — the creative industries identified as a driving force, both in terms of what they can give (inspiration to a creative society) and what they will require (employees adept at creative thinking).

Alongside the formally supported creative industries, China has seen the rise of 'maker culture', as outlined by Francois Grey in his essay (Grey, 2013). Here we see a flourishing of hacker spaces in major cities — just the kind of experimental, tinkering environment that is likely to nourish creative mindsets. Indeed, Grey's evidence suggests that the government is shifting some focus away from the more top-down 'creative industries' approach — a kind of 'push' approach to innovation, where the government hopes that sheer investment will lead to some returns — and is putting money also into the more participatory hacker spaces, representing more of a 'pull' approach, where enthusiasts and resources are brought into a convivial environment and encouraged to experiment.

BEING MINDFUL

This self-aware approach to one's own development, which can be called 'mindfulness', is also the ultimate point of Mark Runco's contribution (Runco, 2013). The creative mindset, he suggests, is likely to flourish when *individuality* is strongly supported — which can be a particular challenge in cultures where collective values are stronger than individual ones (and is, he says, always a challenge in the upper primary school years, around which time children are so devoted to fitting in with their friends that individual ideas are rarely expressed). The importance of individuality does not mean that more collectivist cultures cannot foster creativity, Runco notes: after all, the most collectivist society still needs imaginative solutions to social problems, and new ways to promote harmony. He also notes that individualistic cultures are often quick to relegate play after children have passed a certain age. Strong individualism can tend to drive out the laid-back atmosphere which can make everyday life more playful.

Mindfulness is also very important for those parents and teachers who wish to encourage creativity. Although it sounds 'obvious' that original thinking should be embraced and encouraged, creativity is often — by definition — unexpected, and so can be casually put down by adults because it happens to be surprising or inconvenient at the moment when it is manifested. Adults should also be mindful of the ways in which they 'model' creative activity — which is important not simply as a way of demonstrating creative techniques, but more generally to highlight the values and pleasures of creativity within everyday life.

As HB Ebrahim notes in her contribution from South Africa, play is the starting-point for children in developing skills of exploring, thinking, and making (Ebrahim, 2013). Through play activities which they have initiated themselves, children 'become powerful and take control of the situations [that] they have prioritised'. In particular, though, she highlights the social dimension of play:

Play fosters creativity in an *ubuntu* sense [to do with relationships and interconnectedness], and promotes the idea of *umuntu ngumuntu ngabantu* (a person is only a person through other people). These African concepts of human solidarity afford opportunities for children to act as a collective to promote or disrupt ideas and/or use objects in meaningful and novel ways.
(Ebrahim, 2013)

The creative mindset is cultivated through playing, making and sharing, which brings us from the individual to the group level — the focus of chapter three.