The elusiveness/illusiveness of creativity – nurturing its nature

OVERVIEW

1. Creativity – what it is... what it is not...

2. The nature of creativity – elusive and illusive

3. Under what conditions is creativity nurtured?

4. Creativity for what?
CREATIVITY – what it is... what it is not...

Creativity can be expressed in art forms – visual, dramatic, dance, music, film, poetry

⇒ BUT it's not equivalent to being artistic.

Creativity can emerge from divergent thinking.

⇒ BUT it's not equivalent to divergent thinking.

Creativity can result in inventiveness

⇒ BUT it's not equivalent to inventiveness.

‘The sheer secrecy of creativity- the difficulty in understanding how it happens, even when it happens to us – means that we often associate breakthroughs with an external force.’ Jonah Lehrer

Julia Atkin, 2012

REFLECTION

On the following slides there are several examples of creativity that have captured my attention and admiration. In our quest to understand creativity, what, if anything, do they have in common?

Julia Atkin, 2012
Attempts to find my way from Norrkoping, Sweden to the international airport just north of Stockholm led to the following suggested route.

Julia Atkin, 2012
An ‘easter egg’ planted by a computer programmer, possibly when stuck on some difficult programming problem!

http://www.vangoghgallery.com/catalog/Painting/508/Starry-Night.html
Starry Night (interactive animation)

http://vimeo.com/38466564

http://www.youtube.com/watch?v=bxch-yi14BE
This LANDCARE LOGO emerged from an insight moment while the designer was sitting, head in hands, in desperation at lack of inspiration!

BRIEF REFLECTIONS

It is hard to tie down exactly what is involved in creativity…

- sometimes a flash of ‘insight’ comes after a lot of ground work – the LANDCARE logo, my own example of solving the problem of the evidence for two chemical compound when there was supposed to be one, by glimpsing the mirror image quality of my hands

- sometimes a lot of hard work follows a germ of an idea – Hugh’s video Will the Real Mitt Romney Please Stand Up – hard work is common whether before or after the idea

- sometimes creativity involves artistic expression, at other times problem solving, new ideas, new combinations of old ideas, seeing things in new ways, humorous ways – novelty, originality is common

- sometimes creativity involves divergent thinking, sometimes zeroing in on through convergent thinking leads to a creative breakthrough

Perhaps what all acts of creativity have in common is that they emanate from our imagination - either our individual imagination or collective imagination through collaboration.

To think of creativity as one thing is as fraught with difficulty as a blind person describing an elephant by touching only one part!
The play on words in the title, albeit unintentional, turns out to be quite apt – creativity is both elusive and illusive.

**Elusive**
- difficult to catch

**Illusive**
- something likely to be wrongly perceived by the senses
Jonah Lehrer combines stories of creativity with scientific understanding of the process.

‘The imagination can seem like a magic trick of matter – new ideas emerging from thin air – but we are beginning to understand how the trick works.’

‘The first thing this new perspective makes clear is that the standard definition of creativity is completely wrong. Ever since the ancient Greeks, people have assumed that the imagination is separate from other kinds of cognition. But the latest science suggests that assumption is false. Instead creativity is a catchall term for a variety of distinct thought processes.’

Jonah Lehrer

---

System 1 Thinking – fast
survival oriented, recognise patterns, generalise from the particular
the ‘free spirit’

System 2 Thinking – slow
effort and attention, careful checking
the ‘referee/umpire’
A key tension in education

The tension we experience between ‘controlling/shaping/forming’ versus ‘educere’ – ‘unleashing the creativity from within’ is unavoidable!

System prescription --- Personal freedom

⇒ this is built into the nature of our brain-mind system

1. A holistic, free-form, pattern recognition system ⇒ freedom
2. A controlled, ordered, focussed mode ⇒ prescription

⇒ our best functioning, our best learning occurs when we integrate both.

Julia Atkin, 2012
Recent research exploring our two systems of thinking/processing uses random association word tasks to enable the participant to be aware of when each mode of processing is operating.

Try the examples on the next slides and ‘watch’ your thinking. One example of the task is provided.

Julia Atkin, 2012

Research on insight and creativity
What one word can be combined with each of the following words to create a compound term?

<table>
<thead>
<tr>
<th>LaGuardia</th>
<th>Tullamarine</th>
<th>Gatwick</th>
<th>airport</th>
</tr>
</thead>
<tbody>
<tr>
<td>measure</td>
<td>worm</td>
<td>video</td>
<td>?</td>
</tr>
<tr>
<td>hound</td>
<td>pressure</td>
<td>shot</td>
<td>?</td>
</tr>
<tr>
<td>home</td>
<td>sea</td>
<td>bed</td>
<td>?</td>
</tr>
<tr>
<td>mile</td>
<td>sand</td>
<td>age</td>
<td>?</td>
</tr>
</tbody>
</table>
In his quest to understand his own duality (holistic and analytical thinking expressed in art, music and engineering) as well as his quest to understand the ways of thinking and associated behaviours of colleagues, Ned Herrmann, inspired by findings of split brain research, developed a METAPHORICAL MODEL of human processing/thinking.

Although neuroscience would now present more sophisticated models of the brain than the models that inspired Ned in the 70’s, his Whole Brain Model of thinking and thinking preferences is still an extremely useful and powerful model of thinking processes and individual preferences in thinking. Like Daniel Kahnemann, Ned Herrmann captures the nature of the two systems of thinking. Ned charts the creative process as an integrative process involving many modes of thinking.

Ned Herrmann’s Whole Brain Processing Model

**Cerebral modes - abstract thinking**

A
- LOGICAL
- ANALYTICAL
- QUANTITATIVE
- FACT BASED

D
- HOLISTIC
- INTUITIVE
- SYNTHESIZING
- INTEGRATING

**Limbic modes - thinking stimulated by emotions and senses**

B
- PLANNED
- ORGANIZED
- DETAILED
- SEQUENTIAL

C
- EMOTIONAL
- INTERPERSONAL
- FEELING BASED
- KINESTHETIC

Herrmann, N. 1989, The Creative Brain, Brain Books
OVERVIEW

1. Creativity – what it is... what it is not...

2. The nature of creativity – elusive and illusive

3. Under what conditions is creativity nurtured?

4. Creativity for what?
When you think of creativity what is the first word that comes to mind?

REFLECTION

If your staff and students were asked to use the first three words that come to mind to describe the learning culture of your school, what would the ‘Wordle’ say?

A. Would it mirror the previous ‘Wordle’?
B. Would it show a balance between the words that come up for creativity AND and those that represent and ordered, structured environment?
C. Would it lean towards words that convey an ordered, structured controlled environment?

Julia Atkin, 2012

Nurturing its nature

How does one nurture creativity in a school setting?

Julia Atkin, 2012
CONDITIONS FOR CREATIVITY

1. **Cultivate the learning culture**
   - open, inclusive culture, prepared to take considered risks
   - quest to improve – professionally, and as learners
   - collaborative
   
   ‘*When ideas are shared, the possibilities do not add up, they multiply.*’ Paul Romer

2. **Deep knowing of students, mentoring relationships**
   
   Know who they are (inner drives and dreams) and help them become who they can be. Julia Atkin

3. **Students deep knowing of themselves**
   - passions, interests
   - as thinkers and learners – *metacognition → self direction*

4. **Design, design, design THEN plan**
   - pedagogy – *learning as a creative act!* Authentic projects, authentic assessment
   - curriculum – escape silos, embrace interdisciplinary approaches to problem solving and learning
   - redesign the industrial era, mass production ‘egg carton’ classroom -design ‘learning landscapes’ - environments/physical spaces, collaboration, ICT
   - use of time - reflection, ‘free time’ as crucial not a waste of time Julia Atkin, 2012

5. **Authentic, holistic learning experiences and performance**
   
   *(see next slides)*

6. **Personalise, personalise, personalise**
   
   Creativity is an extremely personal act – it emerges from within.

7. **Play, play, play…**
   
   Free form play of all forms – in art, in music, in games, in social settings, in sport, in physical play in the natural and built environment lay the foundations and patterns that provide the source for creative problem solving.
   
   Laura Schulz research [http://bcs.mit.edu/people/schulz.html](http://bcs.mit.edu/people/schulz.html) with pre-schoolers showing the different impact of **direct instruction → stifles creativity vs modelling of curiosity and inquiry → greater exploration by young kids**
   

8. **Bring in) newness, mix it up**
   
   Break routines, invite new ways to do things, bring in surprises, go to different places.

Julia Atkin, 2012
The task of the educator is not to put knowledge where knowledge does not exist but rather to lead the mind’s eye that it might see for itself.

Plato
INSTRUCTIVIST vs. CONSTRUCTIVIST PEDAGOGY

Learner initiates, chooses, directs
Teacher facilitates

Guide by the side

OR

Sage on the stage

In recent years, approaches to teaching have become caught in an ‘either-or’ conceptualisation of pedagogy.

What is required is not ‘either-or’, what is required is ‘both-and’.

Direct, explicit instruction

Reframing . . . going beyond ‘EITHER-OR’ to ‘BOTH-AND’

CONSTRUCTIVIST PEDAGOGY

Complex, holistic, authentic tasks
Learner initiates, negotiates, chooses, directs

Teacher facilitates

Nudging, prompting
Giving formative feedback

Modelling
Providing ‘scaffolds’

Direct, explicit instruction

A true ‘constructivist’ approach focuses on ensuring meaning and understanding are constructed in the learner’s mind.

At times, for certain students in certain contexts this might demand direct, explicit instruction or it might mean open exploration or it might require some approaches in between.

© Julia Atkin, 2007
Reframing... going beyond ‘EITHER-OR’ to ‘BOTH-AND’

CONSTRUCTIVIST PEDAGOGY

Complex, holistic, authentic tasks
Learner initiates, negotiates, chooses, directs
Teacher facilitates

Nudging, prompting
Giving formative feedback

Modelling
Providing ‘scaffolds’

Direct, explicit instruction

WHAT directs my teaching approach?

Knowledge of learners
Intentionality
-desired learning
-strategies to achieve
-make explicit to learners

Responsiveness
Learner self direction
- learner self reflection
- identification of need

FORMATIVE ASSESSMENT

Achievable challenge
Problem to solve issue to explore
Desire to perform, create, design
Question Wondering
Choice Negotiation Collaboration

Problem based learning Inquiry Model Authentic performance

Transformative learning

Learner purpose & intrinsic motivation

Achievable challenge
Problem to solve issue to explore
Desire to perform, create, design
Question Wondering
Choice Negotiation Collaboration

Problem based learning Inquiry Model Authentic performance

Holistic Multi-sensory

Openness

Form of expression
Different pathways
Able to be extended
Personalised level of achievement

Authentic or simulated real world context

Discovery Projects’ Key design elements

Assessment of process and product

Scaffolding of process
Accessible resources
Expertise
Formative feedback
Stimulate metacognition

Learner self reflection & self direction

Goal setting Identifying level of support needed Reflection

Self (Peer) Expert

© Julia Atkin, 2012

© Julia Atkin, 2010
Developing the capacity of learners to manage and direct their own learning requires a very deliberate, explicit approach laced with METACOGNITION.

At Discovery 1 School in Christchurch, NZ learners from kindergarten onwards learn how to direct their own learning. Obviously at first it is very highly supported by teachers and it leads gradually to autonomy.

Even from Year 1 learners are writing their own reflections on their learning in the form of ‘learning stories’ – managing and directing their own learning is taught just as explicitly as any other element of the curriculum.

When the learners engage in ‘Discovery Projects’ they use a metacognitive reflection tool to help them learn to direct and improve their own learning.

http://www.discovery1.school.nz/
OVERVIEW

1. Creativity – what it is... what it is not...

2. The nature of creativity – elusive and illusive

3. Under what conditions is creativity nurtured?

4. Creativity for what?

FINAL THOUGHTS

"We can’t solve problems by using the same kind of thinking we used when we created them.” Einstein

9. Have courage and be committed to unleashing the creative potential of your students to shape the future for humanity.

"Any intelligent fool can make things bigger, more complex, and more violent. It takes a touch of genius -- and a lot of courage -- to move in the opposite direction." Einstein

"Woof! Woof! Listen to me! We don't HAVE to be just sheep!”

Gary Larson  Julia Atkin, 2012