

## Imagination and Innovation: Creativity originality, play, genius

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## The phrasal lexicon

*(From my past in Artificial Intelligence)*

For a moment, the idea was that we might have in our minds a lexicon not just of words, but of sentences that got re-used repeatedly.

A little work soon showed that was wrong: most of what people say consists of sentences they have never uttered before.

Old elements (words) put into new combinations.

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## The phrasal lexicon (2)

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(Geoff's joke:)

I know all the words I'll be using in my PhD.

So now I just have to guess the right order to put them in.

The moral is:

Everyone is creative, innovative almost every time they speak;

So innovation is nothing at all special?

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## The task-artifact cycle

*(From my past in Human Computer Interaction (HCI))*

Many innovations are not foreseen by their inventors.

SMS texting

Post-it notes

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## The task-artifact cycle (2)

So actually, much real innovation is not predicted, and so not imagined, in advance.

Moral:

The truth is that innovation does not much depend on imagination

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## Trial and error

*(From my past in HCI)*

Incremental improvements, not imaginative bursts.

Automobiles 1900 - 2009

Play (trial and error with constraints)

Engineers are not good at imagining new things.

"Writing isn't writing, it's rewriting."

[P.Caputo A rumor of war p.349 (1977/96) (Pimlico: London)]

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## Trial and error (2)

Moral:

Feedback from the world (not imagination) is a major input to innovation.

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## Analysis vs. synthesis

*(From my teenage rejection of academic EngLit)*

Analysis (destructive) vs. synthesis (constructive)

Does academic study kill creativity? At 19 I thought yes.

But.

What is the role of articulating the meaning vs. enacting it?

Art schools require, every week for four years, each student not just to produce project work, but to defend it orally.

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## Analysis vs. synthesis (2)

Moral:

You need analysis in order to generalise from trial and error.

Theory (not imagination) is a major input to innovation

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## Summary so far

Three important elements of innovation are:

- Theory
- Play (trial and error with constraints)
- Feedback from the world

So innovation certainly doesn't only or mainly depend upon imagination.

Does it need it at all?

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## Teaching authoring / creative writing

*(What I learned from a PhD student)*

Marianne Patera ran a trial in a primary school, supporting (creative) writing classes by offering a virtual reality setting for them to write a story about. Try to avoid kids staring at a blank piece of paper.

The idea was in part to provide the background, leaving the creation of plot and character to each child.

This in part separates the language writing skills from the creation of the story; or at least supports it separately.

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## Judy Robertson

Her PhD work at Edinburgh was more innovative:

She had children create, not written stories, but computer games for other kids to play.

This too separates language skill from creativity, largely removing the former.

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## Computer games: the great new art form

The computer games industry has passed Hollywood in volume of money. If something is relatively under represented in the media, in academia, and so in subsidies; yet still attracts more money from the audience, then it deserves attention as a major player in our culture.

It is arguable that authoring a game is much harder than authoring a story. Imagining not how fictional characters might behave, but accommodating the real actual behaviour of the audience / players. It's hard abandoning the captive audience for an active one ...

Teaching vs. mere lecturing.

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## Authoring talks, not text

Ordinary talks with powerpoint are in fact a mixture of externally stored, pre-planned material (the slides) and internally stored performance that only emerges when the speaker presents. The powerpoint does not contain this elaborated form with all the extra information it often has. It relies on the speaker's power of spontaneous reconstruction on the fly.

Billy Connolly

This is the same point about authoring (and different styles of doing writing), but for managing 'giving a talk' rather than 'writing an essay'.

Styles of managing creativity.

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## Managing creativity: Theories of the writing process

*(What I learned from a PhD student)*

- Top down: writing a plan, then writing the text
- Bottom up: writing the text to discover what your message and structure are
- Multiple stages:
  - Read the literature, make notes
  - Thought dump
  - Plan for the audience
- In fact there's a different audience for different stages: writing first for yourself, later for an audience

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## Whether a person feels they are creative

*(What I learned from my present interest in Positive Psychology)*

Perhaps the important issue is whether the person feels creative, or presents themselves as creative.

(Perhaps we are all the same: we seek a balance between novelty (to avoid boredom) and repetitiveness (less effort, more reliable outcome)).

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## What is creativity?

'Thinking of new ways to do things is a crucial part of who you are. You are never content with doing something the conventional way if a better way is possible.'

*[Text from Signature Strengths questionnaire results for people who have 'creativity' as a strength]*

N.B. this implies how creativity can flow from critical thinking.

Alternatively innovation can be seen as coming from correcting the bad practices of the past in order to do it right: which is not being creative but seeing how to do it the Lord's way / the scientific way.

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## Elements

Elements:

- Enjoying creation without a recipe (set of instructions)
- And the feeling of confidence this gives
- Achieving a pleasing result
- The mastery feeling from DIY

Two alternative sources of confidence are available in general:

- Having a detailed plan (TD), verified by reasoning
- Success in your practice under varying conditions

So what am I saying about creativity / innovation?

It's just a feeling, and you can emphasise either sameness or difference

There is an actual difference in its management: preplanning or flexible practice

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## Seeing it either way

The biggest differences between people in creativity and imagination may be in whether they see themselves that way or not.

Disciplinary differences in whether a student must present themselves as 'original' or 'objective'.

Conversely, a valuable graduate attribute is to sense which the audience wants, then present their proposal to match.

Or we could say: innovation, creativity do NOT depend upon imagination: trial and error, and feedback from the world are just as powerful as generative forces.

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