creativity and ideation

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college of design
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alternative uses test
J.P. Guilford 1967

a measure of divergent thinking
The best way to have a good idea is to have a lot of ideas.

-Linus Pauling

R² = .82

"creative idea score"

total number of ideas

kudrowitz and wallace, 2010
the game of props
divergent thinking and age

land and jarman, 1998

percentage of age group having “genius” scores in divergent thinking

- age 3-5: 98%
- age 7-10: 32%
- age 14-15: 10%
- (200,000) adults: 2%

1600 children
divergent thinking and age

land and jarman, 1998

percentage of age group having “genius” scores in divergent thinking

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<thead>
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we are all capable of being creative.

“we are educating people out of their creativity”

-sir ken robinson 2006
creativity decline

Since 1990, creativity scores in America have consistently and significantly inched downward. The decline is “most serious” for younger children. All around us are matters of national and international importance that are crying out for creative solutions, from saving the Gulf of Mexico, to bringing peace to Afghanistan to delivering health care."

*Bronson and Merryman, Newsweek, 2010*

What was once central to corporations— the left brain, digitized, analytical work associated with knowledge— is fast being shipped off to lower-paid, highly trained chinese and indians, increasingly, the new core competence is creativity— the right-brain stuff that smart companies are now harnessing to generate top-line growth. the game is changing... It’s about creativity, imagination and above all, innovation.

*Bruce Nussbaum, BusinessWeek 2005*
associative theory of creativity (mednick 1962)

Cyrus McCormick

mechanical reaper
associative theory

Right, Posterior Superior Temporal Sulcus (PSTS)
processing novel metaphors in poetry (Gorana et al 2008)
novel connections between unrelated words (Mashal et al 2007)
RH equivalent of Wernicke’s area - linguistic creativity (Flaherty, 2005)

Right, Anterior Superior Temporal Sulcus (ASTS)
“Aha!” Experience (Jung-Beeman 2004)
Humor can be dissected, as a frog can, but the thing dies in the process and the innards are discouraging to any but the pure scientific mind. –E.B. White

**Humor and Creativity**

**Incongruity Theory**

**Superiority Theory**

**Release Theory**
Where does the general keep his armies? tents? army base?

In his sleevies. In an army base.

“armies” has two meanings what are sleevies?

a two stage mode of joke appreciation by Jerry Suls

humor and creativity
associative tools
association maps

associative tools
association maps

Form
Round
Flat
1-10 cm dia
associative tools
association maps
Biopsy Needle  →  Form: long thin tube  →  Finger Trap

figueredo, fienup, kudrowitz, wronski, slocum, brugge 2006
sometimes the most powerful ideas come from simply combining two existing ideas nobody else ever thought to unite. most inventions and breakthroughs come from reassembling existing ideas in new ways. - *pink*

**associative tools**

crossing products

“Reese’s Peanut Butter Cup Theory of Innovation”
associative tools

crossing products

gutenberg’s printing press

=  

+  

oldbookillustrations.com
associative tools
crossing products

"the enscribe" whiteboard table
associative tools
crossing products

The Strumbone:
the guitar played like a trumbone
associative tools

crossing products

cross products

toothbrush
vacuum
flower pot
Write down the name of three products

Exchange
1. Playfulness and creative abilities are correlated.

- Quality of playfulness correlated significantly with measures of divergent thinking (Lieberman 1965)
- Strong correlation between social make-believe play and divergent thinking measures (Johnson 1976)
- Expression of affect in play was significantly, positively related to divergent thinking (Russ and Grossman 1990)
- Divergent problem-solving skills facilitates the development of play skills and vice versa (Wyver and Spence 1990)
- Quality of fantasy and imagination in early play predicted divergent thinking over time (Russ et al. 1999)
doesn’t play just lead to silly ideas?

2. uninhibited thinking can lead to discovery
doesn’t play just lead to silly ideas?

3. **playful products can be more effective products**

Products and systems that make you feel good are easier to deal with and produce more harmonious results

- Norman
doesn’t play just lead to silly ideas?

3. playful products can be more effective products

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doesn't play just lead to silly ideas?

4. silly ideas today may be innovative ideas tomorrow

“If at first, the idea is not absurd, then there is no hope for it.”
~Albert Einstein
doesn't play just lead to silly ideas?

4. silly ideas today may be innovative ideas tomorrow

1995

“My next guest is a charming grifter with a record as long as your arm. Let's give him a big 'Jaws of Justice' welcome.”
1. Defer Judgement.
   NO EVALUATION

people become self conscious

evaluation = left brain
creativity = right brain

Switch Left Brain to Silent Mode
types of ideation

Free Form or Intuitive Methods

- Group Writing:
  - Brain Writing
  - Brain Sketching
  - Collective Notebook
  - Pin Cards
  - KJ Method
  - Trigger Sessions

- Free Writing

- Brainstorming

New Perspectives techniques

- Lateral Thinking
  - Challenging Assumptions
  - Boundary Relax
  - Negative Brainstorm
  - Reversal Exaggeration

- Rolestorming
  - 6 Thinking Hats
  - Super Heroes
  - Disney Method

- Progressive Revelation
  - Laddering

Structured or Logical Methods

- Morphological Analysis
  - Attribute Listing
  - Potential Problem Analysis
  - FRODPARRC

- TRIZ
  - ARIZ
  - ASIT
  - SCAMMPER

- MORPHOLOGICAL ANALYSIS
- ATTRIBUTE LISTING
- POTENTIAL PROBLEM ANALYSIS
- FRODPARRC

Associations techniques

- Provocation
  - Bunches of Bananas
  - Excursions

- Brutethink
  - Analogies
  - Force Fit
  - Focal Objects

- Mind Mapping
  - Free Association
  - Association Mapping
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