What is Creativity?

- The making of something unknown (for you?)
- A novel way of doing something
- Reuse artifact/method in new context
- Take on a new perspective

- Creativity can be deliberate or by chance
- Everyone CAN be creative (not everyone is)
Creativity

Something outside of the box
How to furnish Creativity?

- Creativity does most of the time not just come into existence.

- It has to be promoted.

- Theory?
Theoretical approach

- A couple of stages:
  1. **Preparation** – defining the problem
  2. **Incubation** – putting the problem aside
     - Three B:s – Bed, Bath, Sauna…
  3. **Insight** – gather inspiration – observe design
  4. **Verification** – does it really work?
  5. **Implementation** – make it happen

- How to achieve this?
Are you sleeping?
Are you sleeping?

No, I am being creative!!!
Prerequisites

- Understanding of problem area
- Technology skill – abstract from procedure
  - Compare to a good cook (!)
- Motivation, stubbornness and endurance
- Focus
- Discipline
- Hard work is not always a success
  - Physical activities inspires new thoughts
  - Completely different activities may help
Inspiration
Some Approaches

- Not theoretically grounded, but they seem to work!

- Find YOUR own approach!
  - You might do it differently!

- Free YOUR mind!
Inversion (Tõnis Tõnisson)

- Use negations – the opposite
- Negate or inverse your problem
  - How can I make people walk on the roads?
  - How can I make roads where people walk?
- Thinking outside the box
  - Get rid of limitations that YOU put
  - Unpredictable
- Not solving the problem, but changing the problem (and the solution)
Analogies - Metaphors

- Find Analogies or Metaphors
  - A thing that reminds us of something else
  - We can see similarities
    - Camera – eye

- Select a random object, and compare attributes:
  - A book has a protecting cover, like a car has a bodywork for protection ➔ paint art on the cars!
Collect examples

- Can I use this for something?
- What does it look like?
- What thoughts do I get?
What if...

- What happens when it falls?
- How did the tree get up there?
- Could I change the balance?
- What does the chair look like?

Teufelstisch, Pfalz, Germany
A cockpit!
A cockpit!
A cockpit!

Similarities? Differences? Analogies? Transfers?
Desktop Metaphor, Xerox 1981
Desktop Metaphor, Mac 1983
Visicalc, 1979 (Excel)

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**SUBTOTAL** 13155.50

**9.75% TAX** 1282.66

**TOTAL** 14438.16
How it happened

As a professor was giving a lecture, he found an error in a single cell and was forced to change the value in every other cell. Bricklin imagined his pocket calculator (a TI Business Analyst) outfitted with a small trackball, like the mouse demonstrated by Douglas Engelbert several days before at Harvard, and a simple interface that would allow him to create spreadsheets that could be corrected and redone on the fly.
Non-creative solutions?
Help or Helpful?
Change Conditions

- **What if... - solutions**
  - Display the assumptions/limitations
  - Examine what will happen if you change or remove the assumptions
    - What if software/travel/news were free?
    - What if gravity were negative for one minute each day?

- **Extrapolate problem**
  - Will it scale? Will it reduce?
  - Can it melt? Will it freeze? What if?
    - Eric Drexler - nano
Change old patterns

- View the normal as the strange, and the opposite – difficult, but practise…
Change old patterns

- View the normal as the strange, and the opposite – difficult, but practise…
- Try out something new
  - take a different route
  - talk to strangers
- Combine two completely different ideas
- Do the unexpected
Change view…
Use randomization

- Pick-a-Card
  - Write down words on small cards
  - Put pictures on small cards
- On-line word generators
- Text scramblers
- Important to use FIRST word/association one gets
  - Once caught - refine and associate further
Right side of brain

- Left part – language
- Right part – creativity

- Working with right side may bring new answers
  - Wordless creation, images, pictures
  - Collages

Free Mindmapping
Collaging/ScrapBooking

- Paper + magazines + glue
- Computer-based tools
  - Picasa, PowerPoint, etc.
- Imagination
- Perspective
Ask Questions!

- A formal scientific deduction
  - But also a creative game!
- Find causes and contexts
  - Why?
  - What?
  - Where?
  - When?
  - How?
  - Who?
Listen to "undamaged" children!

- "There was one thing that was strange with the robot!"
Listen to "undamaged" children!

- "There was one thing that was strange with the robot!"
- "Yes?"
Listen to "undamaged" children!

- "There was one thing that was strange with the robot!"
- "Yes?"
- "Well, it talked to me in English, but it understood when I spoke to it in Swedish! Isn’t that straaange?"
- *That it had done several tasks at her instructions and followed her around the house was NOT strange!*
Followup the questions!

- Why do so many die in traffic accidents?
  - Because people do not watch out.
- Why do people not watch out?
  - Because they get easily distracted and don’t look around themselves.
- Why don’t they look around themselves?
  - This is not taught in schools anymore, maybe cause it is difficult to teach.
- Why is it difficult to teach?
  - Because…
  - And so on…

- Somewhere along this question-answer chain we might find the ”real” answer we want.
Lower your standards

- William Stafford
  - Writer’s block
  - Training
  - A Poem a day!

- Critique is less harmful
Brain storming

- Stimulates creative thinking in groups
- Own ideas based on other’s
- Moderator – presents a problem and make sure the rules are followed:
  - Positive thinking – no stupid ideas (maybe rejected but not stupid)
  - Interruptions not allowed
  - Never criticize other’s ideas
  - Select the best ideas afterwards
  - Document!
Some notes…

- All ideas should be documented
- Critique delimits – no premature critique
- Use efficient tools, simple tools are preferred!
- Practise makes expert

- Learn (force yourself) to:
  - Use existing things, the room etc.
  - Change perspective
  - Use your tools
Brain food

- Think about how to design a "Hi-Fi switch"!
- How can you make a system easy to connect and configure, so that you can send sound and picture from one unit to another!

- Ease of use!
- Novel ideas!
- Analogy
- Principles, not details, first!!