



Where did we leave it?

- Explored creativity blocks
- Reviewed your answer to the homework question
- Analyzed some definitions about creativity and innovation
- Gave some definitions we will use in this course



Definitions of creativity

- Definitions:
 - My Mac: “The use of imagination or original ideas, especially in the production of artistic work.”
 - Wikipedia: “Creativity (or creativeness) is a mental process involving the generation of new ideas or concepts, or new associations between existing ideas or concepts.”
 - Google:
 - ...
 - “*An increasingly rare crime.*”



The basic pieces that kept repeating

- Imagination
- Mental process
- Ideas (original ideas)
- New associations among existing ideas
- Problem solving oriented (What about Jackson Pollock, Salvador Dalí, Edgar Degas?)
- Problems worth to solve (Who decides?)
- Only possible in presence of a problem (What about activities?)
- Sharing! (Very few consider it a social process)
- Iterative process (old gets revamp into something new)
- Reality construction
- Diversity!!! (Very few, remember the dancing and tomato chunks)



Creativity strata

- Individual activity
 - How we can boost individuals creativity
- Group activity
 - If it can be boosted in individuals, why not to boost it in groups
- Social component
 - Creativity and its diffusion processes



Creativity and innovation?

- Let's make one distinction
- Creativity:
Act of generating a new idea, concept, or association of ideas, from scratch or pre-existing ones.
- Innovation:
“Creativity + commercialization = innovation”
- *Why most of the previous definitions focus on individuals?*



The genius approach

- Wallas, G. (1926). *The act of thought*. Harcourt, Brace and Company
- Background social psychologist and educationalist
- Model creative processes using four basic steps:
 1. Preparation (*What?*)
 2. Incubation (*Also take advantage of unconscious processes*)
 3. Illumination (*Eureka!*)
 4. Verification (*Test your idea*)
- Individual process
- Remember: Innovation = creativity+commercialization
- Are you the measure of the world?



Groups

- Osborne realize that a group can be a powerful force
- Proposed the brainstorming method (see the reading material)
- Massively adopted (even in every day's language)
- Needs careful usage
 - Moderator is crucial to the success
 - Participants need to follow exact rules
 - Avoid personality interferences in the process
- Problem: people has proposed different models for different strata (idem with the social one and the studies about innovation)
- You may never guess what discipline has a long tradition of studding innovation



What? Genetic Algorithms?

- John Holland
 - A book: “Adaptation in natural and artificial systems”, MIT Press, 1975.
 - Population-based search methods (diversity)
 - Based on natural evolution principles (social and environment driven selection)
- David E. Goldberg
 - A book: “The design of innovation”, Kluwer/Springer, 2002.
 - Methods with sound theory about how to properly design them
 - Proposed the *innovation intuition* = GAs as models of human innovation
 - Let’s look at the basics



Two modes of GA innovation (II/II)

- Selection + crossover = innovation.
 - Another facet of human innovation is the so called *cross-fertilizing innovation*.
 - People usually grasp a set of good solution features in one context, and a notion in another context and juxtaposing them, thereby speculating that the combination might be better than either notion taken individually.
 - Taking together selection and crossover, GAs are a computation model of *cross-fertilizing innovation*.



Lessons from competent GAs

- Goldberg's recipe to success
 - Know what GA processes: Building blocks (BBs)
 - Ensure BB supply
 - Ensure BB growth and speed (takeover time, t_o)
 - Ensure good BB decisions
 - Ensure good BB mixing (innovation time, t_i)
 - Know BB challengers
- Theory show how to design such process to work properly (e.g. $t_i > t_o$)
- Now replace **BB** by *idea* or *concept*. Replace **GA** by *social creativity/innovation*.



Decomposing the facets of creativity

- Facets of creativity
 - Know what *social creativity* processes: Conceptual Abstractions (CAs)
 - Ensure CA supply (get a good start)
 - Ensure CA growth and speed (avoid diversity lost and drift)
 - Ensure good CA decisions (individual, group, social)
 - Ensure good CA mixing (no unjustified/emotional criticism)
 - Know CA challengers (creativity blocks)



Enough theory! Let's play!

- Your projects for the course
- Your interests
- Our brainstorming session



What will we do in the next lecture?

- Start the review of people-centered technologies
- We will focus on the web
 - Blogs
 - Wikis
 - Broadcast sites
 - Etc.
- Complicated technologies?

