

Problem solving

How do you solve problems?



Crearum

Problem solving

A problem:

A problem (Ekdahl) emerges when a person want to achieve a certain goal or want to be in another situation but faces obstacles in her strive

Someone in

situation A → obstacle → wanted situation B

Three factors: a person, obstacle, goal



- Varje problem är på sätt och vis unikt. Ändå kan man göra två stora indelningar (efter Rollof): Fixa problem och fria problem
- Fixa problem:
- Är fixa (dvs det är klart och tydligt vad det rör sig om):
 - Tappat paddeln på kajakfärden
 - Dörrlåset på bilen går inte upp en vintermorgon
 - Alltså: nåt som fungerade tidigare funkar plötsligt inte nu
- De gäller också något som behöver "fixas"
 - Det är något som måste fixas NU – akut.
 - Ta tag i paddeln NU
 - Avfrostningsmedel till bilen *är* det man behöver
 - Överhettningen i kärnkraftverket
 - Alltså snabba beslut snarare än djup analys.
- Fria problem
 - Har ej färdig lösning
 - Många frihetsgrader i lösningarna
 - Ofta sprungna ur frågeställningar vi själva skapar
 - Lite annan syn: "Varför tappas paddeln" : Slippriga kanotvantar, kan den fås att självmant komma tillbaka till mig?
 - Innehåller möjligheter
 - Uppfinnande och (idealt) forskning typiskt fritt problem
- Notera att löser vi fria problemen kommer vi till en högre och bättre nivå.
- Lösning på fixa problem ger status quo.
- Lösning på fria problem ger utveckling.

KREATIVITET

Key words

guts

STRUCTURE

playfulness

Do not forget
Realisation

Well-defined problem

(Social) environment,
spirit, group dynamics

The multitude of personal traits

Scientific roots

evaluate

Brinner för god , svensk
innovativ forskning

Mindfulness
Ability to observe, reflekt

Demystifying

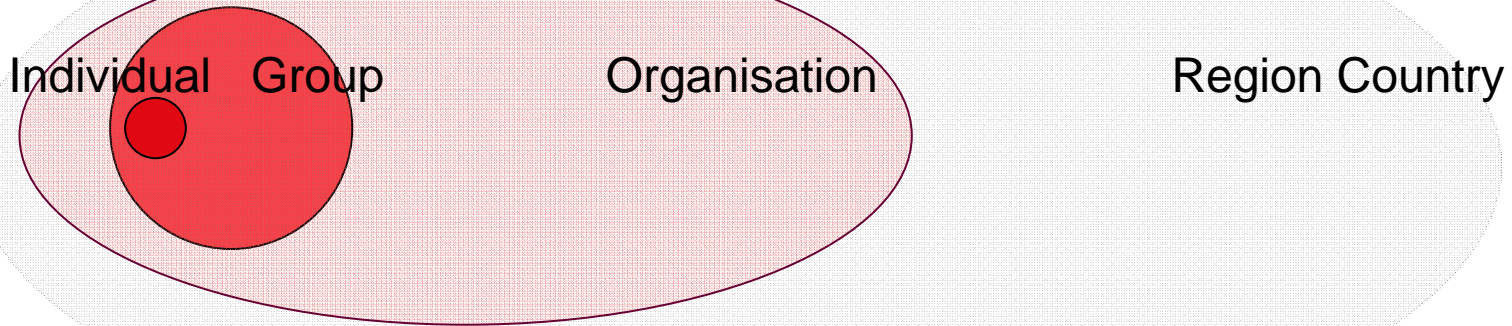
Definition

What are the *carriers* of creativity?

- A person,... Is she creative?
- But the word *creativity* is also used when discussing problem solving, i.e. a process . Creativity is to solve a problem in a new way or solve a hitherto "unsolvable" problem.
- Or focus on the product i.e. a thing, an artefact, a thought, a theory, an idea (which has to be expressed in words or text to be observable), a scientific article.
- There are also creative environments (Silicon Valley, Wien around 1900, Centre for Advanced Studies at Princeton 1940 and of course an excellent research group...)



Definition – Creativity on different levels



Scientific heritage and platform

Cognitive psychology
Intelligence research , expertise, learning
Guilford, Gardner, Csikszentmihalyi

Neurology
Sperry

Lab studies
ethnology

Innovation research
samhällsvetenskap
Rogers *Diffusion of Innovations*

creativity

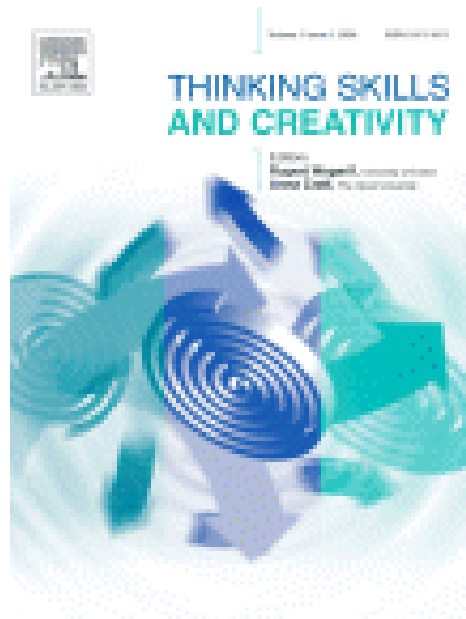
Metaphoric
Lingvistics
Lakoff

Management
Economy
Koestler
I Kahneman, Slovic, Tversky:
Judgement under uncertainty
: heuristics and biases

Design theory
Tacit knowledge made explicit
Jones:Design Theory

Characteristics...

Scientific Journals:



15 Types of Problematic Thinking

Filtering: You take the negative details and magnify them while filtering out all positive aspects of a situation.

Polarized Thinking: Things are black or white, good or bad. You have to be perfect or you're a failure. There is no middle ground, it's "all or nothing."

Overgeneralization: Coming to a general conclusion based on a *single* incident or piece of evidence. If something bad happens once, you expect it to happen over and over again.

Mind Reading: Without them saying so, you *know* what people are feeling and why they act the way they do. In particular, you are able to tell how people are feeling toward you.

Catastrophizing: You expect disaster. You notice or hear about a problem and start "what ifs". What if tragedy strikes? What if it happens to you?

Personalization: Thinking that everything people do or say is some kind of reaction to you. You also compare yourself to others, trying to determine who's smarter, better looking, etc.

Control Fallacies: If you feel externally controlled, you see yourself as helpless, a victim of fate. The fallacy of internal control has you responsible for the pain and happiness of everyone around you.

Fallacy of Fairness: You feel resentful because you think you know what's fair but other people won't agree with you.

Blaming: You hold others responsible for *your* pain. Or, you take the other tack and blame yourself for every problem or reversal without regard to external causes.

Shoulds: You have a list of ironclad "rules" about how you and other people should act. People who break the rules anger you and you feel guilty if you violate the rules.

Emotional Reasoning: You believe that what you feel must be true- automatically. If you *feel* stupid and boring, then you must *be* stupid and boring.

Fallacy of Change: You expect that other people will change to suit you if you just pressure or cajole them enough. You need to change people because your hopes for happiness seem to depend entirely on them.

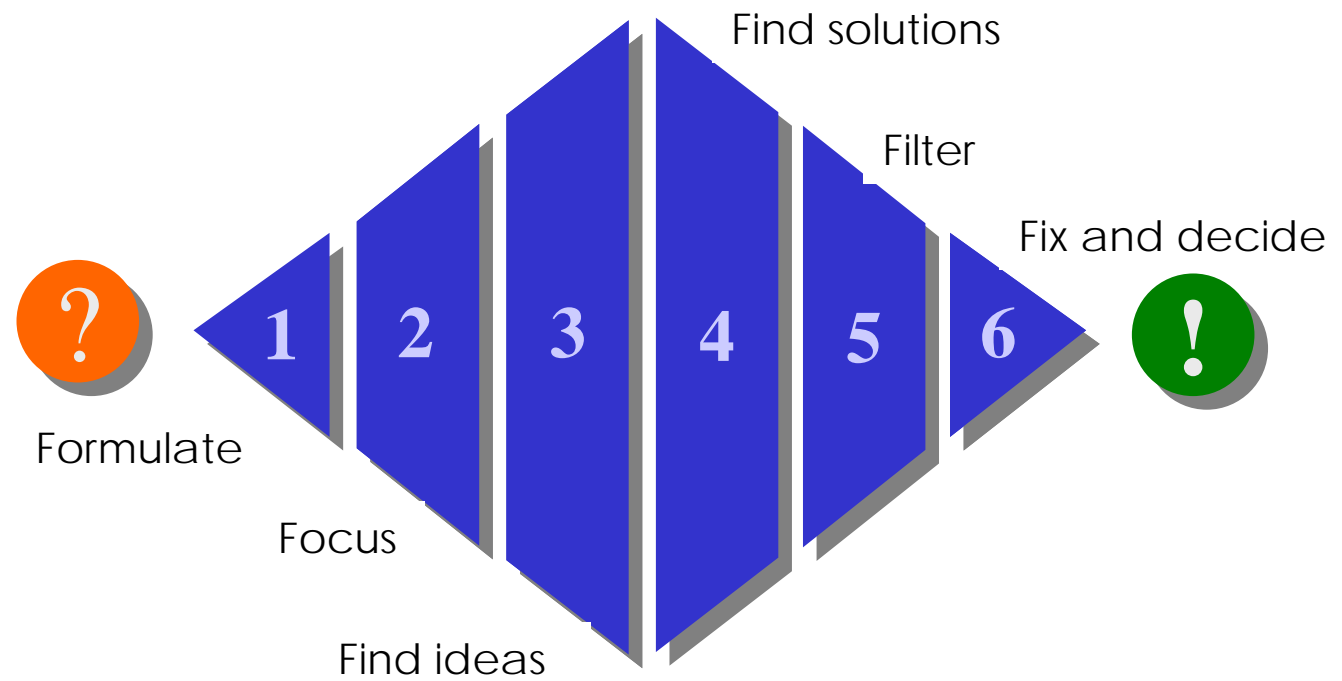
Global Labeling: You generalize one or two qualities into a negative global judgment.

Being Right: You are continually on trial to prove that your opinions and actions are correct. Being wrong is unthinkable and you will go to any length to demonstrate your rightness.

Heaven's Reward Fallacy: You expect all your sacrifice and self-denial to pay off, as if there were someone keeping score. You feel bitter when the reward doesn't come.

KREATIVITÄT

Our scheme for idea generation and idea handling



- Relevant task
- Focus
- Structure
- Relaxed environment
- Positive attitude
- Mutual dependence
- Free-wheeling
- The importance of everybody
- Confidence – unprestigious
- Plurality

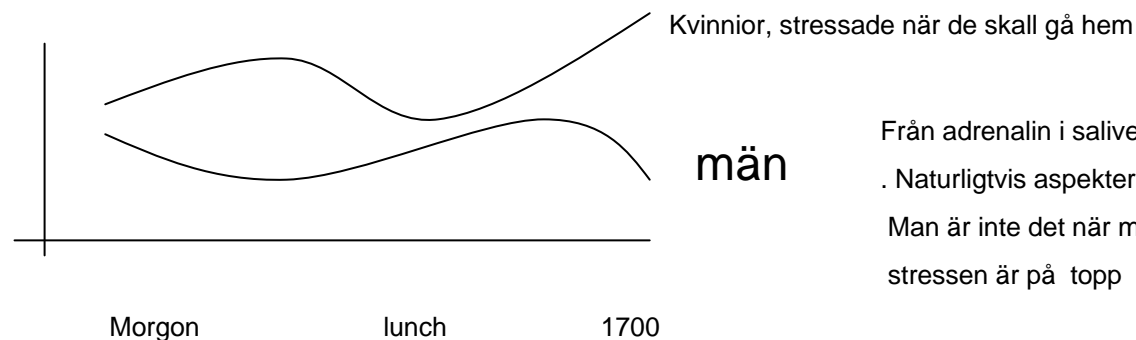
Närvaro och koncentration

När kommer ni på saker? När är man kreativ?

Vad säger ni?

Ofta brukar svaret bli – när man skall somna, när man just vaknat, när man går med hunden, springer i skogen

Ofta HARMONI och INTE analytiskt logiskt



Från adrenalin i saliven på folk på Volvo
. Naturligtvis aspekter på när man är kreativ..
Man är inte det när man kommer hem om
stressen är på topp

I stressforskningsammanhang talar man om tre saker som befrämjar salutogent dvs att vara en full människa vid hälsa: Tre nycklar som också befrämja kreativitet!: Mindfulnesssträning stimulerar förmågan att se på verkligheten med ett barns eller en nybörjares ögon, kan styras med andningen, medvetandegör denna, sömn (det finns ingen med utmattningssyndrom som INTE har sömnproblem), motion, som ger lugnare, gladare msk och ökad celltillväxt.

Characteristics

Ofta arbetar man i kreativa verktyg med en annan typ av kunskap och kanske andra sinnesförmågor än vad man är van vid.

Vi är mycket syn och logik-varelser.

Kreativa verktyg kan arbeta med taktil, haptisk, audiell varelse

Typiska attribut blir därför vita tavlor, färgpennor, olikformade notisar, tankelandskap (mind map), det finns speciella tänkarhattar, olika kort, man kan lyssna på musik eller sitta och leka med legobitar samtidigt som man hör på en föreläsning osv

Ofta är det ganska glattigt, tjo och tjim, "bejaka olika sidor av sig själv". Man försöker arbeta med laterala tänkandet

Litteraturen ofta ganska glattig och förenklande (jfr neurologi)

Stort behov av hjältar(Einstein, da Vinci) Vanligt i amerikansk populär kreativitetslitteratur. En sorts auktoritetstillit.



Brainwriting (Swe: spånskriva)

Rules:

- Moderator who presents the problem. Motivating! Narrow enough! Wide enough! Potential! Often a How-question is good.
- Reformulate it. Define its parts.
- Take notes (Secretary appointed).

- No negative criticism! Only criticism towards those who are critical!
- Don't interrupt
- Filter AFTERWARDS
- Associate
- Free wheeling

- Document and distribute

“How do I make my research group more creative?”



Characteristics

Creativity is not the same as knowledge!

Creativity and productivity are not the same!

(Weisberg: Creativity Beyond the Mystics of Genius)



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Creative leadership

1. Formulate visions and missions
2. Combine the perspective (i.e. driving forces?) of the individuals and the organisation
3. Enthusiasm <-> demands
4. Catalyze the creativity – involve others!
5. Understand creative processes
6. Observant on handle (good or bad) ideas. How..?

Källa: Rolof 1999

Avslutning

To sum up

We have...

...hopefully experienced the demystifying of creativity



...worked with pictures (visual perspective). Mind maps

...worked with wire (motoric perspective)



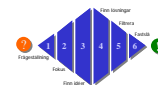
...pinpointed the importance of the individual and her needs.

... been mindful. Observed. Reflected. Conceptualized.



...emphasized the importance of problem formulation “How can we...?”

...emphasized the importance of STRUCTURE



...emphasized the impact of environment and leadership on creativity

..tried brainwriting (knowledge inventory, decision guiding, democracy, idea generation)

...experienced some blockings

Business idea

” Crearum adds creativity to individuals and organisations by encouraging them to think in new ways and to realise their ideas thereby enhancing their ability to bring about change.”



Crearum

Final

Good books:

- Jan Rolloff [Ledarskap för kreativitet : att vistas i framtiden](#) 2004 , [Jongla med idéer : en liten bok om kreativitet](#)2004 , [7 falska sanningar om kreativitet](#) 2002 ,[Kreativ & effektiv problemlösning](#) , [Kreativitet inom forskning, kultur och näringsliv](#)
- Ekdahl: Kreativitet och problemlösning
- The Idea Edge

Evaluation

1. This was of value to me....
2. This was difficult or badly explained...
3. This could be excluded...
4. I want to hear more about...
5. Creativity tools are a) just wishy-washy b) nothing special c) useful
6. I prefer traditional lectures – agree or not.
7. I do not like excercises as tonight.,where you have to act with others

