

Creativity In Practice

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„Creativity In Practice“

Materials

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On a Personal Note

These are the materials for the session “Creativity in Practice” at Spa 2007. This is not meant to be an exhaustive summary of all creativity techniques there are nor is it meant to be a scientific paper.

I just spent some time thinking about what I would appreciate in creativity materials, and it seemed to me that a collection of techniques and ideas, sometimes just described very briefly with a link on where to read up more, would be what would help me most in putting creativity techniques into practice.

I hope that you enjoy the session – and profit from the session and from the materials.

Marina Haase

P.S. If you have any questions about the contents or related issues (communication techniques, moderation etc.) feel free to send me an email – I’d be happy to hear from you – and maybe I can be of help ;-)

Acknowledgements

I would like to thank my session shepherd Mark Dalgarno for his valuable feedback which really helped me improve my session and my materials. Thanks for your time, your effort, your questions, your criticisms and your encouragement!

I would also like to thank my mother Dorothy Lehmensick for proof reading my text and ensuring the style is readable.

The picture on the cover is from www.bigfoto.com an internet site with a whole lot of great pictures that can be used for free if referenced.
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1. Introduction to Creativity

"You can never solve a problem on the level on which it arose."
Albert Einstein.

Creativity is important for problem solving in everyday business life. Ever so often we get stuck and can't break out of our rigid thinking patterns and wish for a flash of creative brilliance.

This is where creativity techniques come in.

In themselves they obviously do not solve the problem but they help connect us to our inner creativity and, especially in groups of people, can be effective in helping us combine different, individual ideas in order to find a good solution.

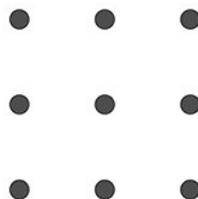
On the other hand, creativity techniques are often used synonymously for chaos and aimless time-wasting. Maybe they sometimes are. But used in a structured way, methods for enhancing creativity can save time and be effective.

Why Creativity Techniques?

"It is easier to tone down a wild idea than to think up a new one."
Alex Osborn

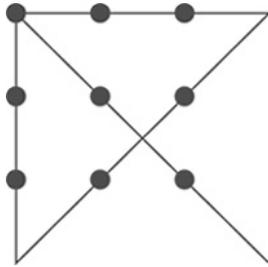
What is the basic idea underlying creativity techniques? And why are they important for us? What exactly are they for?

To start off with, let's take a look at a fairly well-known problem, the Nine Dots Problem: Using a crayon, connect the displayed nine dots with as few continuous lines as possible.



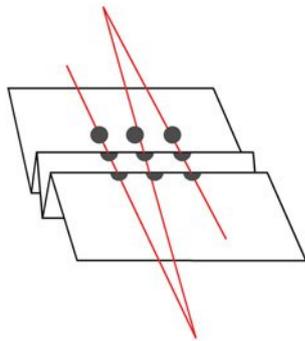
Possible solutions are as follows:

Four Lines



Possible as soon as one realises that one does not have to stay inside the box.

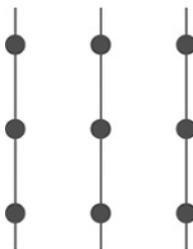
Three Lines



... when allowed to fold the paper and change the size of the box as well as going outside of the box.



... when one gives up perfectionism and realises that one does not have to go through the centre of each dot.



In mathematical terms, parallel lines are sometimes considered to meet in infinity. So when one changes the

context...

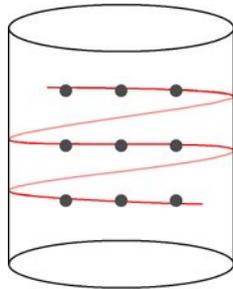
One Line



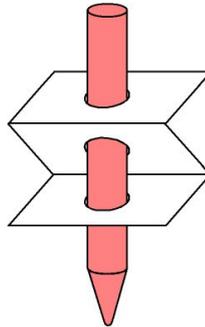
...when one peels the wrapper off the crayon, turning it sideways, and swiping the crayon down over the nine dots.



...when one cuts up the paper and arranges the dots in one line.



... when one folds the paper into a cylinder



... when one folds the paper in three, so the rows of dots all line up, and folds it again and uses a sharp instrument to make a hole through the paper and pokes the crayon through!

The solutions to this puzzle are simple when one knows them. But it can illustrate important aspects of creativity.

1.1

Question the Assumptions, Think Outside the Box

Columbus challenged the Spanish courtiers to stand an egg on its end. They tried but failed. He then took a hard boiled egg and squashed it down. "That's not fair" they protested, "You broke the rules." "Don't be silly. You just assumed more than you needed to."

First and foremost it is important to analyse the definition of the problem, the problem context and the rules. If one starts out with the basic assumption that the

lines have to stay inside the box and be lines in the orthodox sense of the word – then one does not arrive at any of the displayed solutions. So it is important to ask the question: What are the assumptions in the problem? What are the rules? Is the definition of the problem correct?

Because it is so difficult to analyse the subconscious workings of our mind, sometimes it helps to use creativity techniques – to help us question assumptions, question thinking pattern and hereby arrive at more possibilities for solutions.

Often we are blinded by what we expect to see ...

As an example, take for example this figure¹:



What does this figure symbolize?

¹ Illustration taken from Thinkertoys, Michael Michalko p 10.

A B C
12 B 14

A 13 or a B – it depends on the context:

Which shows us: We see what we expect to see. And the things we see take their meaning from the context in which they are placed. So sometimes we have to take things and put them outside of their context.

1.2. There is Not Only One Way to Reach a Solution

"The most dangerous phrase in the language is, 'We've always done it this way.'"
Grace Hopper, 1906-1992, Computer pioneer

One also realises that there are mostly several different ways to reach a solution – they all have different consequences and so are also feasible for different settings. Because of this it is important to gather as many ideas as possible in the first place but then also to evaluate these ideas. Not every idea will fit the problem setting. Here evaluation techniques are important – but without creativity techniques there would be fewer ideas and the problem setting would not be understood as well. Creativity is about learning to use intuition in the problem-solving process as well as in logical thinking. It is about combining the two.

1.3 Different Perspectives

"Discovery consists of looking at the same thing as everyone else and thinking something different."
Albert Szent-Györgyi

And there is another point: sometimes hard work, spending a lot of time will not help us solve the problem. We need a new idea, a new way of looking at things. Creativity is important for us and our problem-solving skills because we tend to see things from one perspective and mostly the situation can be looked at from

different perspectives. Theoretically we all know this – but in everyday life we can overlook this and so miss a legitimate perspective and miss part of the solution. (For an illustration of this see supplement 12.1 on perceptual ambiguity). Sometimes we even get so close to the problem that we lose sight of what we are trying to reach. And sometimes we've forgotten how to listen to a hunch – which can be really helpful in solving problems. Creativity techniques help see the situation from a totally different perspective.

1.4 Use Group Synergies

“Individually, we are one drop. Together, we are an ocean.” Ryunosuke Satoro

“No one can whistle a symphony. It takes an orchestra to play it.” H.E. Luccock

Creativity techniques help us combine different perspectives in groups and find a better solution. Consider the Indian Legend of the six blind men and the elephant (supplement 12.2). If the six men had put their knowledge together constructively they would have come nearer to understanding what the elephant actually looked like. Creativity techniques help use the fact that everyone sees the world differently and use these different perspectives in a group to help arrive at a better solution.

1.5 Summary

“Creativity requires the courage to let go of certainties.” Erich Fromm

Creativity techniques are tools. They are not solutions to every problem. Just as a hammer will not solve every problem you have in mechanical work – they will not always help. The goal of this paper is not to say routines are bad and one should try to solve every problem differently every time it crops up. Routines are helpful in order to structure one's working life. Patterns that describe how to solve problems that occur regularly are helpful and essential to getting anything done at all. But it is about questioning routines every so often. This paper is also not about rejecting logic as a way of thinking for solving problems. It is about the timing. Creativity techniques without logic are bound to fail and become what the prejudices say they are chaotic and time-wasting. But logic sometimes falls short of finding the best solution if it relies on the patterns of thinking that are common. So this paper introduces one possible process for combining logical thinking and “creative” thinking to optimise the way some problems are solved.

2. Questioning is the Key

"In all affairs it's a healthy thing now and then to hang a question mark on the things
you have long taken for granted."
Betrand Russell.

Questioning and questions are one of the most important factors in creativity. Questioning is the key to solving the problem and to seeing new perspectives. Sometimes just using different questions can help solve the problems without having to use any "strange" creativity techniques.

2.1 The Why Question

This technique helps to find the problems or aspects of problems underlying the original problem.

To start off with you have a problem statement. Then you merely ask "why?" a lot. Why does one want to solve the problem? Why is this a problem? Why do we see things this way?

For further references see: http://www.mycoted.com/Why_Why_Why

2.2 What Would Happen If We Did Nothing?

This question helps you get a better idea of the benefits from solving the problem and secondly one will have generated some alternative problems to solve by discussing what consequences it would have to do nothing.

2.3 Fantasize

Wouldn't it be wonderful if ...? Imagine that there were no obstacles, no limits to your abilities, What would you do? What would the solution look like?

2.4 Five Ws and H

"I keep six honest serving men: (they taught me all I knew).
Their names are What and Where and When And How and Why and Who."
From The Elephant's Child by R. Kipling

Further questions can be found at:

http://www.mycoted.com/Preliminary_Questions

http://www.mycoted.com/Dimensional_Analysis

2.5 Disney Creative Strategy²

Dreamer: What do I want in an ideal world?

Realist: Determine what is realistic. What will I do to make these plans a reality?

Critic: What could go wrong?

2.6 Osborn Checklist

http://www.mycoted.com/Osborn%27s_Checklist, also sometimes referred to as SCAMPER

S – Substitute?

C – Combine?

A – Adapt?

M – Magnify? Modify?

P – Put to other uses?

E – Eliminate?

R – Rearrange?

2.7 Repeated Abstractions³

a. What is the goal? What are we trying to achieve?

b. How can we reach the goal?

c. What is the essential factor here?

Repeat as many cycles of these questions as necessary.

2.8 Question Checklists

<http://www.engin.umich.edu/~problemsolving/strategy/cthinking.htm>

http://www.mycoted.com/Implementation_Checklists

² Klein p. 151.

³ Mencke p. 80.

3 Problem-solving Process With Brainstorming at the Centre.

There is always a third possibility.

As already mentioned above there are a lot of prejudices that say that creativity techniques are chaotic and do not actually result in anything. If they are not embedded in a problem-solving process this is probably true. For this reason it is essential to follow a problem-solving process. In my opinion it is not really important which process one follows. There are whole creativity techniques that describe a process, cf. section on Alternative Creativity methodologies

I will just introduce a rather simple process based on using brainstorming since this is probably the most feasible in every day business life. As we all like acronyms I have chosen the process DO IT (cf. mycoted).

DO IT is an acronym that stands for:

- D – Define problem
- O – Open mind and apply creative techniques, structure the ideas
- I – Identify best solution (evaluate, maybe refine)
- T – Transform (Take action!)

Often it is a good idea to evaluate the process of problem-solving in order to improve it for next time.

In the following I will go through the first three points and describe different techniques to use in the different phases. There isn't really very much to be said about the last phase. Basically it is important to define which next steps will be taken by whom and by when. It is also important to have someone follow up. Otherwise there is a good chance that nothing will be done.

4 Problem Definition

"If you don't know where you are going, you will probably end up somewhere else."
Lawrence J. Peter

"If one does not know to which port one is sailing, no wind is favourable."
Seneca

Before you solve a problem it is really important that you understand what the problem is that you are trying to solve. It cannot be stressed enough that when you do not know what you want, or if every one is trying to solve a different problem, it is very difficult to find a solution. And this is not a scenario that is uncommon. Since everyone sees the world differently, everyone has different expectations and everyone will have a different idea of what should be achieved.

Sometimes it might even be helpful to do a brainstorming session on what problem and what aspects of the problem you are trying to solve. Then the different perspectives of the participants can help to define the problem more exactly. Making the problem more specific is also a help in generating ideas.

So either the moderator should pay attention to the need to formulate the problem exactly and spend time beforehand doing just that ; or the group should spend time analysing the problem.

- Tip: Sometimes it can be helpful to define a problem-owner. Often there is someone who is the problem-owner anyway. But if not then he then the problem-owner is the person who has the prime responsibility of ensuring that something is done with the output of the brainstorming.
- Tip: If the moderator has formulated the problem beforehand it is also a good idea to allow the brainstorming participants to test the problem. Why is a solution required? Does the problem really stand on its own or is it part of a bigger problem? Is the problem too complex and needs to be broken down? However one should try and keep this time short
- Tip: It often helps to formulate the problem precisely by starting with a statement like: "How to..." This helps to bring the problem down to a very specific concrete level rather than leaving it as a general statement.

5 Techniques for Finding the Problem

"The greatest challenge to any thinker is stating the problem in a way that will allow a solution."

Bertrand Russell

5.1 Obstacle Map⁴

Take three flipcharts and line them up in a row.

First of all start with the one on your right and note down the objectives. What do we want to achieve? What will things be like when we succeed?

Next you go to the flipchart on your left and note down a description of the current state. What is the world concerning the problem like now?

As the last step you go to the flipchart in the middle and list obstacles to reaching your goal. Don't worry if sometimes the obstacles are repetitions of the things written on the flipchart on your left.

This technique helps you to think of one thing at a time. It is helpful for defining the problem

5.2 Why-Questions⁵

Keep asking why till you get to the bottom of the problem.

5.3 Need Analysis

Participants take different perspectives and try to analyse what the underlying needs are in the problem.

5.4 Up and Down the Ladder

Go up a few steps in the hierarchy and look at the problem from that point of view. Go down a few steps in the hierarchy and look at the problem from that point of view. Ask yourself what is important from each point of view.

5.5 Drill Down

To use this technique, start by writing the problem down on the left-hand side of a large sheet of paper. Next, a little to the right of this, write down the points that make up the next level of detail on the problem. These may be factors contributing to the problem, information relating to it, or questions raised by it.

⁴ Brian Clegg Instant Creativity p. 18.

⁵ Michael Michalko Cracking Creativity p. 25.

5.6 Aspect-Oriented

Collect the different aspects of the problem. Why is the problem a problem?
What are the different areas included in the problem?

5.7 Fishbone Diagram⁶

On a broad sheet of paper, draw a long line horizontally across the middle of the page with an arrowhead pointing to the right, and label the arrowhead with the name of the issue to be discussed. This is the 'backbone' of the 'fish'.

Draw spurs coming off the 'backbone' at about 45 degrees, one for every likely cause of the problem that the group can think of; and label each. You can also add further "sub-spurs" to represent subsidiary causes.

Highlight any causes that appear more than once – they may be significant. The group considers each spur/sub-spur, taking the simplest first, partly for clarity but also because a good simple explanation of single aspects may make more complex explanations unnecessary.

Ideally, the diagram is eventually re-drawn so that position along the backbone reflects the relative importance of the different parts of the problem, with the most important at the end nearest the arrowhead.

Circle anything that seems to be a 'key' cause, so you can concentrate on it subsequently.

5.8 The Game⁷

Pretend you are the inventor of a computer game and that you want to include this problem as a way to reach a higher level in the game. How would one make the problem interesting for players. How would one describe it? How does one keep people interested? What hidden solution would be built in? Where would it come from? This helps in understanding the problem, and one can make associations with the ideas that have been collected.

5.9 Backwards-Forwards Planning⁸

Start with a problem statement (how to). In the next step ask yourself the question what higher-level problems would be dealt with if you solved the problem described in the original problem statement. Write these down. Then ask which higher-level problems would be solved together with the new problem statements. Go to the original statement and ask what other benefits would come

⁶ http://www.mycoted.com/Fishbone_Diagram ; Michael Michalko Cracking Creativity p. 27.

⁷ Brian Clegg Instant Creativity p. 120.

⁸ http://www.mycoted.com/Backwards_Forwards_Planning.

from it if it were solved. What is this problem part of? If one achieved this other outcome what else would one get. Alternatively you can also go in the other direction: What is a part of this whole? You can then see which problem is the problem you actually want to solve.

5.10 Boundary Examination⁹ (attributed to de Bono)

Start with an original problem statement. Underline the key words. Take a look at the key words and look for hidden assumptions. In order to do this try replacing a key word by a synonym or near synonym. After this try and see if one can redefine the problem in a better way.

The goal is to make the problem statement more exact and to become clear about possible assumptions.

Variant: You start with an original problem statement. Take each significant term in the problem statement and state what it is not (e.g. to design is not to guess, to make up, to draw or to copy)

⁹ http://www.mycoted.com/Boundary_Examination; Roger von Oech A Whack on the Side of the Head p. 33.

6 Brainstorming

"The best way to have a good idea is to have lots of ideas."
Linus Pauling.

Brainstorming is one of the best known creativity techniques. It was created by Alex Osborn and there are several different varieties. Brainstorming can be used to solve practically any problem. It is best used in problems or subproblems that are not too complex and for problems where the problem can be described specifically and where it is necessary to find lots of ideas.

The basic idea behind brainstorming is to collect ideas in writing as they come and sort or evaluate them later. Seeing the ideas in writing inspires others to have more ideas ... Basically at the beginning the problem is stated by the moderator and then the ideas are written down. The moderator should watch that the rules are kept.

To find ideas in brainstorming you need to say the ideas that come to mind after something has been said/shown/etc. to trigger them off – and be it only the problem statement.

To practise associating you can get together with two to five people. The first person says a word, the next says the first thing that comes to mind and so on. It is important to try not to repress the natural flow of thoughts. Unusual ideas are allowed. Try not to categorize the ideas in any way, for example “rude ideas”, “silly ideas”, “tactless ideas”, “politically incorrect ideas” ... This is difficult at first because we have all learned to reject or even suppress a lot of dangerous ideas. Also refrain from thinking that a certain idea has no relevance to the problem at hand. Try combining ideas. One important key is to learn to tune into the fact that our mind often thinks in a metaphorical way¹⁰ – understanding things by looking for similarities. We can use this kind of thinking for exploring the unknown. Instead of saying cars are like horseless carriages we can say my problem is such and such... what can I learn by thinking my problem is like, for example, a butterfly.

After collecting ideas one obviously needs to structure them and evaluate them. But this is a step that is separate from the actual brainstorming phase.

In addition, it is often a good idea to use a creativity booster in order to stimulate new ideas. This was an essential part of Alex Osborns brainstorming technique. Often in practice the creativity boosters are left out – which can hinder the creativity process and cause brainstorming to fail. Even if some of the ideas are in

¹⁰ Roger von Oech A Whack on the Side of the Head p. 48.

actual fact impractical or improbable – they may be stepping stones for great ideas.

6.1 Brainstorming Rules

If you always do what you've always done, you'll always get, what you've always got.

So that brainstorming is effective it is important that the following rules are observed.

6.1.1 No Open or Implicit Criticism of Ideas

Criticism and evaluation are important but they happen in another phase. Evaluating the ideas immediately would stop the flow of ideas and make the session less goal orientated because you would be mixing two different phases and causing people to be cautious and not say their ideas for fear of being thought stupid. (Of course all this may happen to a certain extent on the subconscious level.) Every idea is allowed, no matter how crazy, and every idea is written down.

Remember the story of the chocolate manufacturer trying to find a way to optimise the way walnuts were cracked. One person said during the brainstorming session: "It would be great if there was a small gnome/dwarf inside the walnut with a pickaxe to open the walnut from inside." Another participant was inspired by this to have the idea of boring a tiny hole into the walnut to fill the walnut with gas, thereby cracking the walnut from the inside.

6.1.2 Quantity Before Quality

The more ideas that are collected the better. No idea is too crazy. It is important to generate as many ideas as possible. The more ideas the greater the chance of finding really great ideas. Everything is allowed.

6.1.3 Build on Each Other's Ideas. There is no Idea Ownership.

"It is amazing how much you can accomplish when it doesn't matter who gets the credit." Unknown

Everyone is allowed or even supposed to take ideas already mentioned, carry on the thought and in this way generate new ideas. This multiplies ideas and creativity while also causing synergy effects in the group so that the group can identify with the solution.

6.1.4 Encourage Wild And Exaggerated Ideas

6.1.5 Hierarchies Play No Role. There Should Be an Atmosphere of Trust.

6.1.6 Short Speeches

Maybe even enhanced by ok cards - everyone gets a card at the beginning and when the idea is understood everyone raises the ok card, or 30 second rule - everyone has only 30 seconds to speak.

6.2 Brainstorming Varieties

You don't have to be a genius to be creative. You just have to recognize that something can be better or different. Van Cloud

6.2.1 Classical Brainstorming

A group brainstorms solution-ideas to problems and the ideas are written onto a flipchart as they come.

6.2.2 Anonymous Brainstorming or Brainwriting Pool

The moderator states the problem. Every participant then collects the ideas for himself/herself on cards. Afterwards the moderator collects the cards and presents them to the group.

This can be helpful if the group consists of people who are on different levels in a hierarchy.

It is also helpful if moderation cards are used and there is one idea on each card. Then one can sort the ideas by “clustering” the cards around different suitable headings.

6.2.3 The 6-3-5 Method

This is a type of written brainstorming. The basic idea is the following: 6 participants are given 5 minutes to write down on a piece of paper 3 ideas that concern the problem solution. Then each person hands his/her piece of paper to the person on his/her left and every participant spends 5 minutes writing down three more ideas – maybe inspired by the ideas that have already been written down. This is repeated until everyone has written on every piece of paper.

Afterwards one possible way to evaluate the ideas is to pass the papers round again and have everyone put a cross beside the three ideas he/she finds best to solve the problem.

6.2.4 Collective Notebook

This is a variant of written brainstorming that can be used if the participants are not in one room/location at the same time. The problem with this variant is that it can be difficult to inspire the participants with the necessary motivation to actually participate.

The idea is that a notebook, flipchart, word document, etc. is put in a location that all the participants can reach. The problem is stated, together with the time people have to collect and state their ideas.

One can also use this with a flipchart in the room where instead of writing on cards everyone writes on one flipchart.

6.2.5 Brainwriting Game

You start with a problem statement. Then you explain that the winner of the game is the one who devises the most unlikely solution. People are then given time to think of the most unlikely ideas and write them on cards. You then pin the cards somewhere and have people spend time trying to find ways to put the solutions into practice (making them less unlikely). You then vote on the most unlikely idea.

Afterwards you can divide the group up into two groups, divide the cards between them and get them to try and create solutions and sell them to the other group.

6.2.6 Combined Notebooks

Each participant has a notebook, maybe even one in which the moderator has written down suggestions for generating ideas. Every day for one month each participant writes one idea in the notebook. At regular periods the participants are given more information from experts, from written material and colleagues. After about four weeks the participants present a brief written summary giving their best idea, ideas which merit further investigation and completely new ideas. Notebooks are collected and the contents are summarized by the coordinator.

6.2.7 Gallery Method

Everyone has a flipchart on which he/she writes ideas relating to the problem. After some time participants can walk round, look at all the ideas and then return to their own work.

6.3 After Brainstorming

After the brainstorming session there will be a whole bunch of ideas. It is now important to structure them. This is the responsibility of the moderator.

There are several well known ways of structuring ideas. I want to just mention two of them: clustering and mind mapping.

6.3.1 Clustering

With clustering every idea is written on a card or on a post-it. The cards are then sorted according to themes – a title card is written for each theme.

6.3.2 Mind Mapping

In mind mapping one takes the central theme and writes it in the middle of the page. Then one finds subthemes and forms branches with these subthemes as definitions of the branches. And so on ...

(for a more exact definition cf. http://en.wikipedia.org/wiki/Mind_map and <http://www.mind-mapping.org/mindmapping-and-you/basic-introduction-to-mindmapping.html>)

7 Ideas in Brainstorming for Enhancing Creativity

It is better to have enough ideas for some of them to be wrong, than to be always right by having no ideas at all. Eduard de Bono.

Basically the important thing in brainstorming is for there to be a creative impulse to help the participants to generate ideas outside their normal thinking patterns. Some of these enhancers help find new ideas by setting a totally different context. Others work by helping to structure thoughts in a new way.

What is important for the moderator is, that he/she feels comfortable with the technique, otherwise it is really difficult to motivate the participants to use the method. For example, I hate the idea of having to draw the problem – or in actual fact to draw anything. Because of this as moderator I would never use the creativity technique that asks the people to draw the problem and then gather associations.

It is also important for the moderator to consider whether the technique fits the group and fits the problem. One thing to remember during the brainstorming session is: The goal is to free people's thoughts from their usual patterns by introducing an element of strangeness. Thus feeling that something is weird is often a good indication that it could work.

7.1 Reverse Brainstorming¹¹

Reverse brainstorming uses the fact that people always find it easier to be negative than to be positive. Thus we change the problem round. "What can we do to make the problem worse?" E.g. if the problem is: "How to improve communication in our company?", use the problem statement: "Think of how to make communications fail within our company." Spend time thinking what would have to be done so that the problem would definitely not be solved. In a second step turn around the ideas you have collected ideas – turn them into the opposite.

7.2 Associative Brainstorming¹²

Take a random word or picture and form free associations from the word or picture. In a second step take the list of words/phrases you have come up with and use them as ideas in a brainstorming session about ideas for solving the problem. "How could the associations help with the problem? What solutions do they make you think of? How could you change things to be done like that?"

¹¹ Klein, p. 134; Roger von Oech p 131; Michael Michalko Cracking Creativity p. 180.

¹² Klein p. 278, Brian Clegg Instant Creativity p 72, 74; Michael Michalko Cracking Creativity p. 144; Sellnow Die mit den Problemen spielen p. 59; Noack p. 82.

For random words you can also visit:

<http://www.brainstorming.co.uk/onlinetools/websoftware.html>

or for random pictures:

<http://www.brainstorming.co.uk/onlinetools/websoftware.html>

7.3 Rolestorming¹³

Get the participants to take over another role. Let them spend a few minutes identifying with their role (maybe even have them talk about what it is like to be their character) Then have the participants brainstorm in this role. (What would the person whose role they are taking say about the problem? How would they solve the problem?).

As possible roles:

roles of people actually involved (team leader, old member of the team, new member of the team)

another variation of this is to have people slip into roles that are totally different from the ones in the real-life situation (e.g. Sherlock Holmes)... for a list cf. attachment D. or for a simulation with different people visit:

<http://gocreate.com/tools/index.htm> .

or let people take over the role of a superhero. Prepare general information about the superhero beforehand (e.g. name, special powers, weaknesses, background, picture) Get them to think a little about that superhero and talk to them about what life is like as a superhero in order to help them slip into the role.

or let the participants think what people with different jobs would say to the question – for a simulation with random jobs see:

<http://gocreate.com/tools/jobs.htm>

Variant Another variant of this is to have participants divide into pairs, each has a list of roles and decides spontaneously on three personalities that could fit his/her partner. Each partner then decides which of the three personalities he or she wants to impersonate. Then each participant imagines asking the chosen personality about solutions to the problem statement. ¹⁴

7.4 Phrasing Questions

See part 2 on questions

¹³ Brian Clegg Instant Creativity p 68; Roger von Oech p 77; www.brainstorming.co.uk; Sellnow Die mit den Problemen spielen p. 59.

¹⁴ Klein p. 266.

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- 7.5 Literature Kick¹⁵
Take a minute to think of your problem area. Then take a poem or short story you haven't read before. Don't try and form associations while reading the story. After having read the story come back to the problem. Use anything the story made you think of to find more associations.
- 7.6 Computer Game Kick¹⁶
Take a minute to think of your problem area. Then spend a short time playing a computer game. You don't need to try and form associations while playing the game ... After playing for a few moments come back to the problem and form associations. Don't force anything. But anything the game made you think of can help generate ideas.
- 7.7 Take a Walk¹⁷
After taking a minute to think of your problem area, go outside for a walk. While walking don't think directly about the problem. Take in the area around you. Use all your senses. Then come back and rethink the problem area. Think if anything you have experienced generates ideas. Use the impressions as resources for creative ideas.
- 7.8 What if?¹⁸
Analyse three different scenarios that have totally different contexts to your problem area. What if your company was bought out by a bigger company? What if the international oil reserves were used up? What if civil war broke out? Chose three that appeal to you. They should be very different from each other.

Then for each scenario formulate "How to" statements concerning the problem at hand. Then test whether you can take the ideas and use them in the real situation you are faced with. Or as an alternative just choose a totally crazy what if statement and see where you go from there.

e.g. What if animals became more intelligent than human beings? What if we elected our officials by lottery?
- 7.9 Web Wandering¹⁹
Identify the key words in the problem statement (usually two to five). Use an internet search engine and enter the keywords into the search box. Now spend a

¹⁵ Brian Clegg Instant Creativity p 28.

¹⁶ Brian Clegg Instant Creativity p 30

¹⁷ Klein p. 280 Brian Clegg Instant Creativity p 32.

¹⁸ Roger von Oech p 74; Brian Clegg Instant Creativity p 40.

¹⁹ Brian Clegg Instant Creativity p 42.

few minutes browsing through the results. Use associations either to modify the problem statement or to generate ideas for the solution.

7.10 Solve a Different Problem²⁰

Share a thinking puzzle with the group (or do one yourself if you are alone) . The puzzle should be short and the solution not immediately obvious. Solve the puzzle. After that discuss what methodologies one can use for solving problems in a group. Use the puzzle as a warm-up. Alternatively use the methodologies and the solutions you have found as idea stimulators.

7.11 Question Race²¹

The participants split into subgroups. Each subgroup needs a flipchart. Have the subgroup line up at a distance from the flipchart and give each subgroup a flipchart pen. The task is to write as many problem questions (how to) / or ideas as possible in a given time. The pen is the baton and the next person is only allowed to go up to the chart when given the pen.

This helps participants push themselves harder to think. It raises the competitive spirit. This can sometimes be problematic because too much competitive spirit can hinder the creative, open, uncritical atmosphere. But as long as the participants see this as fun there should be no problem.

7.12 Metaphors²²

Generate a metaphor or an analogy for your problem and then work on it. Say our problem is like a basketball game or our problem is like a bowl of tomato soup. The analogy can be far-fetched or obvious – both have their pros and cons ;-). The first task is finding reasons why the metaphor is valid. These can be quite wild. Then you can use the justifications and the metaphor to generate ideas. It can also work to think of similarities and differences.

7.13 Find Objects²³

The participants leave the room and search for some object they find outside the room. It doesn't need to be something big – it can be just a serviette. Everyone then has to talk to their subgroup or to the whole group if the group is small enough and explain why the object they brought back with them holds the answer to the problem.

²⁰ Brian Clegg Instant Creativity p 48.

²¹ Brian Clegg Instant Creativity p 54.

²² Brian Clegg Instant Creativity p 71.

²³ Brian Clegg Instant Creativity p 76.

Each person should put their heart into doing this. As each individual speaks, the other participants listen and note down links to the problem and ideas. This is a great idea for bringing fun into a session and making a break.

7.14 Headlines²⁴

Take headlines from a newspaper and use them to generate ideas. The participants should not use the story behind the headlines if they know it but concentrate on the words.

7.15 Quotations²⁵

Look for key words (three but not more than seven) in the problem statement. Use a dictionary of quotations (or the internet) to find quotations that involve the key words or similar words.

Use these quotations as stimulators for the problem solution. Try thinking about them as advice on solving the problem. Or just as stimulators for ideas.

Variant Another fun variant is to be found at <http://gocreate.com/tools/ricliche.htm> - here proverbs have been playfully changed to boost creativity.

7.16 Attribute Listing²⁶

Name a process you want to improve. Then list its attributes. Then choose around eight attributes that seem important. Identify alternative ways to achieve each attribute. Try combining the ideas.

7.17 Squirrel Box²⁷

Take a small box (shoe box etc) and put in it anything that you come across that you find interesting, unusual, entertaining (newspaper cuttings, photographs, candy wrappers). When you want to be creative pick two items out at random and use them to find associative ideas.

7.18 Set it to Music²⁸

Put together a good mix of music (classical, modern). Choose a CD and a track at random and play a track or part of a track. While listening the participants should have the problem in the back of their mind, and see what associations are formed by the words or maybe the music.

²⁴ Brian Clegg Instant Creativity p 84

²⁵ Brian Clegg, Instant Creativity, p. 86.

²⁶ http://www.mycoted.com/Attribute_Listing.

²⁷ Brian Clegg Instant Creativity p. 88.

²⁸ Brian Clegg Instant Creativity p. 88.

- 7.19 Colour Me Beautiful²⁹
Pick an adjective at random. Formulate the statement : [the problem] is blue. Then spend time collecting implications of this. Overcome the initial reaction – “There are no implications”. Then look at the words/phrases generated by associating the problem with the adjective and use these to spark ideas.
For random adjectives you can also visit: http://www.ideachampions.com/cgi-bin/jump_start.pl
- 7.20 Space Adventure³⁰
Let the participants pretend they are on a space mission on an unknown planet and have to solve this problem while on the planet. At the beginning it is probably a good idea to spend a few moments imagining oneself in the totally alien environment. Then have the participants think about what they would do to solve the problem in that environment.
- 7.21 Children’s Play³¹
Children between the ages of 7 – 12 do not have so many barriers to creativity through mind sets, such as : “We’ve always done it this way...” Use this potential.
Get colleagues to ask their children about their problem. Of course many of the ideas will be impractical. But they might well be superb starting-points for associations in brainstorming. Obviously the problem needs to be broken down so the child can understand it. Maybe try and make it into a game “Five different ways of doing such and such.”
- 7.22 Assumption Busting³²
List all the assumptions about the problem including all those you would not consider challenging. Challenge these assumptions by testing under what conditions they would not be true. If you start making assumptions during this process add them to the list. Also try reversing the assumptions.
Another variant is the sacred cow technique, from Brian Cleggs “Instant Creativity”, p. 126): Spend some time thinking about the problem and the things about the problem area that will always be the way they are. Then take these unchangeable aspects and forget about them. Pretend they were removed. Ask

²⁹ Brian Clegg Instant Creativity p 96.

³⁰ Brian Clegg Instant Creativity p 100

³¹ Brian Clegg Instant Creativity p 105

³² Michael Michalko Cracking Creativity p 177.

yourself the question which obstacles would be removed with them. Take time finding solutions in a world where the unchangeable aspects do not exist.

- 7.23 **Find the Heart of the Problem**³³
Behind every problem there are needs that want to be met, needs that really make the problem a problem. These needs can occur in many different situations. First of all you need to identify the essential need/needs in the problem. Then you think of three examples of this need in a different area and how the need is met in this other area. Try and relate these areas back to the problem. In any case it helps to understand the problem better and to find better solutions if you analyse the need(s) behind the problem.
- 7.24 **Touch Me, Feel Me**³⁴
Collect a wide range of textured materials (e.g. different fabric types, sand paper, jelly, sea shells, fur, ...) and place them in boxes in a way that no one can see the materials. Blindfold some or all of the participants and ask them to feel the items. They must give a running commentary of associations and metaphors that are recorded on flipcharts. These associations are used to relate back to the problem. It is important that none of the participants is able to see the materials.
- 7.25 **Evil Genius**³⁵
Pretend that there is an evil genius behind the problem. Think about the motivation of this evil genius. Think about whether there is any way of satisfying him and still solving the problem, or if there is any way of distracting him.
- 7.26 **Inspired by Nature**³⁶
Try to find a natural analogy to the problem and then analyse how nature solved the problem. Try to apply this to the problem.
- 7.27 **Location**³⁷
Use your location as an inspiration. Spend times in different rooms of the location (eg hotel) and let your surroundings and the objects you see generate ideas and associations. And then ask what the objects and the associations have to do with your problem

³³ Brian Clegg Instant Creativity p 113.

³⁴ Brian Clegg Instant Creativity p 116.

³⁵ Brian Clegg Instant Creativity p 118.

³⁶ Michael Michalko Cracking Creativity p 207 ; Brian Clegg Instant Creativity p 136.

³⁷ Klein p. 278; Brian Clegg Instant Creativity p 138.

- 7.28 **TV-Series³⁸**
Take a TV-Soap and pretend that the participants in this soap have to solve your problem – what would the different characters do? How would they react? The group should write a plot in which the problem is shown and solved. Afterwards look for ways the solution could work in every day life.
- 7.29 **Take Pictures³⁹**
Have the group take pictures they can give to other groups as a stimulation for idea generation. The groups then use the pictures for idea generation.
- 7.30 **Two Words⁴⁰**
This is a variant of random word. Take two words randomly. Ensure they are both nouns. Find out what concepts arise from combining the words as well as looking at them individually. Consider what similarities there are between the two and what makes them different. Find associations for problem solutions from this practice. What can also help is to use relational words to join the two⁴¹.
- (About, Above, Across, After, Against, Along, Amid, Among, And, Around, As, At, Because, Before, Behind, Below, Beneath, Beside, Between, Beyond, But, By, Down, During, Except, For, From, If, In, Into, Near, Not, Now, Of, Off, On, Opposite, Or, Out, Over, Past, Round, Since, So, Still, Then, Though, Through, Throughout, To, Toward, Under, Up, Upon, When, Where, While, With, Within, Without)
- 7.31 **Lost in Translation⁴²**
Write a paragraph on the problem. Get an online tool to translate this into another language. And then translate it back. This process will have introduced various misunderstandings and confusions. Think of solving the new problem. Think whether aspects of the new statement could provide solutions for the original statement.
- 7.32 **Cool Site⁴³**
Use a random internet page to trigger ideas for solving the problem, e.g. www.coolsiteoftheday.com

³⁸ Brian Clegg Instant Creativity p. 140.

³⁹ Brian Clegg Instant Creativity p 146.

⁴⁰ Brian Clegg Instant Creativity p 148.

⁴¹ List copied from http://www.mycoted.com/Relational_Words.

⁴² Brian Clegg Instant Creativity p 154.

⁴³ Brian Clegg Instant Creativity p 83.

- 7.33 **Imaginary Brainstorming**
 You start out with a problem statement that needs
- a subject that takes action,
 - a verb,
 - an object who/which is being acted upon.

Decide which of the three elements are most important to the problem. Propose imaginary replacements for all but the most important element.

Original Problem	Suggested Replacements
How do	How do/does
we	children Mickey Mouse Miss Marple Queen Elisabeth
write a bid	build a house earn a million get drunk
in half the normal time	in half the normal time (not changed because the most important element here)

Brainstorm using this new sentence and then apply the ideas from the imaginary brainstorming to the real problem statement.

- 7.34 **Bug Listing**
 Everyone should think about what really annoys him or her about the problem. And use this personal interest and emotion to help trigger ideas.
- 7.35 **Lotus Blossom⁴⁴**
 You have a problem and gather headings then you use the headings as a trigger for brainstorming. For lotus tree: start with one idea in the middle and write 8 ideas around that. Take the 8 ideas from this and write 8 ideas around this...

⁴⁴ Michael Michalko Cracking Creativity p 66.

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- 7.36 **Contradiction Analysis⁴⁵**
Most problems are problems because of forces that pull in different directions, or are contradictions. The solution needs to be a compromise. Try to identify the forces involved, which then can help trigger ideas.
- 7.37 **Drawing/Sculpting⁴⁶**
Spend some time drawing the problem. Use the pictures to conjure up associations, or spend time creating a work of art from different materials (e.g. cardboard) that represents the problem.
- 7.38 **Provocative Statements⁴⁷**
Think about assumptions in the problem, e.g. a restaurant, which of course normally serves food. Then negate this: A restaurant does not serve food. Use this as a starting point for brainstorming.
- 7.39 **Exaggeration⁴⁸**
Make a list of the component parts of the problem and the constraints and goals. Choose one of these. Develop exaggerations and use them as a booster for ideas in brainstorming.
- Ways of exaggerating:
- Magnify (think big! What if the idea was a thousand times bigger, louder, stronger, faster, brighter, many more people used it)
- Minimize (what if it were only one-thousandth as powerful, fast, costly or complicated)?
- Exaggerate the scope (the whole organisation has the problem)
- Exaggerate the significance (it is a national capacity)
- 7.40 **Excursion⁴⁹**
Attempt to get as much distance from the problem as possible. Ask people to be part of another world, e.g. animals, comedy, education, espionage, history, war, 007, crime, finance, magic, romance, ...

⁴⁵ http://www.mycoted.com/Contradiction_Analysis.

⁴⁶ <http://www.mycoted.com/Drawing>; <http://www.mycoted.com/Sculptures>.

⁴⁷ <http://www.mycoted.com/Provocation>.

⁴⁸ <http://www.mycoted.com/Exaggeration>; Roger von Oech Creative Whack Pack.

⁴⁹ <http://www.mycoted.com/Excursions>.

Ask people to pretend they are in this other world. You could even tell a story or show part of a film to help participants imagine they are in this other world. Get the people to try solving the problem in this new world.

7.41 Storyboard Excursion⁵⁰

The moderator starts a story and everyone in turn has to continue the story and try and make it more ridiculous. Then try and gather ideas with associations from the story.

7.42 Sensing

Participants take time to try and ask themselves: “What does this problem feel like?” Try and find a word and picture to describe this. (eg. “sticky”, “heavy”, “like in a box”, “jumpy-restless”, ...)

Participants spends a few moments thinking and sensing whether if their adjective describes the feeling well. Then they ask themselves the question: “What is it about the problem that makes me feel such and such? What is the worst of this? What would it take for this to feel ok?”

7.43 Force-Fit Game⁵¹

You have two groups (A,B) and a problem statement. At the beginning Group A states an idea far removed from the problem. Group B then spends 2 minutes developing a realistic solution founded on the idea. If the solution is plausible they gain a point. If not Group A gains a point. Then roles are swapped. (Or they are swapped after 5 rounds.) It is important to keep a light-hearted atmosphere...

After a predefined period of time or number of rounds have elapsed the game concludes and the group with the most points wins. Then the ideas are evaluated.

7.44 Fresh Eye⁵²

Formulate the problem in a non-technical way and ask people to contribute who have no direct experience of the problem. Develop and reinterpret the ideas that come up so they become workable. Even if an idea is naive it can still stimulate creative thinking. Here it is important to show people that you value what they are saying.

⁵⁰ <http://www.mycoted.com/Excursions>.

⁵¹ http://www.mycoted.com/Force-Fit_Game.

⁵² http://www.mycoted.com/Fresh_eye.

- 7.45 **Collage**
Have the group divide into subgroups and supply them with a piece of thin cardboard, magazines, illustrated catalogues, scissors, glue and felt-tipped pens. Have the groups make their own collage from at least 10 pictures of interest and relevance. Then gather ideas from the collages. Do this first in the small group and then pass the collages on. At the end it might be nice to have the groups explain and interpret their collages.
- 7.46 **Paraphrasing Key Words⁵³** (attributed to de Bono)
Identify the key words of the problem. Then look them up in a thesaurus and find synonyms. Let the synonyms trigger ideas and trigger a better understanding of the problem.
- 7.47 **Progressive Revelation⁵⁴**
This is a very much a moderator driven booster. The participants do not know at the beginning what the problem is. The moderator starts off with a very generalized problem (e.g. methods of storing large objects for a problem about car parking) and people brainstorm about this. When participants run out of ideas the moderator adds information for the next brainstorming round.
- 7.48 **Provocation⁵⁵**
The moderator or the group think of silly and crazy statements about the problem or the situation that are not true or that we take for granted as not being true, e.g. chairs should not have legs.

Then you can have a look at the statement and analyse the consequences and benefits and liabilities.
- 7.49 **Reversal⁵⁶**
I have already mentioned the method reverse brainstorming. This method uses different types of reversals to get different perspectives.

Let's say the problem is that the work assignments are sporadic so great manpower capacity is needed to manage the peaks but sometimes people sit round with little to do.

Turn the problem into an opportunity: "Overcapacity lets us do x ..."

Reverse the value: Could wasting resources be a good thing?

⁵³ http://www.mycoted.com/Paraphrasing_Key_Words.

⁵⁴ http://www.mycoted.com/Progressive_Revelation.

⁵⁵ <http://www.mycoted.com/Provocation>.

⁵⁶ <http://www.mycoted.com/Reversals>.

Reverse word order: I need peaks to cope with my capacity

Reverse phase: worry about the peaks not the off-peak idle time

...

7.50 Successive Element Integration⁵⁷

At the beginning the members of the group collect ideas on their own and jot them down. Then two members of the group state one of their ideas and the group tries to generate one new idea out of the two ideas that have been mentioned. These ideas are added to the overall list. Then another member of the group mentions an idea. The group tries to integrate this idea into the three previous ideas to make another idea and so on until the time is up or the ideas are exhausted.

7.51 Wishing⁵⁸

Everyone in the group spends sometime thinking about what he/she wishes in the given situation. Try to be as exact as possible. Not just: I wish this problem were solved. But what exactly does one wish for ...

Often this technique is introduced with the following question: Imagine a fairy godmother came to you and could work a miracle in the situation. What would you want changed? How would the reality be different?

Then collect the wishes and brainstorm and analyse them. Which wishes could be realized?

7.52 Combine Areas⁵⁹

Think of pairs of totally different people. Brainstorm about how they might solve the problem or what they would talk about referring to the problem if they went to lunch together. e.g:

a bus driver and a comedian

a beautician and an insurance salesman

a kindergarten teacher and a software developer

a priest and the head waiter of a fancy restaurant

...

⁵⁷ http://www.mycoted.com/Successive_Element_Integration.

⁵⁸ Klein p 260; Michael Michalko p 166; Noack p 85.

⁵⁹ Roger von Oech p 107.

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- 7.53 **Ask an Oracle**⁶⁰
Generate a random piece of information. (random phrase at the beginning of the second page of a newspaper, pick out the sixth word on page 356 of your dictionary,...) Imagine this piece of information is the oracle's solution to the problem. Interpret the information ...
- 7.54 **Listen to Your Dreams**⁶¹
Remember a recent dream. Ask yourself the questions:
How do you feel in this dream?
How do you feel about the dream?
Who is in the dream?
Where does it take place?
How do different people react?
- Take these pictures and interpret them as symbols through which your unconscious mind is talking to you. Think of them as an oracle.
- 7.55 **Mentoring**⁶²
Every participant chooses a few real or fiction personalities that he or she admires and/or appreciates. The participants then pretend to ask their mentors what ideas they have to the problem.
- 7.56 **From Stumbling Blocks to Stepping Stones**⁶³
The participants gather problems and obstacles to solving the problem on cards. These are then put in the middle one at a time. While one hindrance is in the middle all the participants that have an idea of how to overcome the hindrance go into the middle and state their idea (also obviously one at a time).
- 7.57 **One-Man Brainstorming**⁶⁴
This technique can only be used alone. One formulates the problem. Writes as many ideas to solving the problem as one can think of on cards.(one idea per card). Then one mixes the generated cards and picks two cards. One then looks at the two ideas and lets oneself get inspired by the two ideas to create new ones.

⁶⁰ Roger von Oech p 146.

⁶¹ Roger von Oech p 152.

⁶² Klein p 171.

⁶³ Klein p 240.

⁶⁴ Klein p.162.

8. Creativity Blockers⁶⁵

"They can conquer who believe they can."
Virgil.

Whether you think you can or think you can't, you are right."
- Henry Ford

Experience shows that creativity does not always happen. Sometimes there seems to be a blockage, a sort of wall that hinders us thinking in new ways. The creativity boosters try and "whack" us into thinking in a different way. But there are certain thinking modes that do actually hinder or impede the effect of the creativity boosters and cause us to believe about ourselves: "I am not creative." It is really important before one starts using creativity techniques to spend a few moments thinking about the "creative mindset" and which mindsets block the freedom to let creative ideas flow. We need to learn to temporarily forget what we know. Often when one has seen what the problem is, it is a lot easier to let go of the mindsets that cause blockages. It sometimes helps to let go for a certain period of time. For example "OK, I'm very sceptical if this will work. But I decide to have an open mind and invest in this for this afternoon. Afterwards I will evaluate."

"It is the mark of an educated mind to be able to entertain a thought without accepting it."
Aristotle

In the following I have listed several thinking patterns that lame our creative thinking.

The Blocking Mindset	The Creative Mindset
The Right Answer. Every problem has only one cause and the problem and reason can be explained in a linear way.	<div data-bbox="930 1682 1441 1839" style="border: 1px solid black; padding: 5px;"> <p>"Nothing is more dangerous than an idea – if it is the only one we have." Emilé Chartier</p> </div> <p>Life is mostly ambiguous. The problems in our world always have</p>

⁶⁵ Based on Roger von Oech A whack on the side of the head and Sellnow, Die mit den Problemen spielen p 13f..

	<p>several causes that are often connected to one another in a very complex way. There are often several “right” answers. If you stop looking after you find one - you may not find the optimal one.</p>
<p>I can control things. It is possible to foresee exactly and without a doubt how people will act in the future if you have enough information.</p> <p>We can control every situation if we have the right means, enough information, etc.</p>	<p>But in actual fact we will always have partial information, complex systems and as soon as we have to do with people we have to recognize: “We cannot control people – we can only influence them...”</p>
<p>Pessimism. It’s impossible.</p>	<p>Optimism, positive attitude, motivated for success.</p> <div data-bbox="930 931 1442 1128" style="border: 1px solid black; padding: 5px;"> <p>"A strong positive mental attitude will create more miracles than any wonder drug." Patricia Neal.</p> </div>
<p>That’s not logical.</p>	<p>But sometimes solutions are not logical. Sometimes logical solutions are developed from different parts of the whole. Logic is an important part of thinking and putting ideas into practice, testing ideas etc. but sometimes a pure logical approach can short-circuit the creative process.</p> <p>It is important to learn to trust hunches. Our mind constantly records, connects and combines unrelated knowledge, experiences and feelings. Later it combines this information to answers – that sometimes are real solutions – even without logical explanations.</p>
<p>Follow the rules. Conform to what is</p>	<div data-bbox="930 2002 1442 2054" style="border: 1px solid black; padding: 5px;"> <p>"Sacred cows make great steaks."</p> </div>

<p>expected.</p>	<div data-bbox="930 197 1441 253" style="border: 1px solid black; padding: 5px;"> <p>Richard Nicolosi</p> </div> <p>Rules are good, but it is also good to question rules. Even though we've often been brought up to respect the rules. ("don't colour outside the lines.") Fear is always a bad counsellor. Have an opinion of your own. Have the courage to be different if necessary. Remember almost every innovation has come around because someone questioned the way things had always been done.</p> <div data-bbox="930 819 1441 1055" style="border: 1px solid black; padding: 5px;"> <p>"Creative thinking may simply mean the realisation that there is no particular virtue in doing things the way they have always been done." Rudolph Flesch.</p> </div> <p>Sometimes the rules were originally very helpful. But the reason for the rules may not exist anymore.</p>
<p>Prejudices</p>	<p>Open-mindedness. Be flexible.</p>
<p>That's not my area, that's none of my business. That's not my problem.</p>	<p>Maybe we can use synergies from different ways of looking at things.</p>
<p>To Err Is Wrong</p>	<div data-bbox="930 1525 1441 1720" style="border: 1px solid black; padding: 5px;"> <p>"While one person hesitates because he feels inferior, the other is busy making mistakes and becoming superior." Henry C. Link.</p> </div> <div data-bbox="930 1794 1441 1944" style="border: 1px solid black; padding: 5px;"> <p>"A man's errors are his portals of discovery." James Joyce</p> </div> <p>Remember: there are (at least) two benefits to failures: If you do fail, you</p>

	learn what doesn't work. And then: the failure gives you an opportunity to try a new approach.
Don't be foolish. Critical, judgemental attitude.	<p>Be open to new ideas. Be open to risks. Be able to make and admit to making mistakes. Don't take yourself too seriously.</p> <div style="border: 1px solid black; padding: 5px;"> <p>"Creativity is allowing yourself to make mistakes . Art is knowing which ones to keep." Scott Adams</p> </div> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>"If anyone among you thinks he is wise in this age, let him become a fool that he may become wise." 1. Corinthians 3:18</p> </div> <p>Also humour is really important! It may not solve your problem but it will help get in a mindset for generating a lot of ideas.</p>
Be Practical	Be imaginative and curious.
Play Is Frivolous	<div style="border: 1px solid black; padding: 5px;"> <p>"Learn to pause ... or nothing worthwhile will catch up with you." Doug King</p> </div> <p>One mostly gets ones best ideas when not concentrating on the problem. Think about it: during what kinds of activities do you get your ideas? When looking at a problem one sows a seed. Backing away can give this seed the possibility to grow.</p>

Avoid Ambiguity	<p>Be prepared to accept paradoxes. We are often not comfortable with ambiguous situations because they're confusing and cause communication problems. But because of this they are also opportunities. Paradoxes have a lot to do with ambiguity – and also with creativity. Niels Bohr once said:</p> <div data-bbox="930 573 1441 730" style="border: 1px solid black; padding: 5px; margin: 10px auto; width: fit-content;"> <p>How wonderful that we've met with a paradox. Now we have hope of making some progress.</p> </div>
I'm Not Creative	Being curious. Have self-confidence.

On a practical level it is important that killer-phrases that reflect the creativity blockers are avoided during brainstorming sessions because that can affect the whole atmosphere⁶⁶...

Such killer phrases are phrases like

Yes, but...

That won't work.

That's totally unrealistic.

That is impossible.

That is too expensive.

That's too risky.

Why should we change that?

It is too complicated.

It has been proven that...

But in practice it is different...

You are overlooking the following...

We've already tried that...

Tip: Write some of these phrases on a flipchart and reach a consensus with the group not to use them during brainstorming.

Tip: Motivate people to say "Yes, and" instead of "Yes, but"

⁶⁶ Klein p 110.

9. Evaluation Techniques

To live is to choose. But to choose well, you must know who you are and what you stand for, where you want to go and why you want to get there. Kofi Annan

9.1 Preparation of the Decision

True genius resides in the capacity for evaluation of uncertain, hazardous, and conflicting information. Winston Churchill

In order to decide where to go after the idea-collecting phase it is important to evaluate the ideas first. The following lists techniques on how to evaluate ideas.

9.1.1 Criteria Grid

In the group decide on objective criteria to evaluate the ideas. Write the ideas on the left hand side of a grid, the criteria along the top. Evaluate every idea according to each criterion.

9.1.2 SWOT

For each idea evaluate strengths, weaknesses, opportunities, threats

9.1.3 Pro Contra Discussion

Divide into groups of three. One person states the question whether or not to do something and records the arguments, the other two state either pro or contra arguments. Then people change places after a given time.

9.1.4 Label It⁶⁷

Go through each idea and label it, for example with

excellent	→	will almost certainly succeed
likely	→	needs future refinement
possible chance	→	needs improvement
50/50	→	could go either way
long shot	→	remote chance of success

⁶⁷ Thinkpak No. 49.

9.1.5 PMI⁶⁸

For every idea make a table with three columns. In these columns record positive aspects (p, plus), negative aspects (m, minus) and interesting aspects (neutral but potentially relevant) (I, interesting)

9.1.6 Walt Disney Adaption

For each idea write down how one could implement it (realist).

For each idea write down as many criticisms as you can (play the critic).

Look at each idea and try to develop possible solutions for overcoming or repairing every weakness.

Select the idea with the fewest unsolved weaknesses.

9.1.7 Bulletproofing⁶⁹

When using the bulletproofing technique one tries to find areas in which the plan might be especially vulnerable. The relevant questions are: “What may possibly go wrong? What are some of the difficulties that could occur? What’s the worst imaginable thing that could occur? ‘What might happen if...?’ “

Brainstorm around these questions and enter the problems you identify in a table like the following.

		How likely is it to occur	
		Unlikely	Very likely
If it did occur, it would be:	Major Problem		Most Serious
	Minor Problem	Least serious	

Then try to find ways to deal with the problems.

In order to get back into a positive state of mind you can spend time thinking of what might go well by brainstorming on the following questions: “What could go well? What pleasant surprises might it deliver? What is the best thing that could happen? “

9.1.8 Devil’s Advocate

Devil’s advocate – have someone try and find fault with the plan. Or in a similar dialectical inquiry you have two groups; one develops a plan and makes a list of assumptions. The other tries to create a counterplan. You then try and discuss the pros and cons and try to find a new plan that uses the ideas.

⁶⁸ Sellnow Die mit den Problemen spielen p 64.

⁶⁹ <http://www.mycoted.com/BulletProofing>.

9.1.9 Force Field Analysis⁷⁰

The participants identify and list the driving and the restraining forces in the solution. Look for things that strengthen or to add to the positive forces. Look for ways to weaken or remove negative forces. If the negative forces are too strong, abandon the idea.

9.1.10 Idea Advocate

Assign people to the idea and have them prepare a presentation of this idea. Afterwards the ideas are discussed and a decision is reached.

9.1.11 NAF

Give a score out of 10 for each idea and each of the following items:

- Novelty – How novel is the idea?
- Attractiveness – How attractive is this as a solution?
Does it solve the problem completely?
- Feasibility – How well can one put the idea into practice.

9.1.12 Paired Comparison⁷¹

You can compare around 10-15 ideas. Otherwise the whole thing becomes unmanageable. You arrange a matrix with the ideas and put them as headings in columns and in rows. Then you go through the combinations and put one to three stars and one of the two letters. The letter symbolizes which of the two ideas was preferred. One star means slightly preferred while three stars means greatly preferred. Example:

	A	B	C	D	E	F
G	G ***	G *	G **	G *	G *	G *
A		B ***	C *	A **	E *	F *
B			C *	B **	E *	F *
C				C **	E *	C **
D					E *	D **
E						F *

⁷⁰ http://www.mycoted.com/Force-Field_Analysis; Klein p 203.

⁷¹ http://www.mycoted.com/Paired_Comparison.

Outcome:

Idea	Number of stars
A	2
B	5
C	6
D	2
E	4
F	3
G	9

9.1.13 Personal Balance Sheet⁷²

This is best when evaluating ideas on your own. Create a table such as the following and fill in the relevant data.

Ideas	Expected Gains				Expected Losses			
	For you		For others		For you		For others	
	tangible	subjective	tangible	subjective	tangible	subjective	tangible	subjective
Idea 1								
Idea 2								

9.1.14 Picking out the raisins⁷³

One writes down three positive and three negative aspects to each idea.

⁷² http://www.mycoted.com/Personal_Balance_Sheet.

⁷³ Klein p 144.

9.2 Deciding

A lot of people have great ideas, but nothing in the world is cheaper than a good idea with no action

Sometimes decisions are made easier when one uses specific decision-making techniques. Obviously it is always a possibility to reach a decision by consensus and one should try to find a solution that everyone can live with.

9.2.1 Making Dots⁷⁴

A popular, quick method for determining priorities by voting. Every individual has a number of dots and can place them on the ideas he or she prefers.

9.2.2 100 Pound Evaluation

Everyone gets to divide up £ 100 to allot to the ideas.

9.2.3 Flip a Coin, Throw a Dice⁷⁵

There are sometimes times when it is not worth spending a lot of time deciding. Find a random way of deciding, flipping a coin etc. If the group feels comfortable with this, then do it, otherwise choose another alternative. The idea behind this is that is often not worth the time evaluating further.

9.2.4 PMI Continued

Add a numerical value from 1 – 100 to every positive listed and -1 to -100 to every negative. Add up the columns corresponding to the solutions to the problems. The higher the number the more relevant the idea.

9.2.5 Dot-Scale⁷⁶

You draw a line with the digits 0 % on the left, 50% in the middle and 100 % on the right behind every idea.

You get everyone to decide how good he/she thinks the idea is on the scale of 0 to 100.

⁷⁴ Klein p 144.

⁷⁵ Sellnow Die mit den Problemen spielen p. 68.

⁷⁶ Klein p. 144

10 Further Problem-solving Techniques

Ideas are like rabbits. You get a couple and learn how to handle them, and pretty soon you have a dozen John Steinbeck

Do something. If it doesn't work, do something else. No idea is too crazy. Jim Hightower

10.1 Delphi⁷⁷

Delphi is a technique in which several rounds of questions are sent to a group of experts. After the answer to the first set of questions comes back, the second questions are generated while looking at the answers. The answers to the questions are also sent to the experts (anonymously) and they are asked to rate the answers according to a predetermined scale)

10.2 Six Thinking Hats⁷⁸.

This method can be used in the brainstorming phase. But basically it is a communication, perspective-changing method that can be used in meetings, in discussions and as a method for solving problems. The basic idea is that everyone puts on different hats (symbolically it is often helpful to have different coloured hats or cards) and “brainstorms” or “analyses” the problem from a different perspective. This can be done simultaneously, or the speaker decides which perspective he or she will adopt. The person speaking just takes one coloured hat and puts it on, so everyone knows on what level he is speaking. Or a member of the group can say: I think we should all put on the ... hat now.



White Hat: covers facts, information, needs, gaps.



Red Hat: covers intuitions and feelings. When wearing this hat emotions are allowed to be mentioned without the need to justify them. This is often helpful in discussions as often people do not want to mention emotions unless they are logically justifiable. But emotions can often be a help in finding a solution even if they are not (yet) logical.

⁷⁷ <http://www.mycoted.com/Delphi>.

⁷⁸ de Bono, Six Thinking Hats.



Black hat: the hat of judgement and caution. The black hat is used to point out why a solution is not feasible.



Yellow hat: the positive hat. This is the hat that states why something will work and what benefits people have. It can also be used to observe something of value that has already happened.



Green hat: hat of alternatives, proposals, provocations, changes



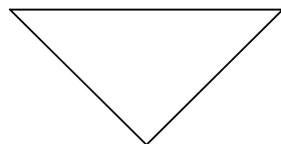
Blue hat: hat of overview, process hat. The Meta-hat... the hat when someone wants to talk about the process.

10.3 Kepner and Tregoe Method

http://www.mycoted.com/Kepner_and_Tregoe_method

10.4 Upside-Down Triangle⁷⁹

A triangle that is upside down is drawn onto the flipchart. The moderator explains that this is the problem... it can't stand alone if it is not propped by other forces.



The group now looks for forces that stabilize the triangle i.e. the problem: The reasons that make the problem a problem.

These are visualised as props stabilizing the triangle.

After this the props the participants can influence are chosen and the participants look for possibilities to saw off the props.

⁷⁹ Klein p 196.

11 Preparing a Creativity Meeting

To be prepared is half the victory. Miguel De Cervantes

Before everything else, getting ready is the secret to success. Henry Ford

11.1 How Many?

In books and articles written on the subject people agree that a brainstorming session is most effective in groups of 5-7 people. If the groups are larger it is often a good idea to subdivide the groups into smaller groups.

11.2 How Long?

There are mostly two peaks during the idea-collecting phase. And – according to the material I have read – the creative, unconventional ideas come in the second peak. Because of this it is important not to stop brainstorming before the second peak has been reached.

11.3 Moderation:

Moderation is important in brainstorming, but how important it is depends on the group and its discipline. Sometimes a moderator emerges naturally from the group. But it is important that at least one person concentrates primarily on the process.

The goal of the moderator is to “stay in the background” in order to leave freedom for the group process of brainstorming but at the same time make sure that ideas are collected and the rules are observed. If ideas start to fade the moderator gives new impulses and mediates in the case of disharmony. It is his/her responsibility to watch that the meeting has a clear structure.

11.4 Before the Meeting:

One of the greatest responsibilities the moderator has is to prepare the brainstorming session. First of all it is important to establish the goal, either by formulating the problem or by deciding that the goal is to define the problem. But even if the group is to decide on the problem – it is important that the moderator clarifies the goal(s) of the meeting and prepares beforehand.

Secondly it is also important for the moderator to decide on a creativity booster technique. This is important because some of the techniques need preparation

beforehand. It is important that the moderator feels comfortable with the technique and has the feeling the participants will also feel comfortable with it.

Beforehand the moderator should organise the meeting so that the necessary material is available. If possible he/she can look and see if the room is a good choice for the meeting (Is it big enough? Is it friendly? Is it too warm, too cold? Too loud? Is there enough fresh air?) and if not whether he/she can find another room or do something to change the original room.

The moderator should try and make sure that there are enough materials (flipcharts, flipchart paper, writing markers, moderation cards, pin boards...). The moderator should also decide: "Who should participate? What information needs to be handed out before the meeting?" The moderator also schedules the meeting and sends out information about time, place and content. It is always a good idea to state the goal of the meeting clearly and precisely on the invitation. In addition, it is often a good idea if the moderator takes some time to think about possible group dynamics, potential conflicts etc. so that he/she is not taken by surprise. The moderator should also put some thought into the question of who is going to do the minutes.

Another thing that is important beforehand is to schedule how long the meeting will last – and if necessary add breaks at intervals. It is often a good idea to take a five- minute break after 45 minutes and a coffee break after an hour and a half. After 3 – 4 hours it is a good idea to have a longer break, say 30 minutes.

11.5 During the Meeting

The moderator needs to state the brainstorming rules at the beginning. After that one of the most important things the moderator needs to do is to watch that no one starts out with negative criticism. Obviously one needs to explain the rules beforehand. But after the rules are explained, if someone goes against the rules, it is important to politely but firmly interrupt and explain the ideas again. Also explain that if someone sees that an idea could be better, instead of criticising he/she should say: "yes, and...". It is really important to keep the phases distinct.

It is possible for the moderator to participate in the brainstorming, so long as he/she continues to focus on the process.

If it is a large group the moderator might think of working with an assistant who writes down the ideas as they evolve and the moderator can concentrate on facilitating.

11.6 Pitfalls to Avoid:

Discussions during the brainstorming session about an idea or about “technical” questions.

Stopping the brainstorming session as soon as the first break in the flow of ideas takes place

Participants take too long to explain their idea and start a long monologue

The ideas are not written down properly.

The moderator does not moderate

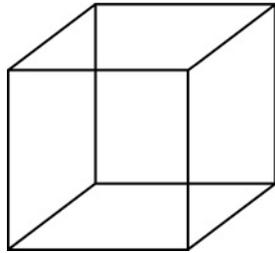
12. Supplements

- 12.1 Peceptual Ambiguity
- 12.2 The Blind Men and the Elephant
- 12.3 You See What You Expect To See
- 12.4 Roles
- 12.5 Internet Pages
- 12.6 Booklist

12.1 Perceptual Ambiguity



5)



6)



7)



8)



Solutions

- 1) old woman or young woman
- 2) old woman or young woman (try turning around)
- 3) Face or the word Liar
- 4) Escimo looking into a cave or an Indian
- 5) neckar cube – which square is up front, left lower corner or right upper corner
- 6) Girls face or saxophone player
- 7) Vase or two faces
- 8) Flip or Flop

12.2 The Blind Men and the Elephant

John Godfrey Saxe's (1816-1887) version of the famous Indian legend,

It was six men of Indostan,
To learning much inclined,
Who went to see the Elephant
(Though all of them were blind),
That each by observation
Might satisfy his mind.

The First approach'd the Elephant,
And happening to fall
Against his broad and sturdy side,
At once began to bawl:
"God bless me! but the Elephant
Is very like a wall!"

The Second, feeling of the tusk,
Cried, -"Ho! what have we here
So very round and smooth and
sharp?
To me 'tis mighty clear,
This wonder of an Elephant
Is very like a spear!"

The Third approach'd the animal,
And happening to take
The squirming trunk within his
hands,
Thus boldly up and spake:
"I see," -quoth he- "the Elephant
Is very like a snake!"
The Fourth reached out an eager
hand,
And felt about the knee:
"What most this wondrous beast is
like
Is mighty plain," -quoth he,-
"'Tis clear enough the Elephant
Is very like a tree!"

The Fifth, who chanced to touch the
ear,
Said- "E'en the blindest man
Can tell what this resembles most;
Deny the fact who can,
This marvel of an Elephant
Is very like a fan!"

The Sixth no sooner had begun
About the beast to grope,
Then, seizing on the swinging tail
That fell within his scope,
"I see," -quoth he,- "the Elephant
Is very like a rope!"

And so these men of Indostan
Disputed loud and long,
Each in his own opinion
Exceeding stiff and strong,
Though each was partly in the
right,
And all were in the wrong!

MORAL,
So, oft in theologic wars
The disputants, I ween,
Rail on in utter ignorance
Of what each other mean;
And prate about an Elephant
Not one of them has seen!

12.3 Illustrations that show that we see what we expect to see

12.3.1 The Cat

One can observe this with the figure:

THE CAT

The letters form the words ⁸⁰ “the cat” but if you look closely you will see that the “H” and the “A” are identical. People’s perception of the word was influenced by their expectations. One expected to see “the” and not “tae” and “cat” and not “cht”.

12.3.2 Riddle by Lewis Carrol

Lewis Carrol⁸¹ also wrote a riddle that shows how expectations influence the way we understand and perceive things:

John gave his brother James a box: About it there were many locks. James woke and said it gave him pain; So gave it back to John again. The box was not with lid supplied Yet caused two lids to open wide: And all these locks had never a key What kind of box, then, could it be?

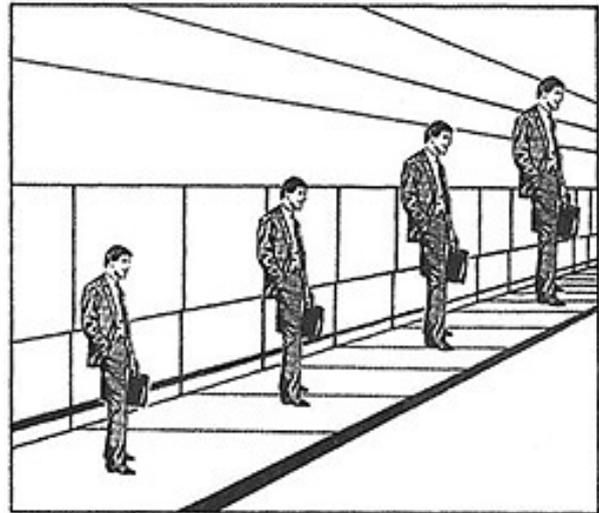
Solution:

As curly haired James was sleeping in bed, His brother John gave him a blow on the head. James opened his eyelids, and spying his brother, Doubled his fists, and gave him another. This kind of a box then is not so rare The lids are the eyelids, the locks are the hair.

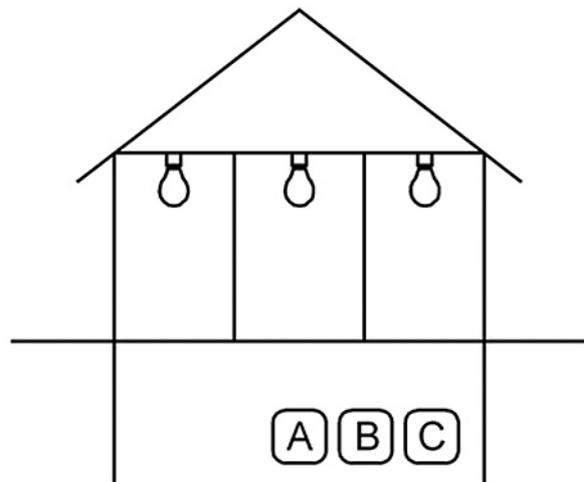
⁸⁰ Illustration taken from “Thinkertoys” from Michael Michalko p 10.

⁸¹ “The Universe in a Handkerchief, Lewis Carroll’s Mathematical Recreations, Games, Puzzles, and Word Plays” by Martin Gardner

- 12.3.3 Figures in the Subway⁸²
 Again look at the figure to the left. We assume that the figure that is furthest from the viewer is larger because we expect things that are further away to seem smaller than they are. But if one measures the figures one discovers they are all the same length.



- 12.3.4 House Lightbulb problem
 You have a house with three rooms on the first floor with one lightbulb in each. In the cellar there are 3 light switches (A, B and C). You don't know which switch is for which room. How can you find this out by only going up once?"



Solution:

Turn switch A on. Wait for 10 minutes. Turn light switch A off, turn light switch B on. Go up to the three rooms. The light bulb that is on is connected to switch B. The light bulb that is off and hot is connected to switch A. The light bulb that is off and cold is connected to C.

⁸² Illustration taken from Michael Michalko Thinkertoys p 44.

12.4 Possible Roles

1. Miss Marple
2. Sherlock Holmes
3. A Rabbi
4. A Roman Catholic priest
5. A painter
6. A professional dancer
7. A court jester
8. A nurse
9. A teacher
10. John F. Kennedy
11. Karl Marx
12. Mozart
13. A pet dog
14. The Queen of England
15. Julia Roberts
16. A cat
17. An army general
18. A prostitute in Amsterdam
19. A beggar in Bombay
20. Spiderman
21. The Archbishop of Canterbury
22. A London cab driver
23. Micky Mouse
24. A deaf person
25. Machiavelli
26. Socrates
27. Mother Theresa
28. Sigmund Freud
29. a seven year old girl
30. a French chef
31. a Godfather
32. Britney Spears
33. A ladybird
34. Dr Jekyll and mr hyde
35. Winston Churchill
36. A Star Trek character
37. Betrand Russel
38. Oscar Wilde
39. A World War 2 fighter Pilot
40. Tigger
41. Bart Simpson
42. Tony Blair
43. James Bond
44. A fairy

12.5 Some Internetpages on Creativity

www.mycoted.com

<http://www.cul.co.uk/>

http://en.wikipedia.org/wiki/Creativity_techniques

<http://www.mind-mapping.org/mindmapping-and-creativity/crack-the-barriers-to-creativity.html>

<http://www.creativethink.com/>

<http://www.m1creativity.com/solveit/titlepage.htm>

<http://gocreate.com/tools/index.htm>

<http://www.brainstorming.co.uk>

<http://www.nutscape.com/creativity/html/indexx.htm>

<http://members.optusnet.com.au/charles57/Creative/index2.html>

<http://www.enchantedmind.com>

<http://www.creativethinking.net>

<http://www.m1creativity.com>

<http://www.jpbc.com/creative/creative.php>

<http://www.quantumbooks.com/Creativity.html>

12.6 Booklist

In the following there is a booklist of the books I used when writing these materials. Even if I haven't quoted all of them, I gathered ideas and information from all of them.

Creativity techniques are often used and described so often, so it is difficult to see where they originated from, so I haven't quoted every link I found to every creativity technique. But I do hope I have done justice to the amazing amount of great tips and ideas I have got from these books.

Clegg, Brian	Instant Brainstorming	1st Edition 2006
Clegg, Brian; Birch, Paul	Instant Creativity	2007
de Bono, Edward	Six Thinking Hats	1985
Klein, Zamyat M.	Kreative Geister wecken	2006
Knieß, Michael	Kreativitätstechniken	2006
Marquardt, Michael	Leading with Questions	2005
Mencke, Marco	99 Tipps für Kreativitätstechniken	1.Auflage 2006
Michalko, Michael	Cracking Creativity	
Michalko, Michael	Thinkerpak revised	2006
Michalko, Michael	Thinkertoys	2nd Edition 2006
Noack, Karsten	Kreativitätstechniken	1. Auflage, 2005
Oech, Roger von	A Whack on the Side of the Head	3rd Edition, 1998
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