

Katrina Heijne &
Han van der Meer

Road Map for * Creative Problem Solving Techniques

Organizing and
Facilitating Group
Sessions

Boom



Road Map for Creative Problem Solving Techniques

Road Map for Creative Problem Solving Techniques

Organizing and Facilitating Group Sessions

Katrina Heijne

Han van der Meer



website!

By registering the unique activation code below you can gain access to the website www.creativeproblemsolvingtechniques.nl. This code is strictly personal, and matched up with the first edition. After activation you will have access to the website for the duration of five years. The code can be activated up to six months after the release of a next edition.

© 2019 Katrina Heijne & Han van der Meer & Boom uitgevers Amsterdam

Layout and design: Coco Bookmedia, Amersfoort; Dog and Pony, Amsterdam

Illustrations: Sylvia Machgeels, www.sylviamachgeels.nl

ISBN 9789024401116

ISBN 9789024401123 (e-book)

NUR 173

www.creativeproblemsolvingtechniques.nl

www.boomhogeronderwijs.nl

All rights reserved. No part of this book may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the publisher's prior consent.

Insofar as the making of reprographic reproductions of this publication is permitted under article 16 h of the Dutch Copyright Act (Auteurswet), the legally owed fees for such should be paid to Stichting Reprorecht (Postbus 3051, 2130 KB Hoofddorp, the Netherlands, www.reprorecht.nl). Those wishing to incorporate parts of this publication in anthologies, readers and other compilation works (article 16, Copyright Act) should contact Stichting PRO (Stichting Publicatie- en Reproductierechten Organisatie, Postbus 3060, 2130 KB Hoofddorp, the Netherlands, www.stichting-pro.nl). With regard to copying parts of this publication for commercial purposes, please contact the publisher.

While every effort has been made in the production of this publication, it is not possible to guarantee the absence of printing errors or omissions and for that reason the authors and editor accept no liability for errors or omissions or their consequences.

Content

Preface	ix
1 Setting the stage	1
1.1 Historical overview of creativity	1
1.2 iCPS: Delft's expansion of the traditional CPS approach	6
1.2.1 The four sub-processes of iCPS	6
1.2.2 Creative diamond 2.0	8
1.2.3 iCPS basic module	11
1.2.4 The active role of the facilitator in both process and content	12
1.3 The three basic principles for good facilitation	12
1.3.1 Principle 1: Role rigidity	12
1.3.2 Principle 2: Clear problem statement	14
1.3.3 Principle 3: Rules and techniques for each step of the creative diamond	14
1.4 Rules and techniques for diverging	14
1.4.1 Divergent mindset: Postpone judgment	15
1.4.2 The first rule of diverging: Quantity breeds quality	16
1.4.3 The second rule of diverging: Hitchhike	18
1.4.4 The third rule of diverging: Freewheel	18
1.5 Rules and techniques for reverging	19
1.5.1 The revergent mindset: Use the inquiring mind	20
1.5.2 The first rule of reverging: Be jointly active	20
1.5.3 The second rule of reverging: Listen responsively	21
1.5.4 The third rule of reverging: Move circularly	21
1.6 Rules and techniques for converging	21
1.6.1 Convergent mindset: Affirmative judgment	22
1.6.2 The first rule of converging: Protect originality	22
1.6.3 The second rule of converging: Trust the hedonic response	23
1.6.4 The third rule of converging: Have action in mind	23
1.7 To conclude	24

2	'Road Map' and Technique Selection Chart	25
2.1	iCPS techniques categorized	26
2.1.1	The chapter structure	26
2.1.2	The 3-diamond overview	27
2.1.3	Technique Selection Chart	31
2.2	Lay-out of iCPS techniques	34
3	Delft Road Map for Creative Problem Solving Techniques	37
3.1	Content Finding – Diverging	39
3.1.1	Brainstorming (traditional)	40
3.1.2	Brainwriting with Post-its®	44
3.1.3	Brainwriting 6.3.5	48
3.1.4	Creative Confrontation (excursion & forced fit)	52
3.1.5	Excursion 1: Criminal Round	56
3.1.6	Excursion 2: Take a Walk	60
3.1.7	Excursion 3: Hidden Presumptions	64
3.1.8	Excursion 4: Absurd Questioning	68
3.1.9	Excursion 5: Random Words	72
3.1.10	Excursion 6: Random Objects	76
3.1.11	Excursion 7: Visual Stimulation	80
3.1.12	Excursion 8: Guided Fantasy	84
3.1.13	Excursion 9: Personal Analogy	88
3.1.14	Excursion 10: Direct Analogy or Metaphor	92
3.1.15	Excursion 11: Symbolic and Fantasy Analogy	96
3.1.16	Flower Association	100
3.1.17	How To's or H2's	104
3.1.18	Interactive Brainsketching	108
3.1.19	Ladder of Abstraction	112
3.1.20	Making a Collage	116
3.1.21	MATEC	120
3.1.22	Mind Mapping in a Group Session	124
3.1.23	Morphological Synthesis	128
3.1.24	Picture the Problem	132
3.1.25	SCAMPER	136
3.1.26	40 Inventive Principles of TRIZ	140
3.1.27	5W1H	144
3.2	Content Finding – Reverting	149
3.2.1	Idea Gallery	150
3.2.2	Elevator Pitch	154
3.2.3	Spontaneous Clustering	158
3.2.4	Sequencing	162

3.3	Content Finding – Converging	169
3.3.1	Restating the Problem	170
3.3.2	Hits or Dots	174
3.3.3	Paired Comparison	178
3.3.4	Criteria & Ranking	182
3.3.5	UALo	186
3.3.6	Making a Poster	192
3.4	Acceptance Finding	197
3.4.1	Devil’s and Angel’s Advocates	198
3.4.2	Force Field Analysis	202
3.5	Information Finding	209
3.5.1	Parking Lot	210
4	Guidelines for Organizing the Session	215
4.1	Conditions for using iCPS	216
4.2	Prepare and organize	217
4.2.1	Intake with the problem owner	217
4.2.2	Gear up	222
4.2.3	Anticipate follow-up	230
4.3	Session duties	232
4.3.1	Session duty 1: Welcome & introduction	234
4.3.2	Session duty 2: Briefing by the problem owner	238
4.3.3	Session duty 3: Purge	240
4.3.4	Session duty 4: SPARK the PaP	244
4.3.5	Session duty 5: Icebreakers	248
4.3.6	Session duty 6: Energizers	252
4.3.7	Session duty 7: Break	258
4.3.8	Session duty 8: Wrap-up & closing	262
5	Case Examples	267
5.1	Case 1 – Single and short: Smoke-free	267
5.2	Case 2 – Complex and Long: The New Brewery	270
5.3	Case 3 – Complex and Very Long: U_CODE, a new tool for Urban Design	272
6	Epilogue	275
7	References	277
8	Glossary	285
9	Image credits	293
10	Index	295
11	About the authors	297
	Technique Selection Chart	300

Preface

In 2013, the first edition of *integrated Creative Problem Solving (iCPS)* was published. In this book we describe how to design a smoothly facilitated creative session by explaining the theory of creativity and how to facilitate a creative session. We also cover the main features of the most commonly used techniques, but not in detail. In this *Road Map* we will gradually explain the techniques we describe in our earlier books. First, we will describe the most popular of each main category of technique. Then, for each popular technique we will give a couple of variations.

Most authors in our field are not the most scrupulous when it comes to acknowledging earlier work. It is common to copy someone else's technique and simply rename it. Whenever possible, we try to avoid this by returning to the original writer on the technique and citing the source as comprehensively as we can.

We do not think this *Road Map* will ever be finished. In our field, new insights and new techniques are found almost every day. This is work in progress. Let us start now and lay the ground for the further growth of our profession: ***Creative Facilitation***.



The book is partly based on research carried out in project U_CODE. This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 688873.

Dedicated to Jan Buijs († December 1, 2015)

1

Setting the stage

Our book (Buijs and van der Meer, 2013) *integrated Creative Problem Solving (iCPS)* was the result of forty years of developing the practical procedures, methods and techniques in the field of Creative Problem Solving (CPS). iCPS originated at the Delft University of Technology (DUT), Faculty of Industrial Design Engineering (IDE). In the iCPS book, the focus is on explaining the underlying principles of facilitating a creative session. Methods and techniques are only explained on a theoretical level. With this ‘road map,’ we try to build on the iCPS principles and give a full description of methods and techniques: the ‘tools’ of the ‘facilitator.’ You can find the major techniques in this book. For the methods we refer to the website.



Before diving deeply into the practicalities of the facilitator’s techniques, it might be helpful to provide a short recap of the principles behind them. Each creativity technique is based on one or more of these principles. Understanding the principles will result in an increased understanding and more effective application of the techniques described in this book and finally in remodelling techniques to your personal style, your own toolbox, your own method.

First, some history is given, followed by our working definition of creativity. Then the text makes a major leap forward by presenting the Delft adjustment to the classical Creative Problem Solving (CPS) model. The chapter ends with the three basic principles for good facilitation.

1.1 Historical overview of creativity

Creativity is a complex and complicated phenomenon (Runco et al, 1999). It has to do with people’s talents and traits, it has to do with surprising new solutions to problems, it has to do with specific actions people take, and it has to do with circumstances and situations. It is value based: robbing a bank without being caught can be considered a creative act, but we do not want to teach our readers how to do it. And of course it is time bound. What was new one hundred years ago is now common practice. It is also context bound: what is new in one domain can be normal in another domain.

Within the domain of creativity and Creative Problem Solving, the 4P theory of Mel Rhodes (1961) is commonly used to distinguish all these different aspects. Rhodes

(1916 – 1976) divided the creativity domain into four specific aspects. Since all aspects have a label beginning with a ‘p’ his work is referred to as the ‘4P theory on creativity: person, process, press and product.’ In more detail:

- **Person:** This ‘covers information about personality, intellect, temperament, physique, traits, habits, attitudes, self-concept, value systems, defence mechanisms, and behaviour.’ (Rhodes, 1961, p. 307)
- **Process:** This ‘applies to motivation, perception, learning, thinking and communication... What are the stages of the thinking process?’ (p. 308)
- **Press:** This ‘refers to the relationship between human beings and their environment.’ (p. 308)
- **Product:** Rhodes makes a distinction between idea and product. ‘The word *idea* refers to a thought which has been communicated to other people in the form of words, paint, clay, metal, stone, fabric or other material. When an idea becomes embodied into tangible form it is called a *product*.’ (p. 309)

Since in practice we only find the ‘process’ part useful when we design tools for sessions, we will continue our journey on the theory of creativity along this path and use the working definition of the most cited author on creativity, Theresa Amabile:

‘Creativity is *the process* that leads to novel and useful solutions to given problems.’ (Amabile, 1996)

Creative facilitation is not suited for all types of problems. Usually two types of problems are distinguished: closed-ended and open-ended problems. Tudor Rickards (1974), of the Manchester Business School, has summarized the differences between these two types. See Table 1.1.

Open	Closed
Boundaries may change during problem solving	Boundaries are fixed during problem solving
Process of solving often involves production of novel and unexpected ideas	Process marked by predictability of final solution
Process may involve creative thinking of an uncontrollable kind	Process usually conscious, controllable and logically reconstructable
Solutions often outside the bounds of logic - can neither be proved nor disproved	Solutions often provable, logically correct
Direct (conscious) efforts at stimulation of creative process to solve problems is difficult	Procedures are known which directly aid problem-solving (algorithms or heuristics)

Table 1.1. Characteristics of open and closed problem situations (Rickards, 1974).

3

Delft Road Map for Creative Problem Solving Techniques

This chapter will provide detailed descriptions of forty Creative Problem Solving techniques. Each technique will include some variants, so in total we will cover over a hundred techniques. This list is not exhaustive; however, we have tried to include the most frequently used techniques and the most effective ones in group sessions involved in Creative Problem Solving.

All techniques described in this chapter are for use during the creative session. Obviously, Content Finding contains the majority of techniques. However, we also included a few techniques specifically suited for Acceptance Finding and Information Finding. Most of the techniques come from the methods CPS (Buffalo School) and Synectics. Some come from other methods. For a more detailed description of all the methods we refer to the website.



We felt the need to cluster the techniques for diverging, reverging and converging to enable swift browsing through the book per stage. If you are looking for a specific technique, for example for the Problem Finding stage, we recommend consulting the Technique Selection Chart in §2.1.3.

- 3.1. Content Finding – diverging
- 3.2. Content Finding – reverging
- 3.3. Content Finding – converging
- 3.4. Acceptance Finding
- 3.5. Information Finding

Content Finding



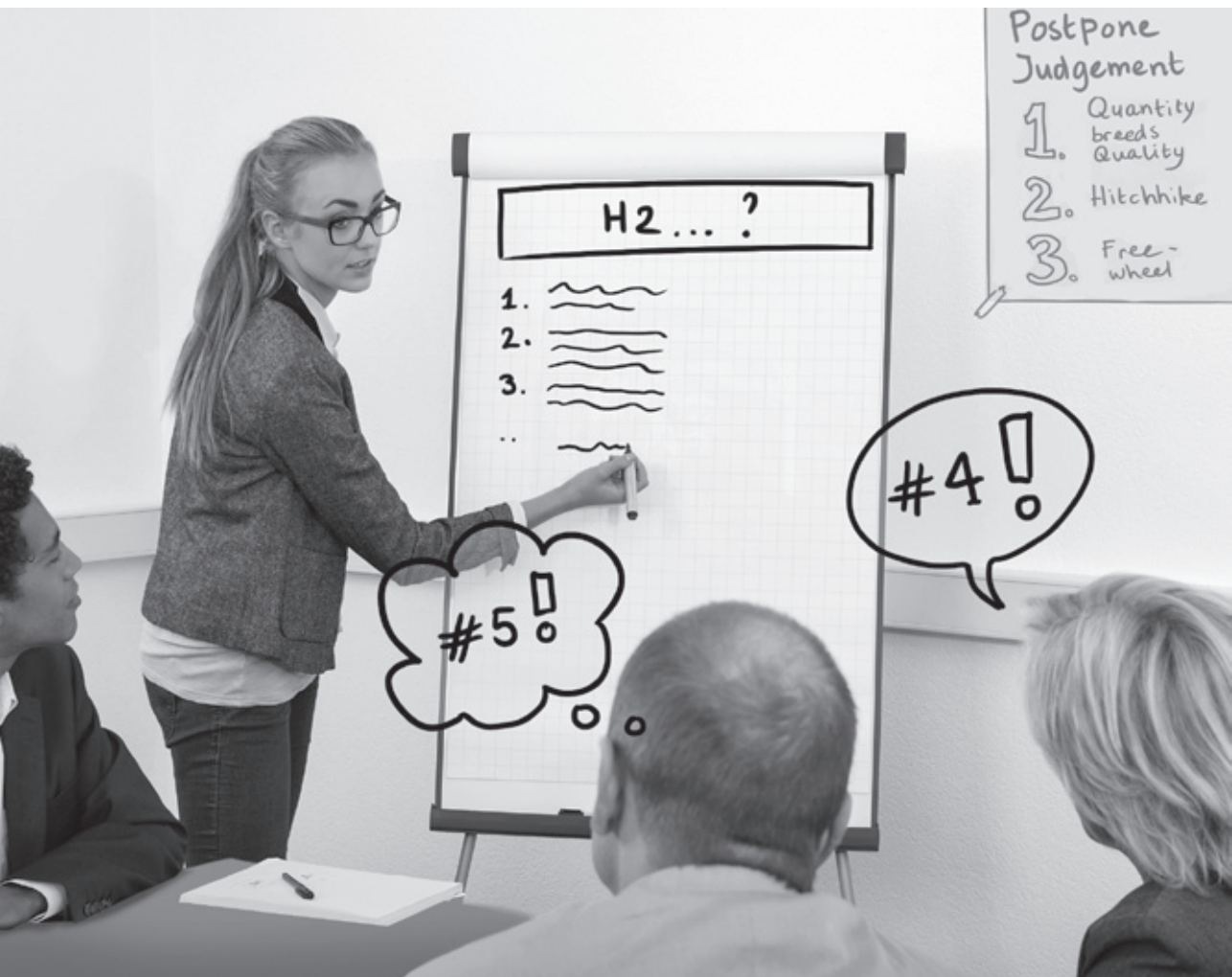
In this section we will cover all techniques you can use in the divergent stage. We have considered several ways to order the diverging techniques in a sequence that makes sense, for example based on certain characteristics. Finally, we decided to stick to alphabetical order, for the sake of quickly finding the technique you are looking for. If you are searching for techniques with specific characteristics, such as a technique especially suitable for Problem Finding, or if you prefer to start with a fluency technique, use the Technique Selection Chart as your guide.

The alphabetical order has the great benefit that it allows us to start with a big bow to Alex Osborn's traditional *Brainstorming*. Find below the techniques that are included in this section.

- 3.1.1. Brainstorming (traditional)
- 3.1.2. Brainstorming with Post-its®
- 3.1.3. Brainwriting 6.3.5
- 3.1.4. Creative Confrontation (excursion & forced fit)
- 3.1.5. Excursion 1: Criminal Round
- 3.1.6. Excursion 2: Take a Walk
- 3.1.7. Excursion 3: Hidden Presumptions
- 3.1.8. Excursion 4: Absurd Questioning
- 3.1.9. Excursion 5: Random Words
- 3.1.10. Excursion 6: Random Objects
- 3.1.11. Excursion 7: Visual Stimulation
- 3.1.12. Excursion 8: Guided Fantasy
- 3.1.13. Excursion 9: Personal Analogy
- 3.1.14. Excursion 10: Direct Analogy or Metaphor
- 3.1.15. Excursion 11: Symbolic and Fantasy Analogy
- 3.1.16. Flower Association
- 3.1.17. How To's or H2's
- 3.1.18. Interactive Brainsketching
- 3.1.19. Ladder of Abstraction or Progressive Abstraction
- 3.1.20. Making a Collage
- 3.1.21. MATEC
- 3.1.22. Mind Mapping in a Group Session
- 3.1.23. Morphological Synthesis
- 3.1.24. Picture the Problem
- 3.1.25. SCAMPER
- 3.1.26. 40 Inventive Principles of TRIZ
- 3.1.27. 5W1H

3.1.1 Brainstorming (traditional)

📍 Stage	Diverging
📌 Diamond	Mainly Idea Finding, also Problem and Solution Finding
🏠 Family of techniques	Fluency
👤 Type of problem	Single: clearly defined PaP
📄 Type of options	Obvious and beyond
★ Level of experience	Expert facilitator, intermediate resource group (RG)
🕒 Time	20 – 45 min.
😊 Fun-factor	4
🖋️ Materials	black markers; sufficient amount of flip-over sheets; tape



Purpose In traditional Brainstorming, options are shared out loud. Therefore, the emphasis is on divergent ground rule 'hitchhiking': using each other's options as stepping-stones for new options through associative thinking. It should not become a group discussion; therefore the facilitator should clearly separate the diverging and converging stage and emphasize the divergent mindset: Postpone judgment.

Use this technique to:

- Generate a variety of unusual ideas,
- Purge at the start of a session, prior to other diverging techniques.

In short An open-ended question is clearly visible, written on the wall. The RG thinks of options that address this question by sharing the options out loud. The facilitator will list the options on a flipchart and number them. The fluency will be limited by the writing speed of the facilitator.

History Alex Osborn, the O in 'BBDO' (one of the largest advertising agencies in the world), wanted to improve his team meetings. He perceived the team meetings with the 'creatives' on the one side and the 'suits' (account managers) on the other side as very unproductive. In the 1940s, he started with 'organized ideation' by assigning a set of rules to make the meetings more productive. Later, these rules became world famous as 'brainstorming.' In his book *Applied Imagination* (1953) Osborn elaborates on brainstorming and related techniques. Although, most people claim to know what 'brainstorming' is, only a few know how to conduct a brainstorming session successfully. As a result, it has become the most misunderstood and misapplied creativity technique.

References Osborn, A. F. (1953), *Applied Imagination; principles and procedures of creative problem-solving*. Buffalo, NY: The Creative Foundation Press, 3rd revised edition, 1993.

Step by step

1. Focus the group on the task

- Write down the PaG or PaP, clearly visible for all.
- Ask the PO to explain the task and share an example of a desired solution.
- Have the PO answer any questions from the RG.

2. Position the RG

- Put the RG in a semi-circle around the flip chart to allow good eye contact.

3. Lead the RG into the divergent mindset: Postpone judgment

- Remind the RG about the ground rules for diverging: Quantity breeds quality, hitchhike and freewheel.
- Answer any remaining questions regarding process or content.

4. Clarify the process of Brainstorming

- Clarify the purpose and outcome.
- Explain the steps in brief.
- Set a target number of options to generate.
- Answer any questions regarding Brainstorming.

5. Generate options

- Ask the RG to call out options one at a time (purge is included here).
- As a facilitator, number the options and list them on a flipchart.
- If the fluency of ideas drops, repeat the problem statement or use some fluency enhancing questions, like:
 - 'Give me 5 more options.'
 - 'Give me your wildest idea.'

6. Check on progress

- Monitor that the participants respect the divergent mindset.
- Get feedback from the PO during Brainstorming.
 - 'Are the generated options going in the right direction?'
 - 'Are you getting the kind of options you want?'

7. Reflect on the process and outcome towards the end

- Check if the target number of options has been reached.
- Get feedback from the PO.
 - 'Do you need more options?'
 - 'Do the options cover the entire field (or solution space) you have in mind?'
 - 'Is there a particular area you would like to explore further?'
- Sense if the RG, especially the PO, is ready to proceed to the next step.
- Sense the energy level of the RG.

8. Prepare for the next steps (task appraising), for example:

- Generate additional options using the same or a different technique.
- Proceed to the reverging stage (e.g. Idea Gallery).
- Take a break and use it effectively. (See §4.3.7. Break.)
- Identify actions to be implemented. (See §4.3.8. Wrap-up & closing.)

- Tips & tricks**
- Record options on the flip chart exactly as they are shared: literally and entirely.
 - Write legibly and large enough so the RG can read it clearly.
 - Do not assume that anyone knows how Brainstorming works (even though they say they do).
 - Ensure all participants, including the PO, are actively engaged in the process.
 - As a facilitator face your RG; do not turn your back to them.
 - Consider having someone record the ideas, while you focus your attention on the role of the facilitator.
 - When the fluency drops, consider using fluency enhancing questions or stimuli like:
 - ‘Now, I would like to have at least three more options from each of you.’
 - ‘Please give me some real wild options, options that would send you to jail...’ This is the so-called wild card technique, a light version of Criminal Round.
 - ‘What if we think about options that...?’ Put on the dots anything that feels appropriate in that moment. For example, use SCAMPER words in a loose manner (see §3.1.25).

Variants

Brainwriting with Post-its®: Use Post-its® to speed up the recording of options, resulting in a higher fluency of the RG. In addition, the Post-its® can be easily moved around, which enables reverging approaches like Spontaneous Clustering and Sequencing. See §3.1.2.

Brainstorming with graphic facilitator: Instead of writing the options on a flipchart in words, the ideas are captured by a graphic facilitator, providing a ‘collective graphic memory’ for the RG. An additional process facilitator is needed to guide the CPS process.

Ping Pong brainstorming: variant of Brainstorming for two people. In turn, share options. If no options come to mind, just share an association based on the options previously mentioned. (Van Leeuwen and Terhurne, 2010). Focus on fluency and postponing judgment.

Alternate brainstorming: Treffinger and Nassab (1998) suggest to alternate periods of active generation of options with periods for silent reflection. During this moment of silence, the RG can catch their breath and note down some other options to share later when the active brainstorming resumes.

3.1.11 Excursion 7: Visual Stimulation

📍	Stage	Diverging
📌	Diamond	Mainly Idea Finding, also Solution Finding
🏠	Family of techniques	Flexibility
👤	Type of problem	Single
📄	Type of options	Beyond the obvious
★	Level of experience	Intermediate facilitator, novice resource group (RG)
🕒	Time	5-10 min.
😊	Fun-factor	3
🖋️	Materials	Flip-over sheets, black markers, sharp pictures, plain paper (A4)
🔑	Website	Creative Confrontation worksheet



Purpose With Visual Stimulation we enter the techniques of a more introvert type. In Visual Stimulation, the participants go on a more or less virtual excursion in their brains, provoked by pictures. The observations during this excursion are then force fitted to the problem-as-perceived.

Use this technique to:

- To tap the non-verbal capacities of the RG in a quiet, introvert way.
- Generate options beyond the obvious.

In short In Visual Stimulation visual images are used for ‘making the familiar strange.’ By analysing pictures the members of the RG are challenged to come up with new and original domains and options in these domains.

History The technique originates from the Battelle research institute in the early 1970s (Alter et al., 1973). In this research, pictures were found to provide the richest and safest triggers for options beyond the obvious. Smell, music, tastes and textures show a far broader reaction of the RG including fear, blocks and hysteria. Some years later the group (see Geschka et al., 1976) published an English version of their findings including their technique Visual Confrontation. More recently, the technique is described by Isaksen et al. (2000) under the name Visually Identifying Relationships (VIR).

References Alter, U., Geschka, H., Schaudé, G.R. and Schlicksupp, H. (1973). *Methoden und Organisation der Ideenfindung, Gruppenuntersuchung*, Batelle-Institut E.V., Farnkfurt am Main.
Geschka, H., Schaudé, G. R. and Schlicksupp, H. (1976). ‘Modern techniques for solving problems.’ *International Studies of Management & Organization*, 6(4), 45-63.
Isaksen, S. G., Dorval, K. B. and Treffinger, D. J. (2000). *Creative approaches to problem solving: A framework for change*. Kendall Hunt Publishing Company, Dubuque IA.

Step by step

Step 6 of Creative Confrontation (§3.1.4) is 'Generate options in the domain of the excursion.' The sub-steps of the excursion Visual Stimulation are:

6.1 Set the group in the right mood

- Clarify the purpose of Visual Stimulation.
- Explain the steps of Visual Stimulation in brief.
- Remind the RG about the mindset and ground rules for diverging: Postpone judgment; quantity breeds quality; hitchhike; and freewheel.
- Answer any remaining questions regarding process or content.
- Give the Creative Confrontation Worksheet (see website) and a pen to each participant.
- Show the group one or two relaxing pictures (landscapes, beach, swimming pool with palm trees) to clear their minds.

6.2 Explore the domain of the Visual Stimulation

- Place your participants round a table.
- Put some (10 to 20) pictures on the table. (See tips & tricks.)
- Ask each participant to pick the picture she or he likes most.
- Now ask the participants to take a close look at the picture and let their minds flow freely. Ask questions like:
 - 'What observations can you make about this picture?'
 - 'What impressions or reactions do you get from this picture?'

6.3 Harvest the options in the domain of the Visual Stimulation

- Let the participants individually note their observations/impressions/reactions.
- Ask the RG to share interesting observations in a plenary session and put these on a flip-over sheet.

6.4 Close the Excursion and proceed with step 7: Forced fitting

- Use the list of 'interesting observations' as stimuli for the forced fitting.

- Tips & tricks**
- Make your own specific selection of colourful attractive pictures full of meaning and detail and sharply printed.
 - Typically, some members of the RG get attached to the beautiful images and would like to take it home. Provide for this by having spare copies.
 - Interesting and unusual pictures work best.
 - Use pictures from different categories (for example food, sports, nature, people, technology etc.).
 - Working in pairs can help those who are new in this technique.
 - Especially in Anglo-Saxon countries, intellectual property rights are quite an issue. Make sure you use pictures that avoid these issues, preferably your own.
 - The pictures used in the main illustration of this technique were drawn from Loremixel.com: that generates random 'Placeholder Images' which are free to use.
 - Instead of step 6.3, use the Creative Confrontation worksheet to structure the technique. (See website.)

Variants *Visually Identifying Relationships, VIR*: This technique described by Isaksen et al. (2000) is basically the same, apart from some practicalities. For example, in VIR the entire RG is presented with the same three to four pictures, for which they each have to list their observations and reactions. See also *Visuelle Synectic* (Alter et al., 1973).

Content Finding



The stage between diverging and reverging came about through the technique Spontaneous Clustering (Tassoul and Buijs, 2007). Spontaneous Clustering can be applied in all three diamonds. However, there are more techniques which are about revisiting and rearranging options, in order to reveal and refine the problem and solution space, reset the mind and process and to benefit the resource group dynamics. These techniques were classified in three different types: gallerying, clustering and sequencing. Gallerying is the most basic approach, as it is about revisiting each option one by one. This can be done through Idea Gallery, but another approach is to let the RG present all options, e.g. in an Elevator Pitch. Clustering includes the technique Spontaneous Clustering, although clustering can also be done with predefined categories. Sequencing is about rearranging options along 1, 2 or 3 axes. A summary of the three types is shown in the figure below.

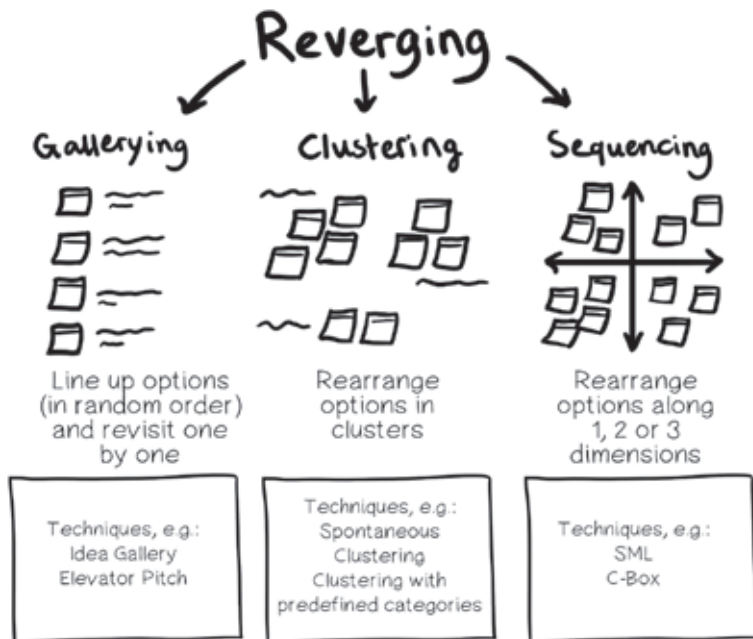


Figure 3.2. Overview of three approaches to reverging.

This section provides a detailed description of the following techniques:

- 3.2.1. Idea Gallery
- 3.2.2. Elevator Pitch
- 3.2.3. Spontaneous Clustering
- 3.2.4. Sequencing (including C-Box and SML)

3.2.1 Idea Gallery

📍	Stage	Reverging
📌	Diamond	Any
🏠	Family of techniques	Gallerying
#	Number of options	<50
☆	Level of experience	Novice facilitator, novice resource group (RG)
🕒	Time	10-60 min.
😊	Fun-factor	2
✍️	Materials	Masking tape, generated options on Post-its®, large wall, flip chart.



Purpose Options unclear to a RG member are likely to be excluded in the convergent stage. An option can be unclear due to bad handwriting or poor phrasing. Some options are incomplete, for instance due to the high fluency in the divergent stage or the participant only capturing a spark of an idea or just one word. An option can also be unclear because it seems too novel to a person to directly comprehend it. Elaborating on a specific option is not always appropriate in the diverging stage. Therefore, Idea Gallery aims to revisit and clarify all options. While doing this, the option will grow on the RG members, increasing the option's chance of surviving the converging stage.

Use this technique to:

- Focus attention on each and every option
- Clarify and consider the meaning of each option

In short Line up all options in random order on a large wall and number each option. Read each option out loud one by one and check with the RG whether the option needs further clarification. Note down any comments or clarifications next to each option. Once all options are revisited, the RG should have a complete and mutual understanding of all options and be ready for converging.

History Revisiting all options by reading each single option out loud is the most basic variant of reverging and has been used by many facilitators. However, to the best of our knowledge this is the first time that this technique is actually being described. Though, a similar approach is embedded in the Nominal Group Technique (Delbecq and van de Ven, 1971), of which a detailed description can be found on the website.

References Delbecq, A.L., and Van de Ven, A.H. (1971). 'A group process model for problem identification and program planning.' *The Journal of Applied Behavioral Science*, 7(4), 466-492.

Step by step

1. Prepare room set-up for Idea Gallery

- Move all generated options to one or more columns on a large wall, clearly visible to all participants.
- Leave some blank space next to each option.
- Number all options.

2. Clarify the process of Idea Gallery

- Clarify the purpose and outcome.
- Explain the steps in brief.
- Answer any questions regarding Idea Gallery.

3. Prepare the RG for Idea Gallery

- Remind the RG of the PaP, by reading it out loud.
- Invite the RG to come over to the wall where the Idea Gallery will take place.
- Remind the RG about the revergent mindset: Use the inquiring mind.
- Answer any remaining questions regarding process or content.

4. Revisit each option and clarify if needed.

- Read option number 1 out loud.
- Ask for questions and comments to clarify the meaning of the options and the logic behind them.
 - 'Is this option clear to you?'
 - 'Any questions regarding this option?'
- In case you sense the option needs more clarity:
 - 'Could someone tell me more about this option?'
 - 'Could someone explain to me what this options represents?'
 - 'Is this option clear to you now?'

5. Check on progress

- Monitor that the participants respect the revergent mindset and use their inquiring minds.

6. Reflect on the process and outcome of Idea Gallery towards the end

- Check if all options were revisited.
- Get feedback from the PO:
 - 'Are you content with the current options?'
 - 'Do you want to add any comments?'
 - 'Do you notice any gaps we need to explore?'
- Sense if the RG, especially the PO, is ready to proceed to the next step.
- Sense the energy level of the RG.

7. Prepare for next steps (task appraising), for example:

- Generate additional options using a divergence technique.
- Proceed to the converging stage.
- Take a break and use it effectively. (See §4.3.7. Break.)
- Identify actions to be implemented. (See §4.3.8. Wrap-up & closing.)

Tips & tricks

- Starting point for Idea Gallery is 1 to 50 options.
- Make a picture of all generated options, prior to moving them to the columns (in step 1). The raw data are easier to remember for the RG and should be included in the session report.
- Make sure to have plenty of empty flip-over sheets on the wall.
- Remind the RG not to judge or criticize, but use their inquiring mind to better understand the logic behind certain options.
- Promote clarification, but avoid debates.
- If new ideas emerge during the Idea Gallery, capture them on a Post-it® as well.
- If options are written in bad handwriting, rewrite the option on a Post-it® and place it on top of the original option.

Variants

Presenting options: If there is a limited number of options (about 10 to 20), you can also ask the RG to present the options in only *one* sentence. Keeping it short will maintain pace and energy. Besides, the presenter will be forced to focus on the unique aspect of the option. This technique is particularly useful in the Solution Finding stage, where the options consist of elaborated ideas or concepts.



Figure 3.3. Example of presenting options; a gallery approach.

4

Guidelines for Organizing the Session

Part of organizing a creative session is choosing the right techniques from chapter 3 to apply in the Content Finding sub-process. However, there is much more that should be considered regarding the organization and facilitation of an effective creative session. This is part of the Project Management sub-process. Project Management is one of the four sub-processes of iCPS, the other three being: Content Finding, Acceptance Finding, Information Finding.

Project Management regarding organizing an entire session consists of content related activities such as composing a rich problem statement together with the problem owner and building a session plan. Equally important however are the practical activities, such as bringing good and enough markers and Post-its® and choosing the right venue. The preparation of a creative session also already addresses some Information Finding and Acceptance Finding activities, like the intake meeting with the problem owner and compiling a resource group.

This chapter aims to provide guidelines to setup an entire creative session, including both the content related activities as well as the practical activities. In addition, this chapter will clarify how to incorporate the three basic principles of good facilitation in a full session by providing tangible tools and checklists. To recap, the three basic principles are role rigidity, a clear problem statement and rules and techniques for diverging, reverging and converging. The relevance of these principles was discussed already in chapter 1.4.

This chapter is built up into the following sections:

- 4.1) **Conditions for using iCPS:** Prior to setting up a creative session you have to verify whether the problem statement and situation is suitable for an iCPS approach.
- 4.2) **Prepare and organize:** Guidelines and checklists for preparing and setting up a creative session.
- 4.3) **Session duties:** Guidelines and checklists for use during the actual creative session.

Conditions for using iCPS

iCPS is a powerful approach, but not all situations are suitable for applying a creative approach. The problem owner has to be honest about his or her actual ownership of the problem, the motivation to find a solution and the competency and capability to implement it. This is summarized in the 3 i's Checklist (adapted from Miller et al., 2011).

Checklist: 3 i's

- *influence*: Is the problem owner accountable for and capable of implementing a solution?
- *interest*: Is the problem owner motivated to solve the challenge?
- *iCPS*: Does the problem owner actually need an iCPS session to reach his or her goals?

The third 'i', iCPS, can be assessed by the following checklist (Heijne, 2011).

Checklist: iCPS yes or no?

If at least one of the questions below is answered with 'YES', the problem statement is **NOT** suitable for an iCPS approach:

Could a solution to the problem statement be found by...

- | | |
|--|----------|
| - ...the effort of one person? | YES / NO |
| - ...logical or analytical reasoning? | YES / NO |
| - ...executing a certain procedure or routine? | YES / NO |
| - ...searching the internet? | YES / NO |
| - ...calling an expert? | YES / NO |
| - Is there only one 'right' solution to the problem? | YES / NO |

If the problem owner has influence and interest in solving the problem and needs iCPS to accomplish that, it is time for the problem owner to find a suitable, neutral, trained facilitator to set up a creative session!

Remember role rigidity, the first basic principle of good facilitation as explained in chapter 1.4. Within this role division, the problem owner is content-oriented and as such responsible for the initial problem statement and the decision-making regarding the content and implementation. The facilitator can be considered the process expert. A facilitator should be neutral, without any bias for a certain solution direction. During the session the facilitator is responsible for the course of the process, including issues like group dynamics and energy level of the RG.

4.2

Prepare and organize

Once it has been concluded that iCPS is the desired approach to solve the challenge and a neutral facilitator has been found, the actual Project Management can start: preparing and organizing the creative session.

The crux of preparing an effective creative session is threefold:

- 4.2.1) **Intake with the problem owner:** Verifying the conditions for a successful iCPS session. This includes composing a rich problem statement and compiling a resource group.
- 4.2.2) **Gear up:** This includes building a session plan, arranging materials and customizing the session venue.
- 4.2.3) **Anticipate follow-up:** This includes documenting, reporting, Acceptance Finding and evaluating.

4.2.1


Intake with the problem owner

During an initial phone call with the problem owner, the facilitator will already collect sufficient information to check the 3 i's (interest, influence and the need for iCPS). In addition, the facilitator will provide some insight in possible approaches to the problem-as-given (PaG). If both the facilitator and problem owner are eager to proceed, it is time to schedule the official intake meeting.

Checklist: topics during the intake with the problem owner

- *Digging and getting to the essence of problem-as-given* and formulating a rich problem statement.
- *Defining the actual purpose* of the creative session.
- *Agreeing on process and content:* Exploring project boundaries, expectations, deliverables, roles and responsibilities.
- *Considering Information Finding:* Thinking about (external) information that could be helpful in solving the problem (consider comparable situations, competitors, analogies from different fields or contexts, etc.)
- *Discussing the composition of the Resource Group*, while considering Acceptance Finding.
- *Agreeing on practicalities* such as space, materials, approach, time, resources and budget.

The aim of an intake meeting with the problem owner is to collect sufficient information to understand the PaG, the purpose and the desired outcome of the creative session. In addition, agreements need to be made regarding the content, e.g.



Creativity is one of the vital 21st century skills. As the subject of a large academic and practitioner community since 1950, there are literally hundreds of books and thousands of techniques on creativity.

In this book, this body of knowledge is boiled down for modern scholars and facilitators to one framework called iCPS, integrated Creative Problem Solving. For the techniques, the book focuses on techniques for groups and details 40 essential ones. This is the main part of the book. The set of 40 covers all the techniques in the field and offers the building blocks to construct group sessions. Guidelines for organizing sessions will help the reader position the building blocks and make the design for a smooth process.

The website, which you can find on www.creativeproblemsolvingtechniques.nl, will offer even more details and practicalities to run magic sessions and courses.

Katrina Heijne is lecturer and researcher at Delft University of Technology specialized in Creative Facilitation and founder of the consultancy firm SeriousCreativity.

Han van der Meer is lecturer emeritus Innovation Management at Delft University of Technology, emeritus professor and chair Innovative Entrepreneurship at Saxion University of Applied Sciences and senior consultant at SeriousCreativity.



9 789024 401116 >

www.creativeproblemsolvingtechniques.nl
www.boomhogeronderwijs.nl