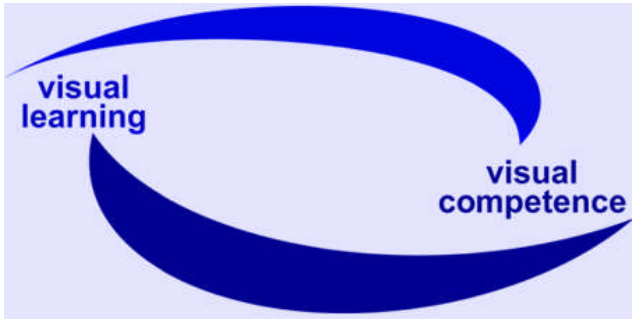
EU Project „visuaLearning“

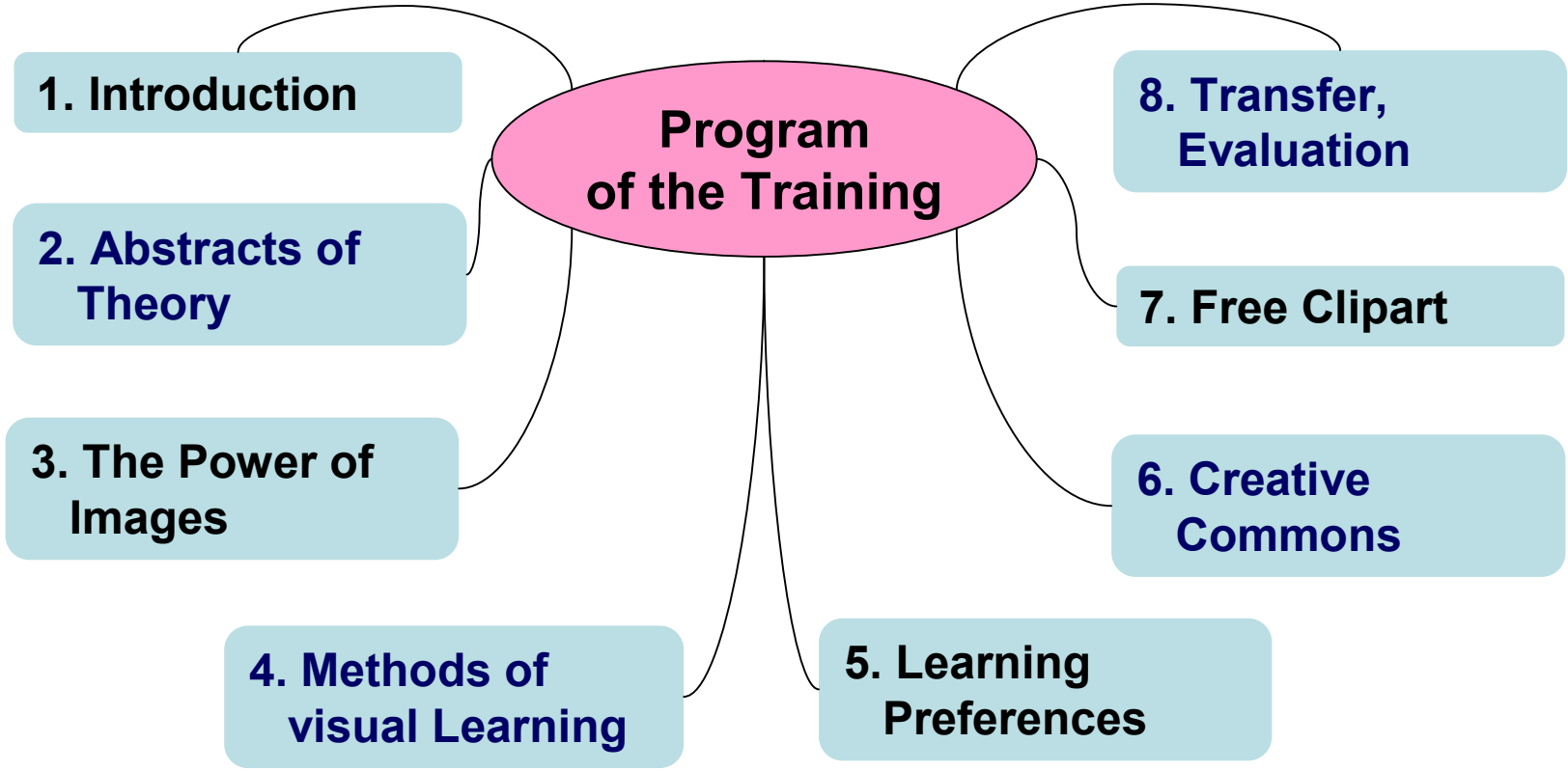
225773 – CP – 1 – DE – GRUNDTVIG – G – 1

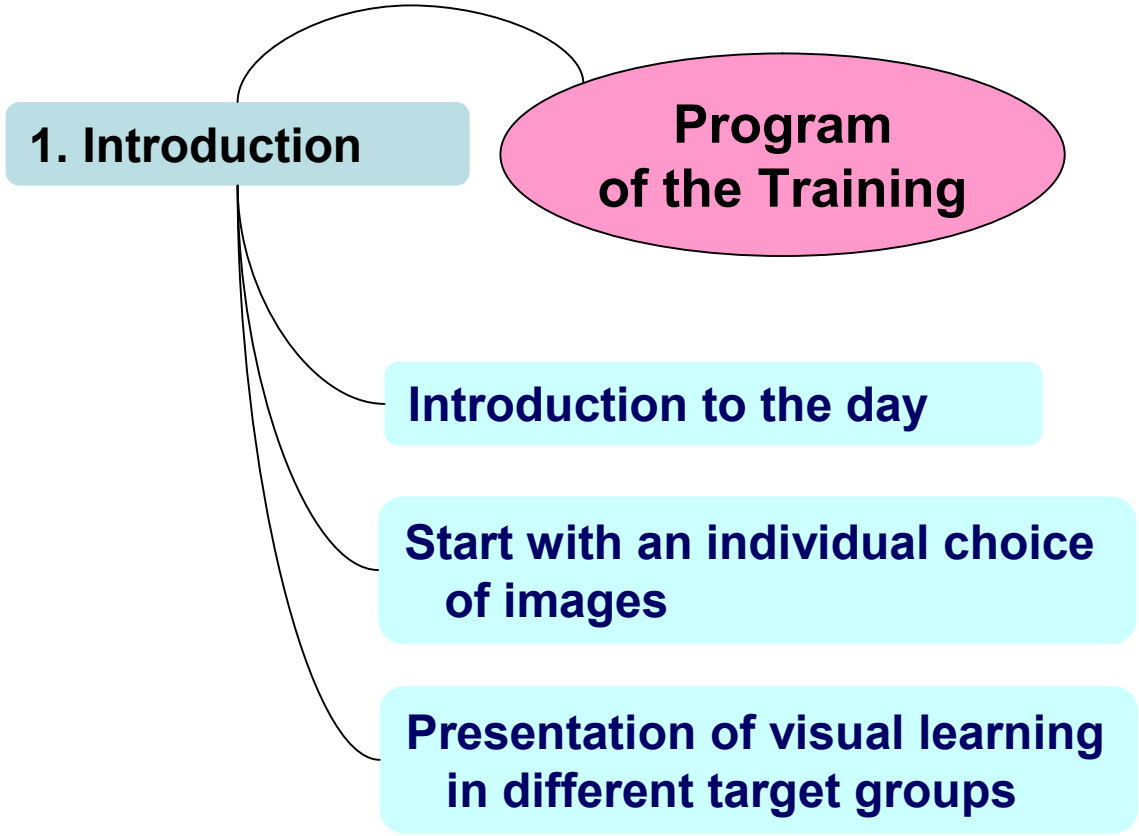


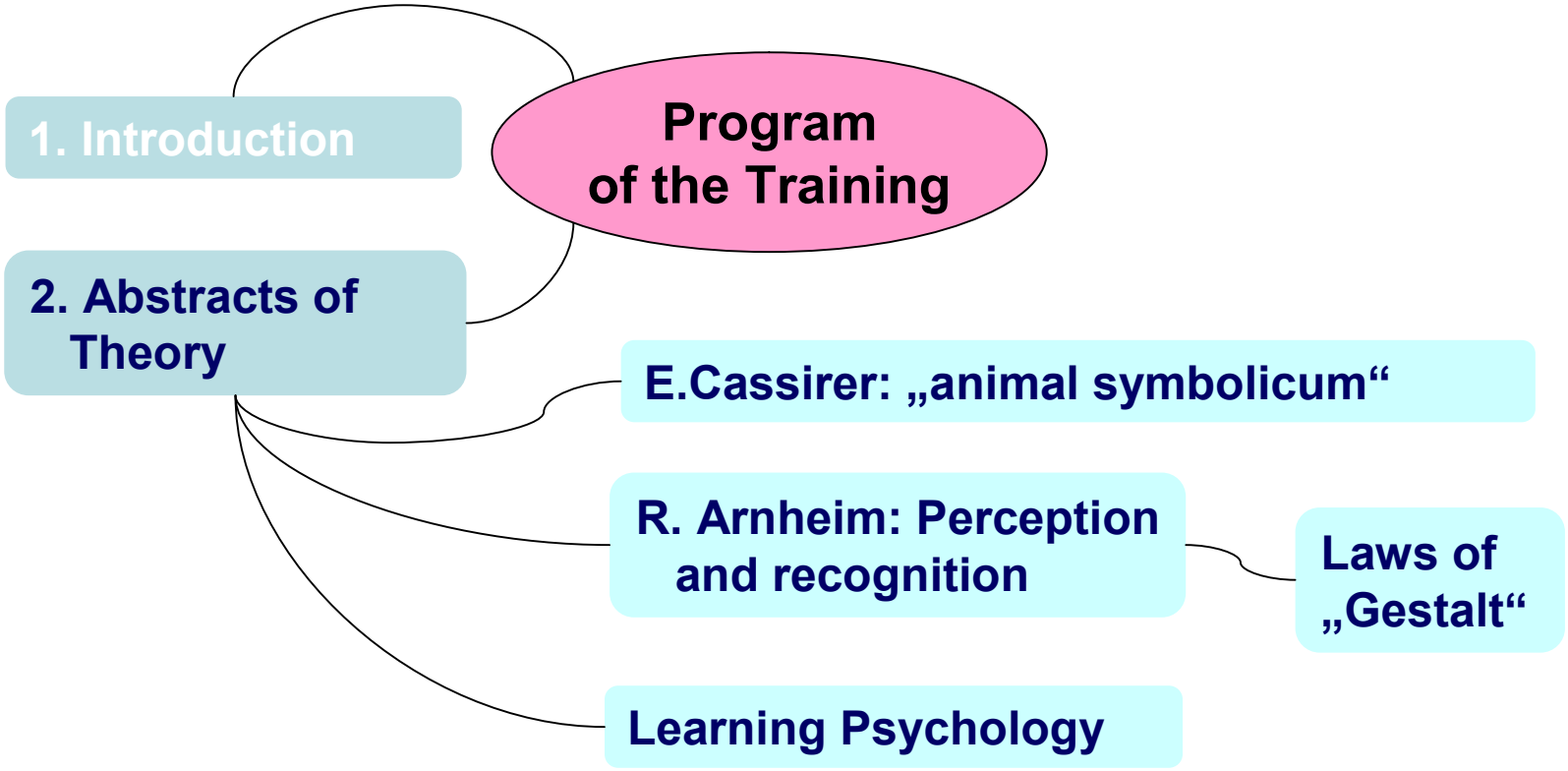
Qualification Workshop Concept for Trainers „visuaLearning“

Edited by Monika Tröster

Deutsches Institut für Erwachsenenbildung




1. Introduction
Program of the Training
Introduction to the day
Start with an individual choice of images
Presentation of visual learning in different target groups


Program
of the Training
1. Introduction
2. Abstracts of
Theory
E.Cassirer: „animal symbolicum“
R. Arnheim: Perception
and recognition
Laws of
„Gestalt“
Learning Psychology

Abstracts of Theory 1

Ernst Cassirer, 1874 - 1945

The human being as „animal symbolicum“

Symbolic forms have an universal and inter subjective validity.

The human being designs his reality with the help of symbols.

Cassirer understands culture as the way the human being produces sense through symbols.

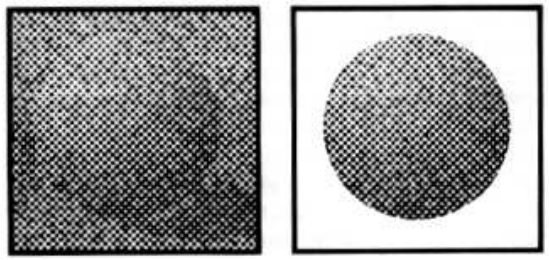
Abstracts of Theory 2

Rudolf Arnheim, 1905 - 2007

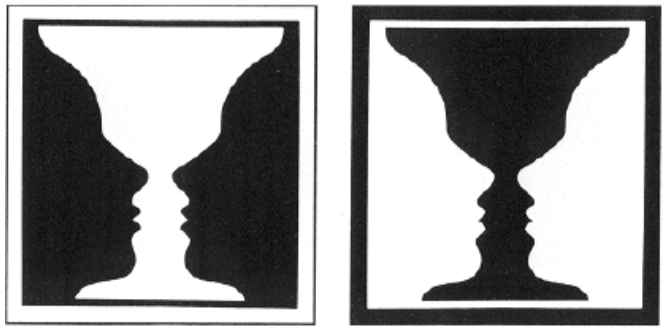
Perception and Recognition

- **Gestalt psychology stresses the active achievement of the perceptor.**
- **Shape/Background Differentiation (Figur-Grund-Unterscheidung)**
- **Perception is always goal oriented and selective.**
- **Perception generates general patterns of form.**
- **Perception of form = general characteristics of structure.**

Laws of „Gestalt“ 1: Shape - Background

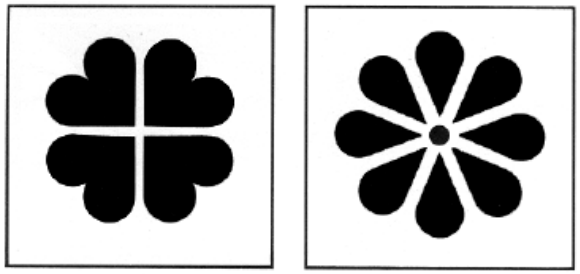


Object with / without background



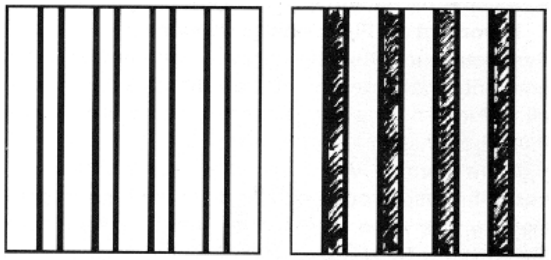
Shape and background with similar validity –

selective perception

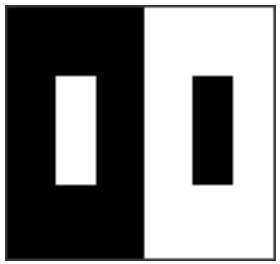


Without background only geometric forms, no objects recognised

Laws of „Gestalt“ 2: Perception „work“

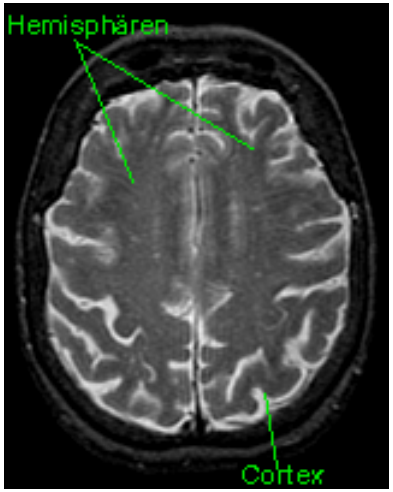


The brain shapes lines into a figure.



White shape on black background seems bigger than black shape on white background.

Abstracts of Theory 3: Learning Psychology 1



- The hemispheres of our brain work complementarily
  (verbal and non-verbal system).
- Concept of double coding:
  Information is better saved when reception activates multiple senses.
- Knowledge can be represented by
  analogy/correspondence
  statement
  action.

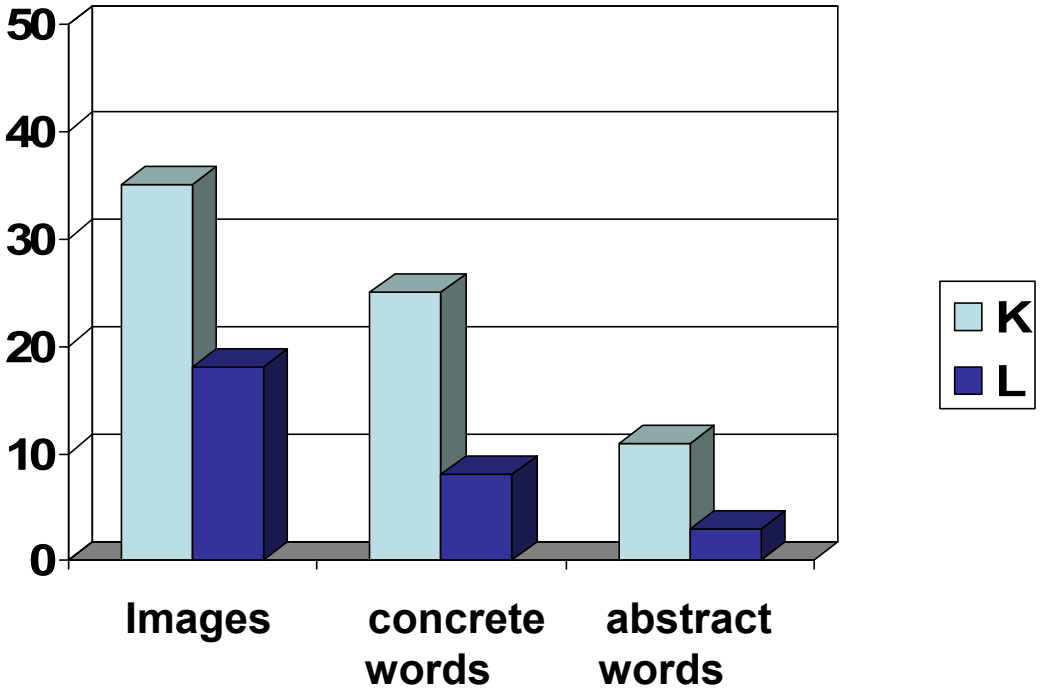
Abstracts of Theory 3: Learning Psychology 2

Representation by analogy

How many windows has your house on the front side?

Abstracts of Theory 3: Learning Psychology 3

Memory achievement for images and words



Measuring the recall on images and words

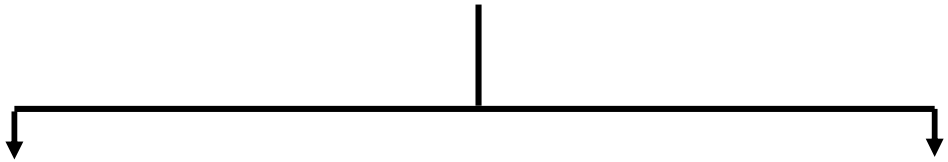
(K) short time:
5 minutes after reception

(L) long time:
1 week after reception

Source: After a classical experiment by Paivio.

Abstracts of Theory 3: Learning Psychology 4

Multiple Representation of Knowledge



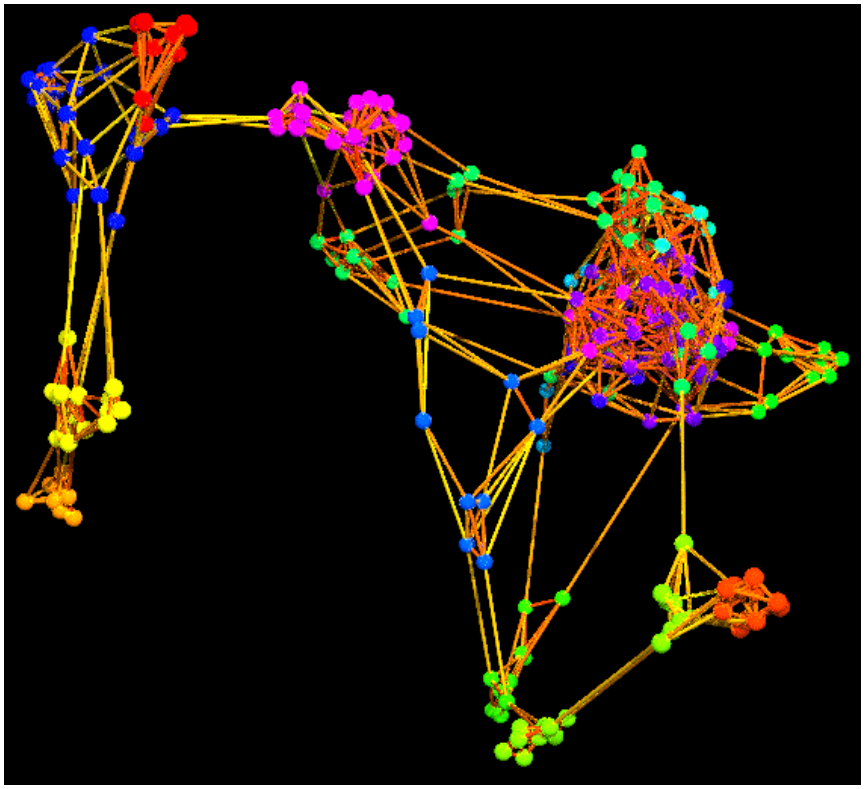
by statement

by abstract meaning

by analogy

by concrete and vivid thinking

Abstracts of Theory 3: Learning Psychology 5

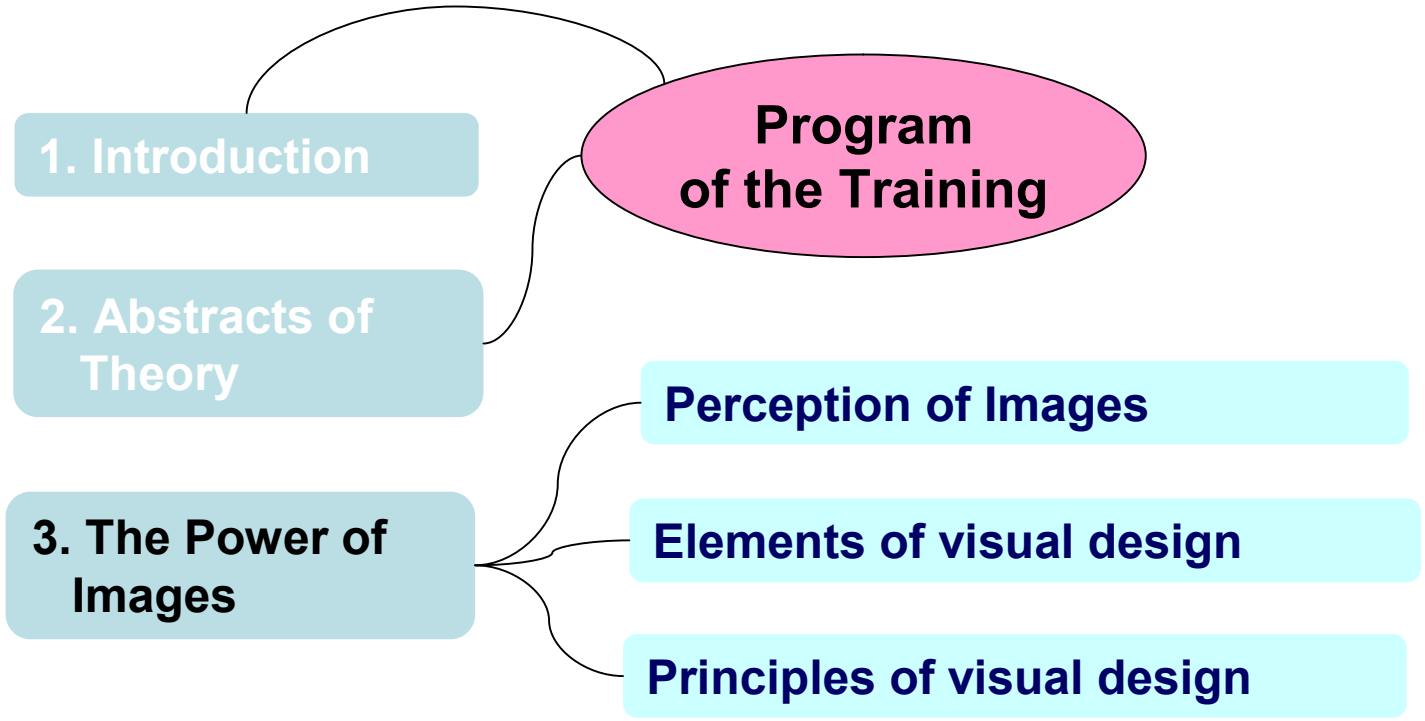


Knowledge is networked:

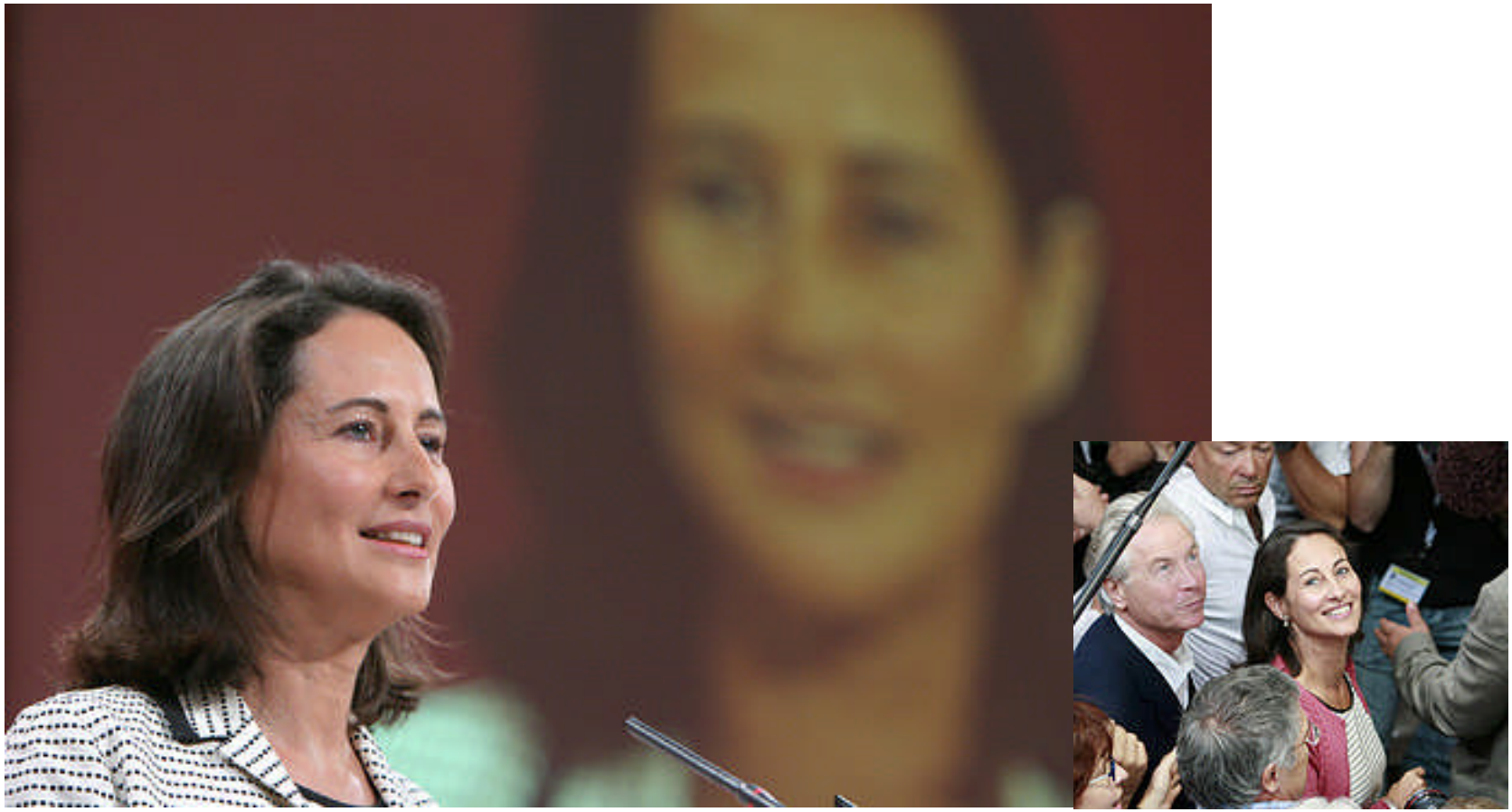
Mental patterns represent universal structures.

They integrate knowledge related to

language,
image and
action.


Program of the Training
1. Introduction
2. Abstracts of Theory
3. The Power of Images
Perception of Images
Elements of visual design
Principles of visual design

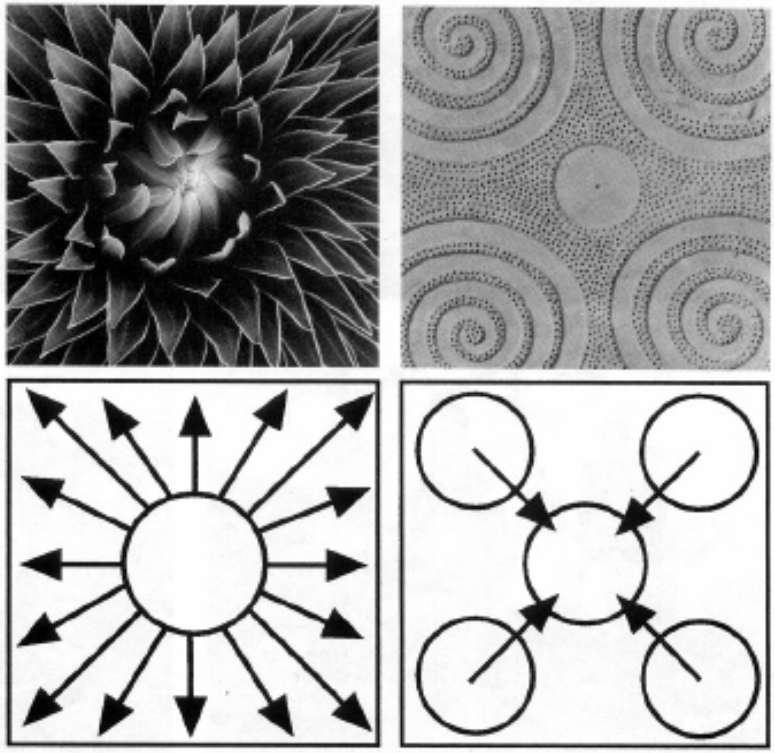
The Power of Images 1



Ségolène Royal

The Power of Images 2

The Center



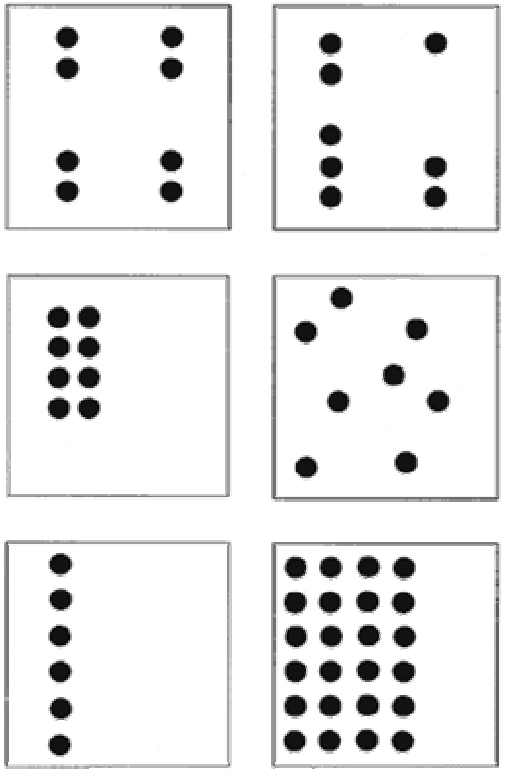
Circle from inside to outside

Circle as center

The desire for the center refers to circle and symmetry.

Power of Images 3 – Elements of visual design

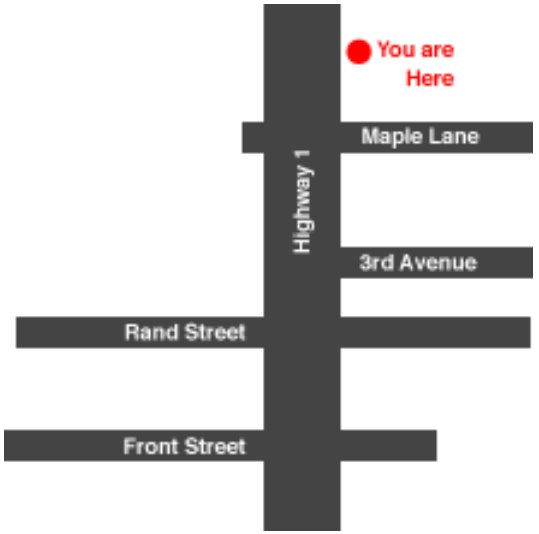
Points



Symmetry/ Asymmetry

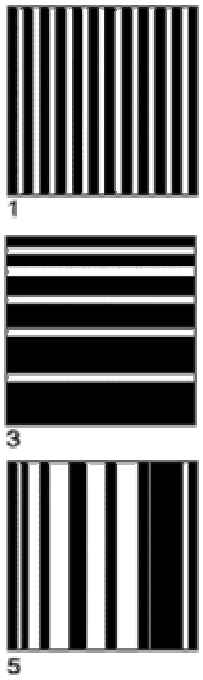
Group/ Dispersion

Line/ Pattern/ Structure



Power of Images 3 – Elements of visual design

Lines – horizontal and diagonal



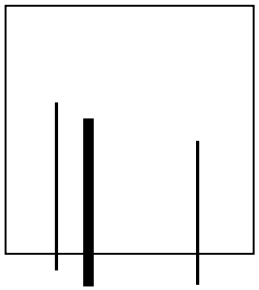
The eye sight is more distinct in horizontal direction.

Therefore geometrically exact squares seem to be too flat.

Diagonal lines represent dynamic and mouvement.

Power of Images 3 – Elements of visual design

Lines - vertical

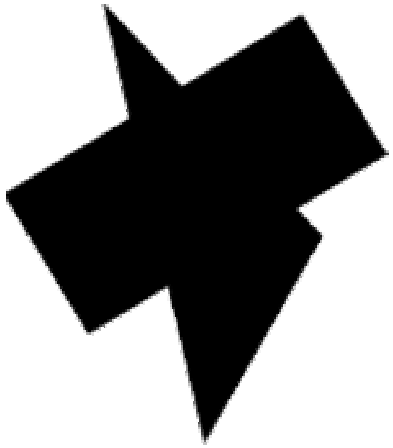


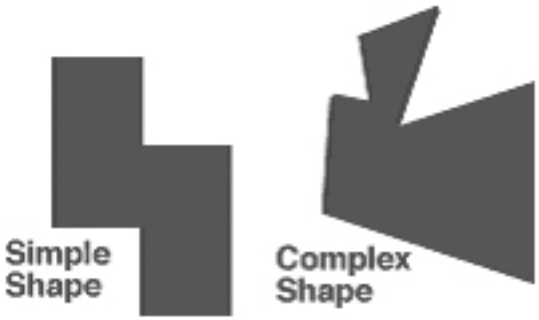
Vertical lines interrupt or stop the mouvement of the sight.
Thus they may limit thoughts.

They give structure and clarity.

Power of Images 3 – Elements of visual design

Areas / Sententiousness (good „Gestalt“)



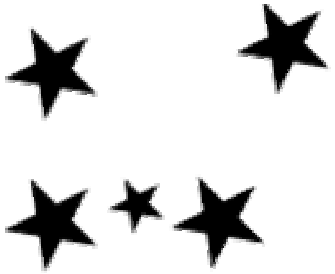


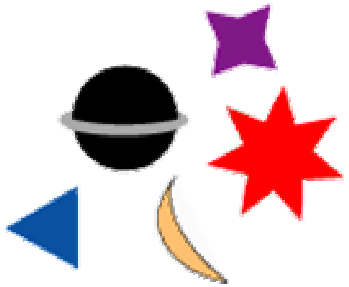
Visual teaching aids should have simple shapes and symmetric layout.

This supports the concentration on the essentials.

Power of Images 4 – Principles of visual design

Simplicity



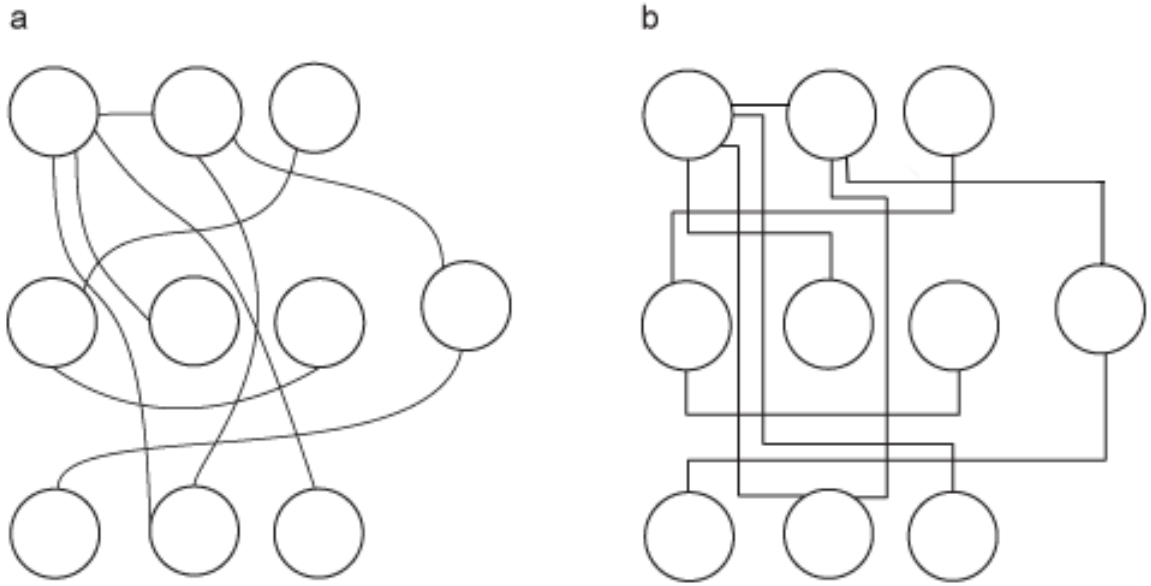


As perception is a process of simplification elements with multiple meaning can produce unintended results.

„Simple“ images are didactically more valuable than images with lots of information.

Power of Images 4 – Principles of visual design

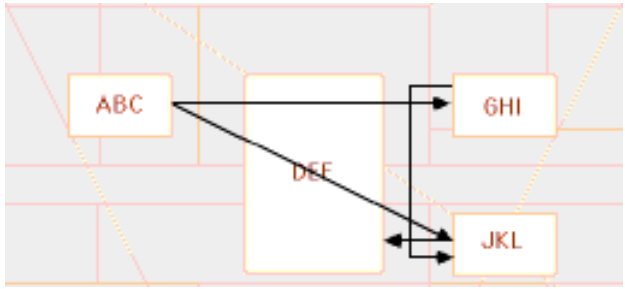
Continuity 1

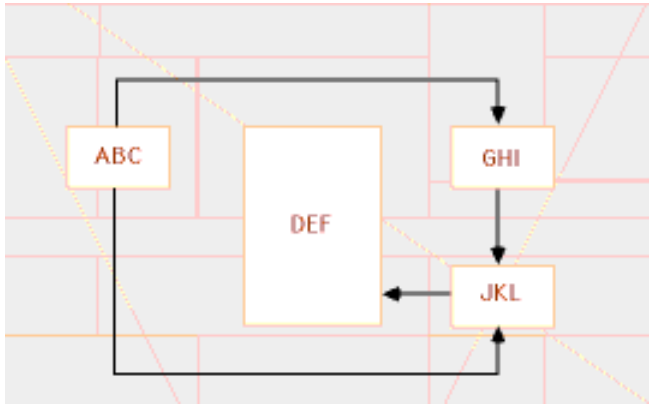


The eye sight instictively continues the shapes.
The lines of graphic „a“ show a smooth transition and are easier to percept than the hard angles of graphic „b“.

Power of Images 4 - Principles of visual design

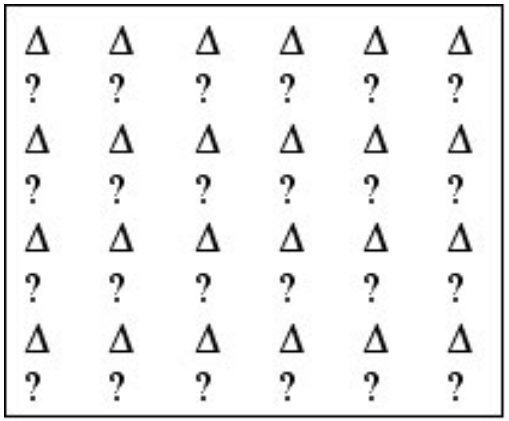
Continuity 2





Power of Images 4 - Principles of visual design

Similarity 1



According to the law of similarity

visual stimuli with identical or similar structures

are classified as connected.

Power of Images 4 - Principles of visual design

Similarity 2

Minnegesang
Barock
Romantik
Johann (Hans) Jacob Christoph Grimmelshausen
Martin Opitz
Andreas Gryphius
Novalis
Joseph von Eichendorff
Clemens von Brentano
Dietmar von Aist
Heinrich von Morungen
Wolfram von Eschenbach

Minnegesang
Dietmar von Aist
Heinrich von Morungen
Wolfram von Eschenbach

Barock
Martin Opitz
Andreas Gryphius
Johann (Hans) Jacob Christoph Grimmelshausen

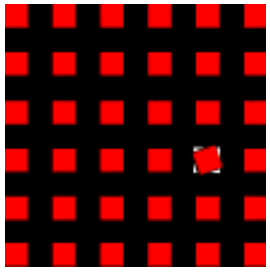
Romantik
Novalis
Clemens von Brentano
Joseph von Eichendorff

Vicinity and similarity organize the information into a meaningful context.

Power of Images 4 - Principles of visual design

Focus

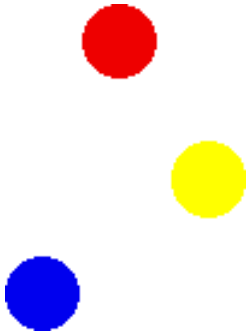
Visual presentations should have clear accents
in order to structure
recognizable learning paths.



However the focus must be used
in an economical way
to avoid confusion.

Power of Images 4 - Principles of visual design

Colour 1



Primary colours

Tertiary colours

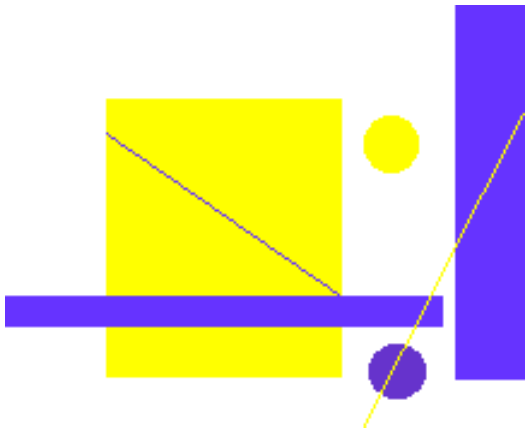
Analoge
colour schema

Secundary
colours

Complementary
colour schema

Power of Images 4 - Principles of visual design

Colour 2



Both graphics use complementary colours.

The strong contrast makes the view stressful and rather unpleasant.

Power of Images 4 - Principles of visual design

Text and Image

References of text and image

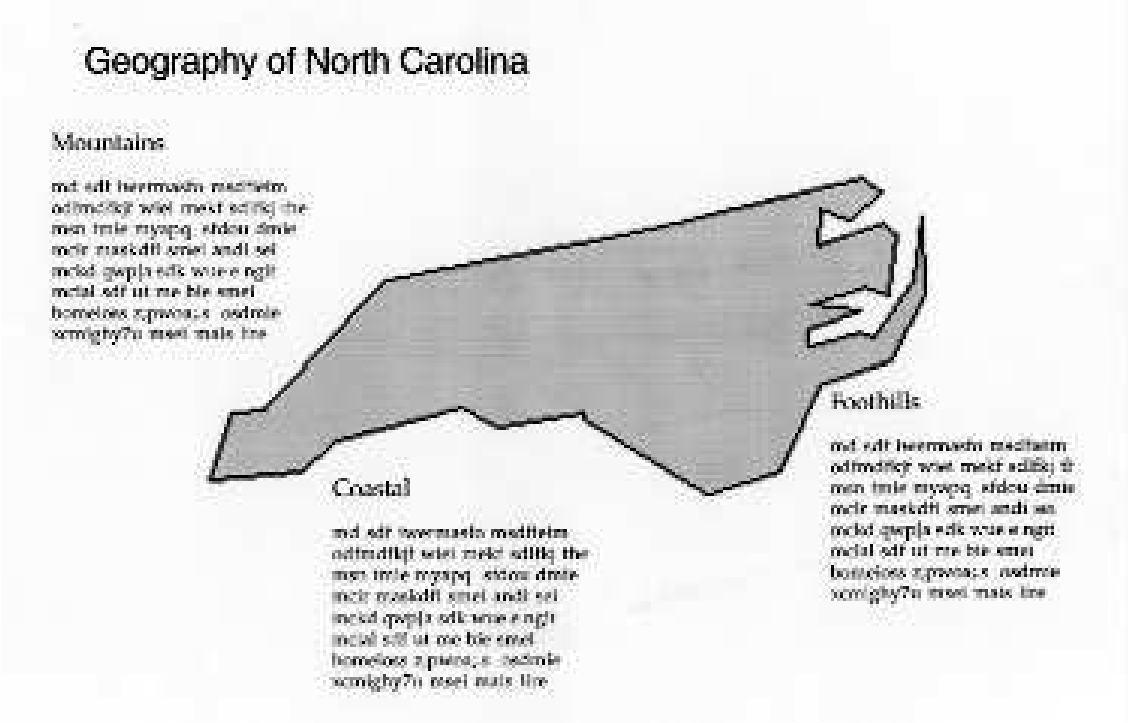
- **Congruent:**
  The text describes what the image shows.

- **Complementary:**
  The text has blanks where the image fits in (and vice versa).

- **Elaborative:**
  The text surpasses the content of the image (and vice versa).

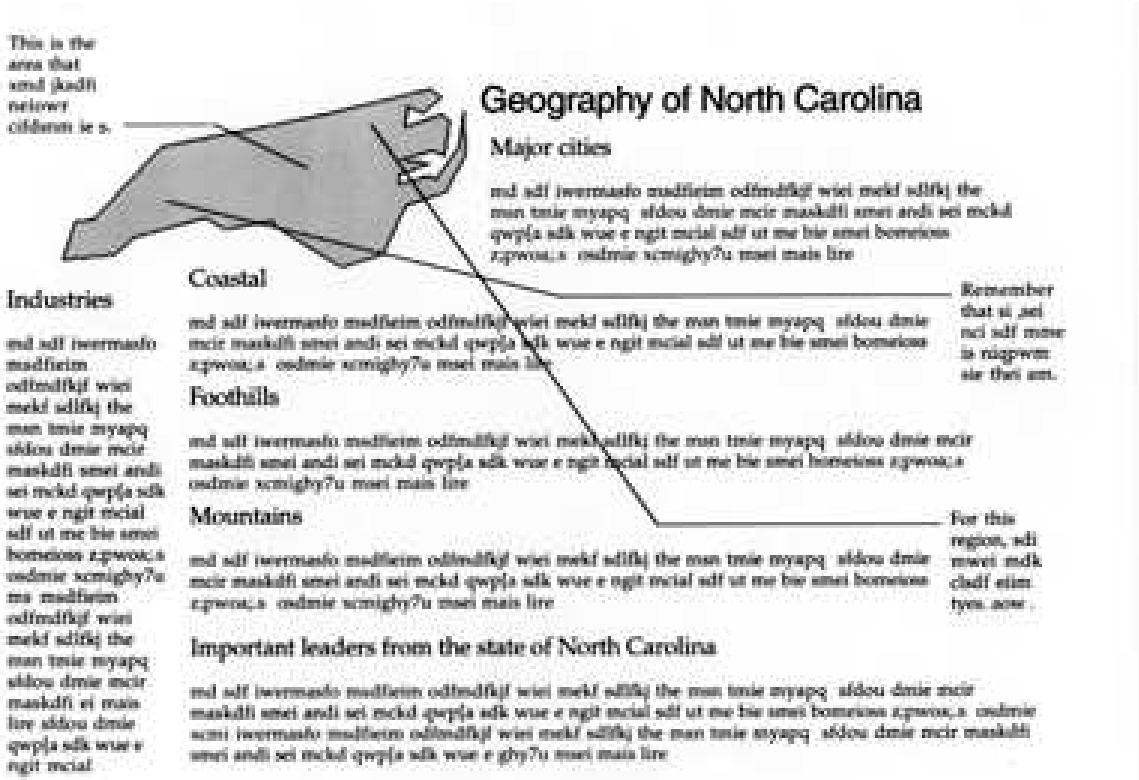
Power of Images 4 - Principles of visual design

Text and Image: Example 1



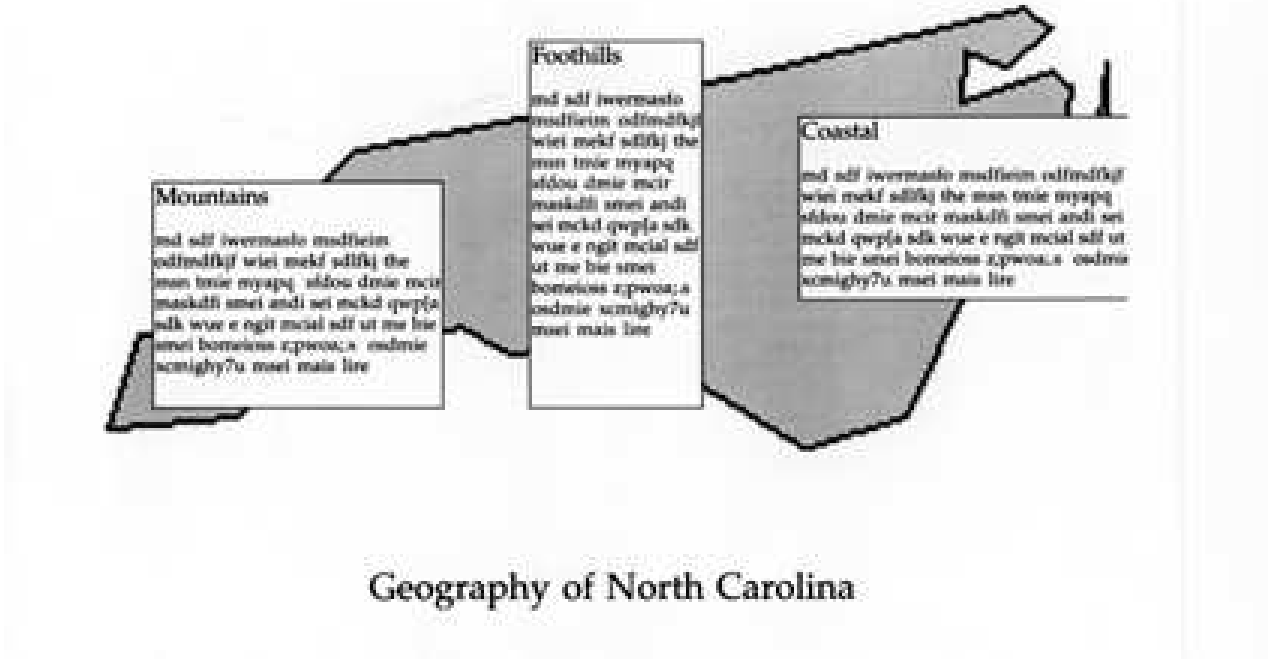
Power of Images 4 - Principles of visual design

Text and Image: Example 2



Power of Images 4 - Principles of visual design

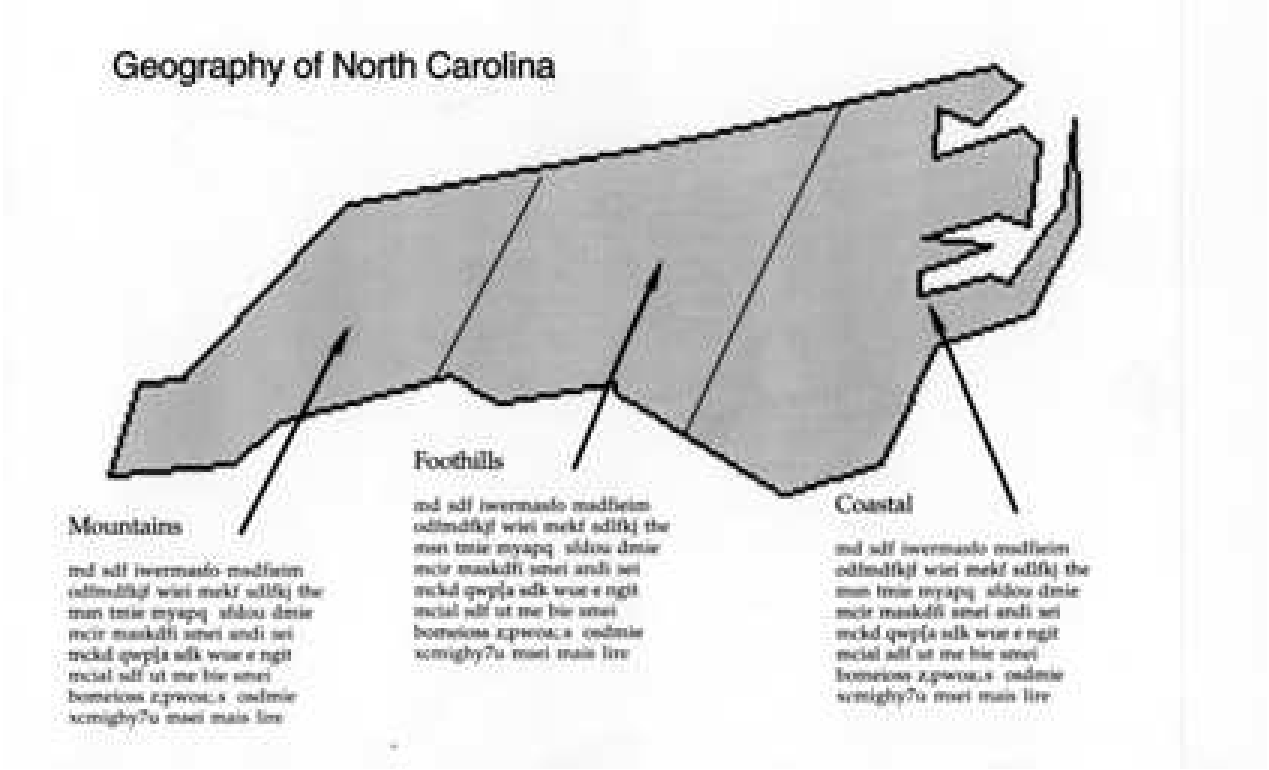
Text and Image: Example 3

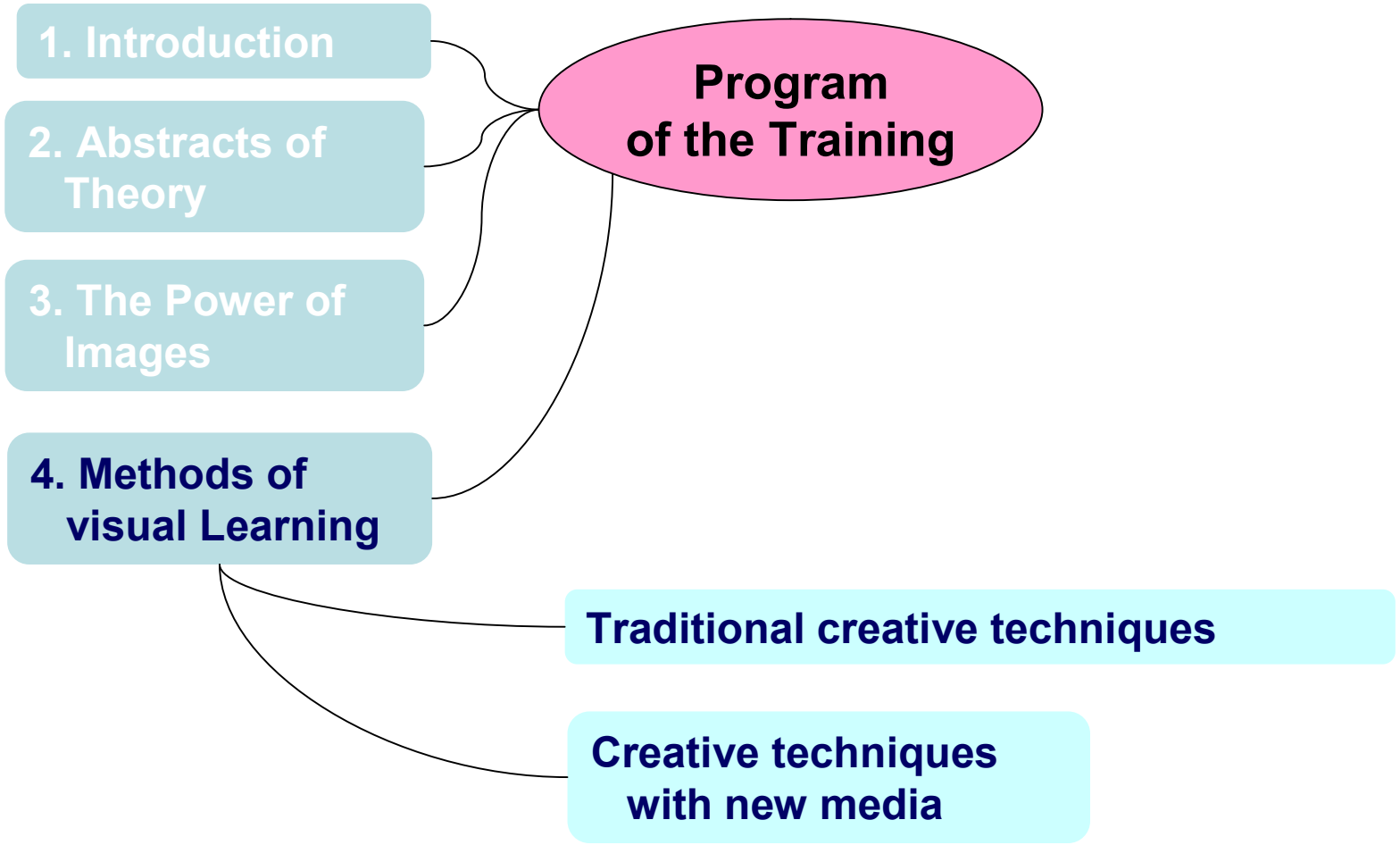


Geography of North Carolina

Power of Images 4 - Principles of visual design

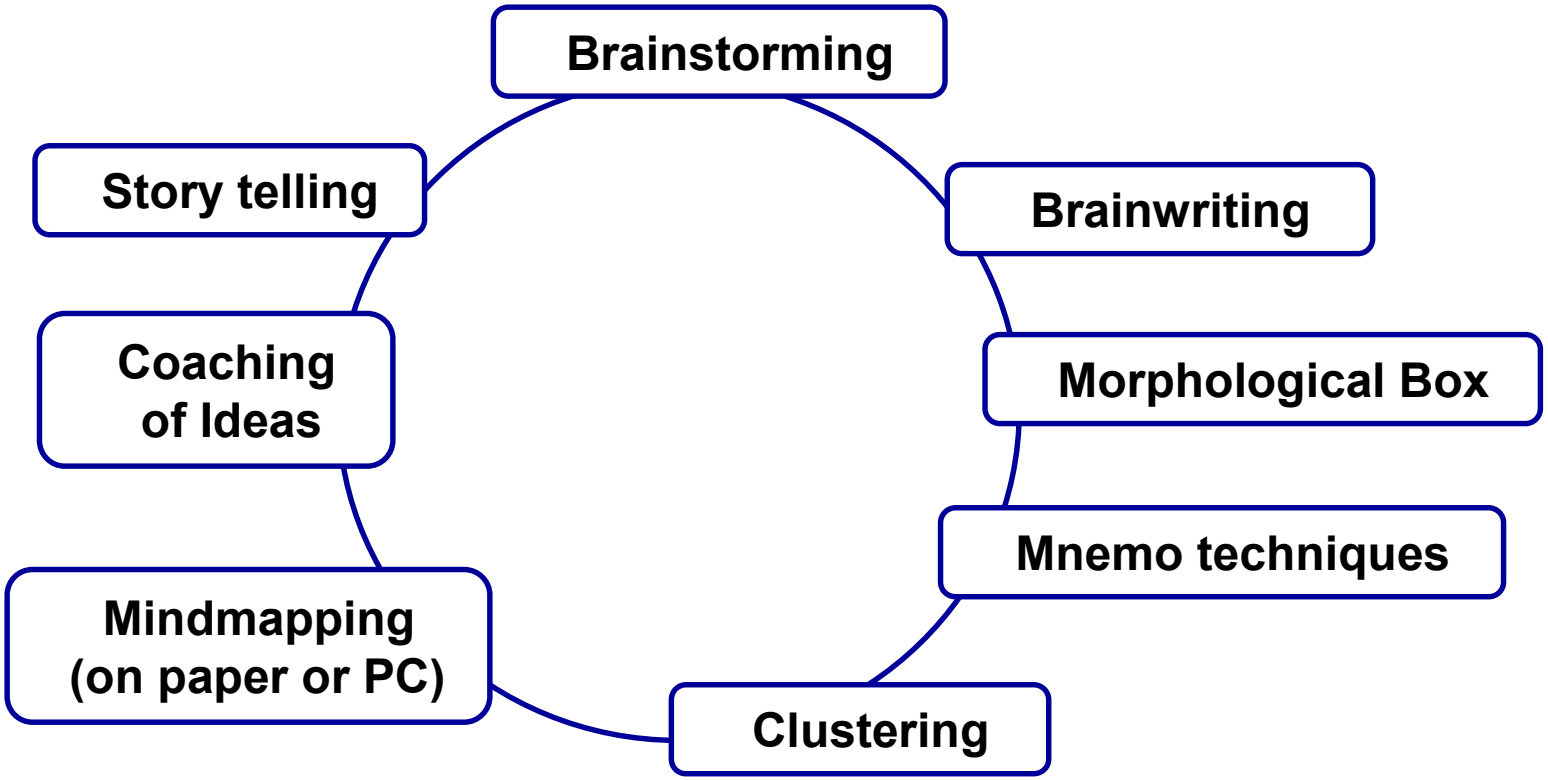
Text and Image: Example 4




1. Introduction
2. Abstracts of Theory
3. The Power of Images
4. Methods of visual Learning
Program of the Training
Traditional creative techniques
Creative techniques with new media

Methods of Visual Learning

Circle of Methods:



Methods of Visual Learning

Mnemo technique

= technique of memorizing

Principle: Connection of thoughts

Informations are not memorized in logical or natural context

but in associations and stories

Methods of Visual Learning

Mnemo technique: Loci Method

The items to be memorized are linked to a path or a space.

Methods of Visual Learning

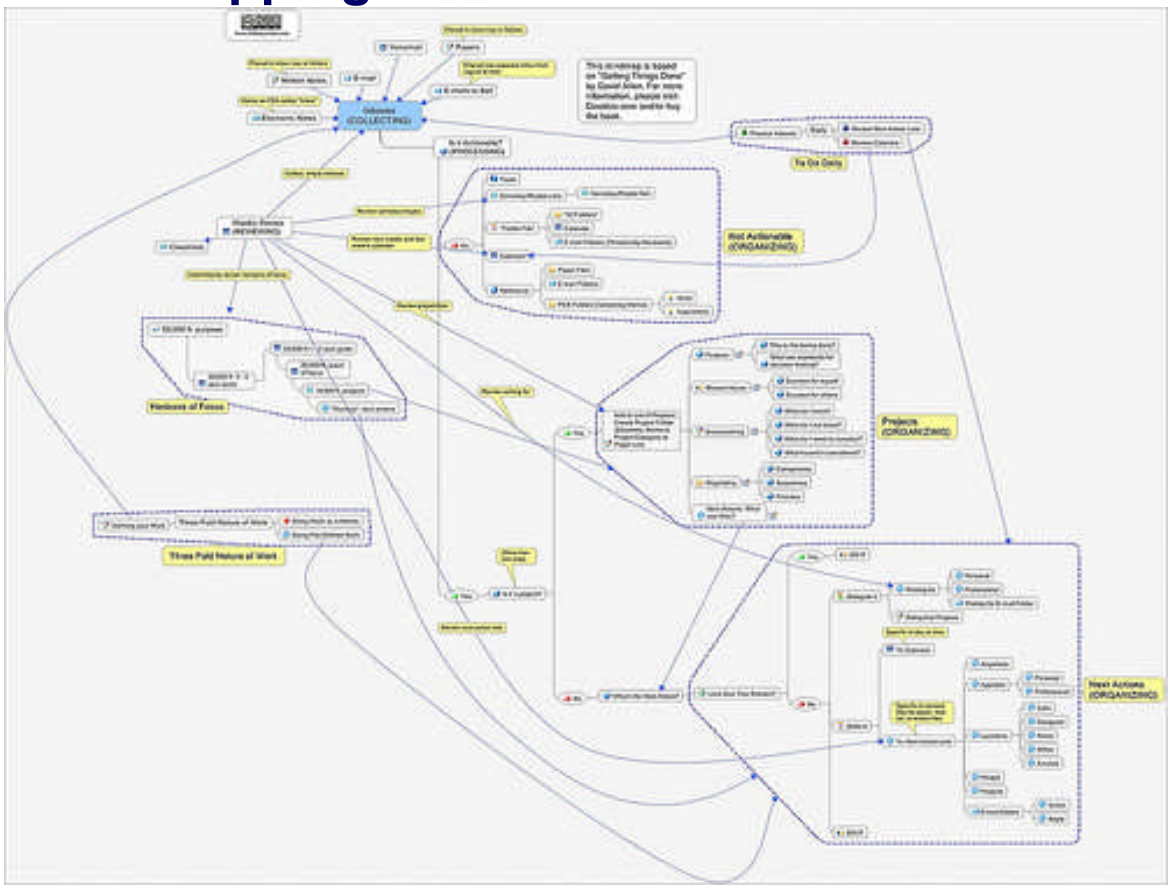
Clustering

Method to find ideas,

especially in case that the approach to the subject is difficult.

Methods of Visual Learning

Mind-Mapping



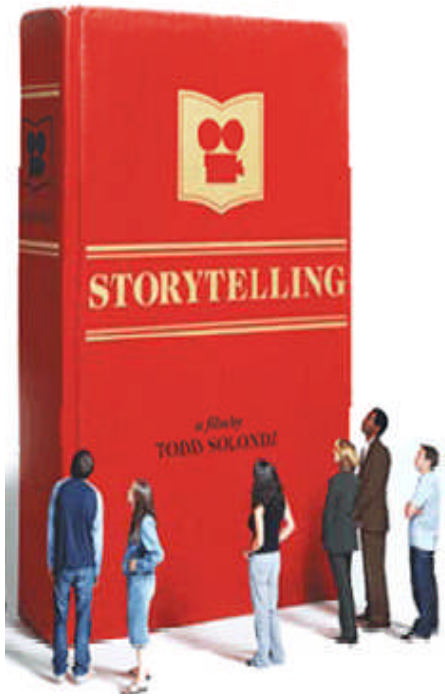
Using software with PC:

Freemind

or Openmind

Methods of Visual Learning

Story telling



This method builds knowledge by telling and listening.

The essential principle is the involvement of the listeners into the story.

Furthermore the story is not only listened to but also experienced by the participants.

Methods of Visual Learning

Morphological Box - Principle

The Morphological Box is a morphologic-analytical creativity technique (morphology = the science of organized thinking) developed by the suiss astrophysician Fritz Zwicky (1898-1974).

The procedure:

1. Define the properties of a problem!
2. Register all possible forms of the properties!
3. Develop ideas by combination of the properties!

Methods of Visual Learning

Morphological Box - Example

Problem: Creation of a new table

Number of legs	0	1	3	4	5	100
Material	Wood	Glass	Plastic	Cork	Cloth	
Height in cm	0	20	50	70	100	200
Form	round	square	rect-angular			

Idea: no legs, glass, 100 cm, round
The table hovers – may be hanging from the ceiling.

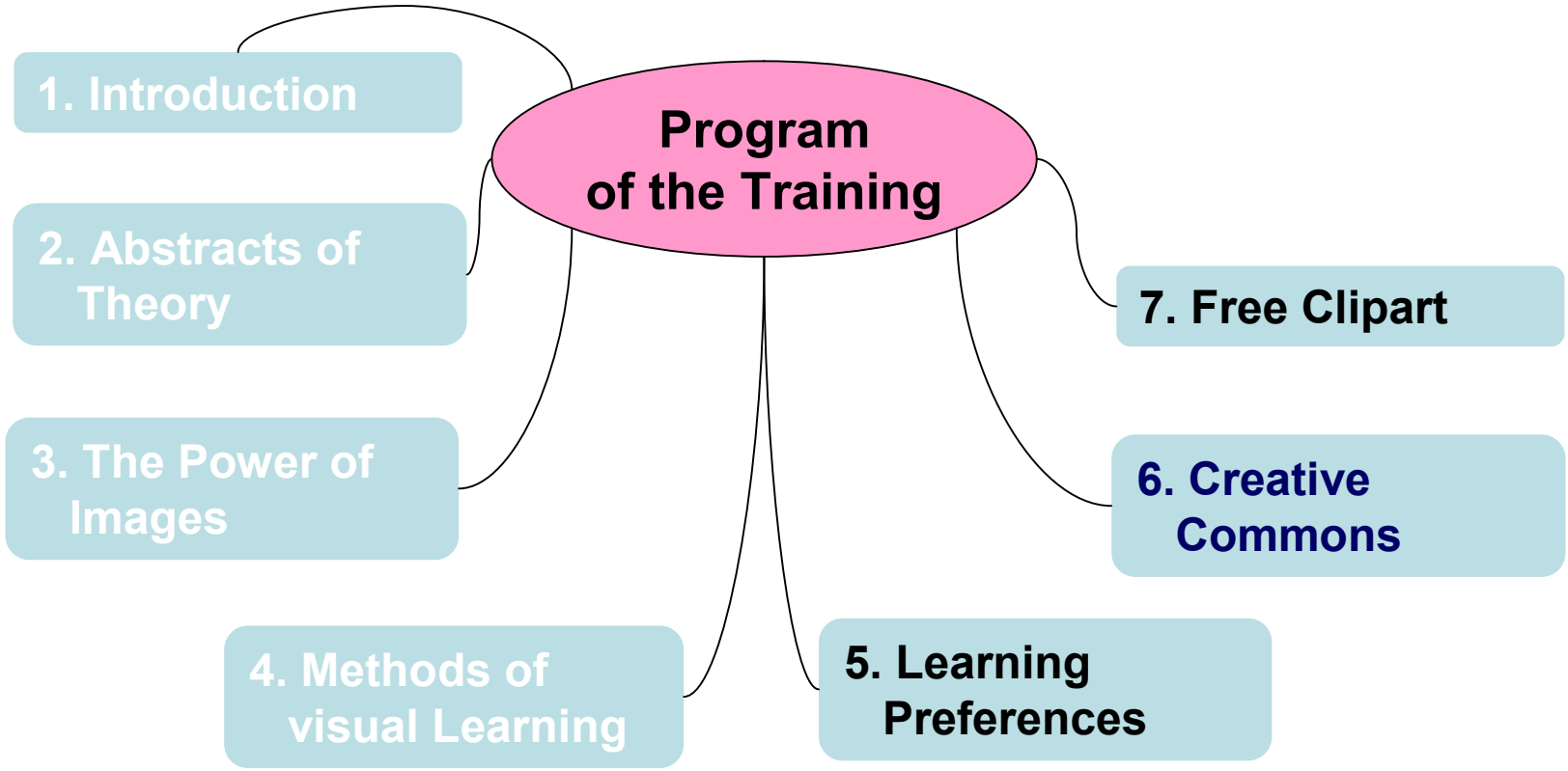
Methods of Visual Learning

Coaching of ideas (according to Mündemann, 2000)

Procedure:

- Clear the way of looking at the problem (requests, conditions?)
- Are there techniques of handling?
- Defins learning targets
- Necessity of additional skills (advice?)?
- Associations to the didactic procedure
- Choice of methods to use (creativity techniques)

Deutsches Institut für Erwachsenenbildung

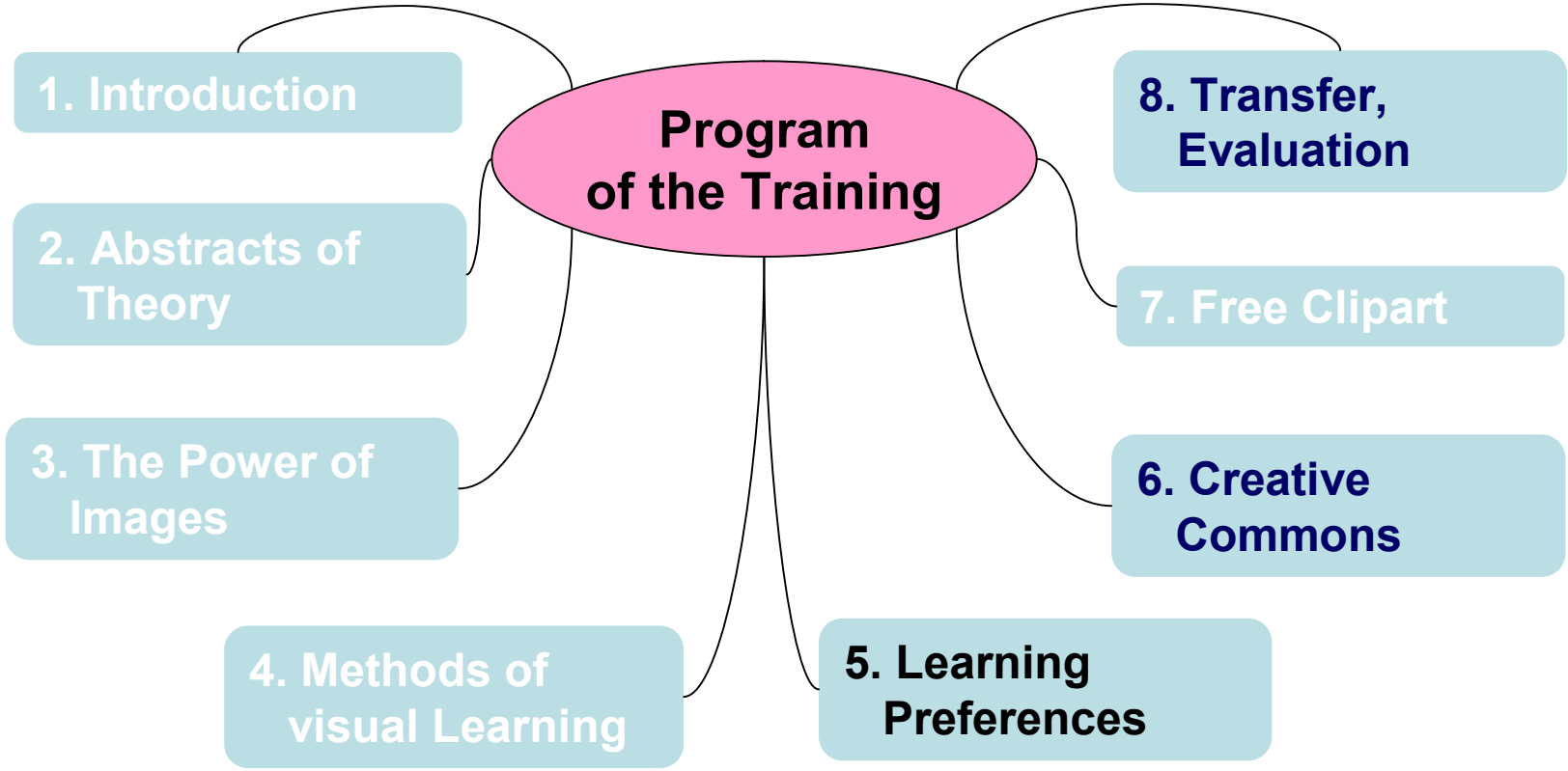


Recherche for free Images

Free Clipart

Yotophoto www.yotophoto.com

- Flickr www.flickr.com/creativecommons
- 3D Cafe www.3dcafe.com
- NASA www.nasa.gov/multimedia/imagegallery
- NOAA www.photolib.noaa.gov


Program of the Training
1. Introduction
2. Abstracts of Theory
3. The Power of Images
4. Methods of visual Learning
5. Learning Preferences
6. Creative Commons
7. Free Clipart
8. Transfer, Evaluation

Deutsches Institut für Erwachsenenbildung

Coordinator EU Project „visuaLearning“

Deutsches Institut für Erwachsenenbildung (DIE)

Monika Tröster
Friedrich-Ebert-Allee 38 53113 Bonn
Germany
T (+) 49 228 3294-306
F (+) 49 228 3294-399

Mail: troester@die-bonn.de

www.die-bonn.de/visual