WORKSHOPS FOR ADULT BLIND PEOPLE TO READ TACTILE DIAGRAMS

BY HOËLLE CORVEST AND DORINE IN 'T VELD

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Hoëlle Corvest-Morel is working in the Musée des Sciences et de l'Industrie (Paris, France). She is responsible for making the permanent and temporary exhibitions accessible for blind visitors (some 2.000 a year).

In cooperation with the Louvre (and other educational organizations), she organized workshops for adult blind people to learn to read tactile diagrams.

She also educated designers, teachers and other professionals.

Dorine in 't Veld has been working for many years in ICT- and other projects at Bartiméus Education (4-20 years, special schools and mainstream) in the Netherlands.

One of her projects was on tactile diagrams in education. She led workshops with students and experimented with the printers and tactile tablets, e.g. those of ViewPlus, where she presently (2008) is employed.

Dorine attended several workshops in France and cooperated with Hoëlle.

THIS PRESENTATION HAS 3 PARTS

1. Introduction: the what and 'why' of using tactile images – and some basic principles.
2. Learning to read tactile images: workshops of the Cité, the Louvre (and other organizations) for adult blind people.
3. Posings: challenging or complex issues to discuss and think about further.

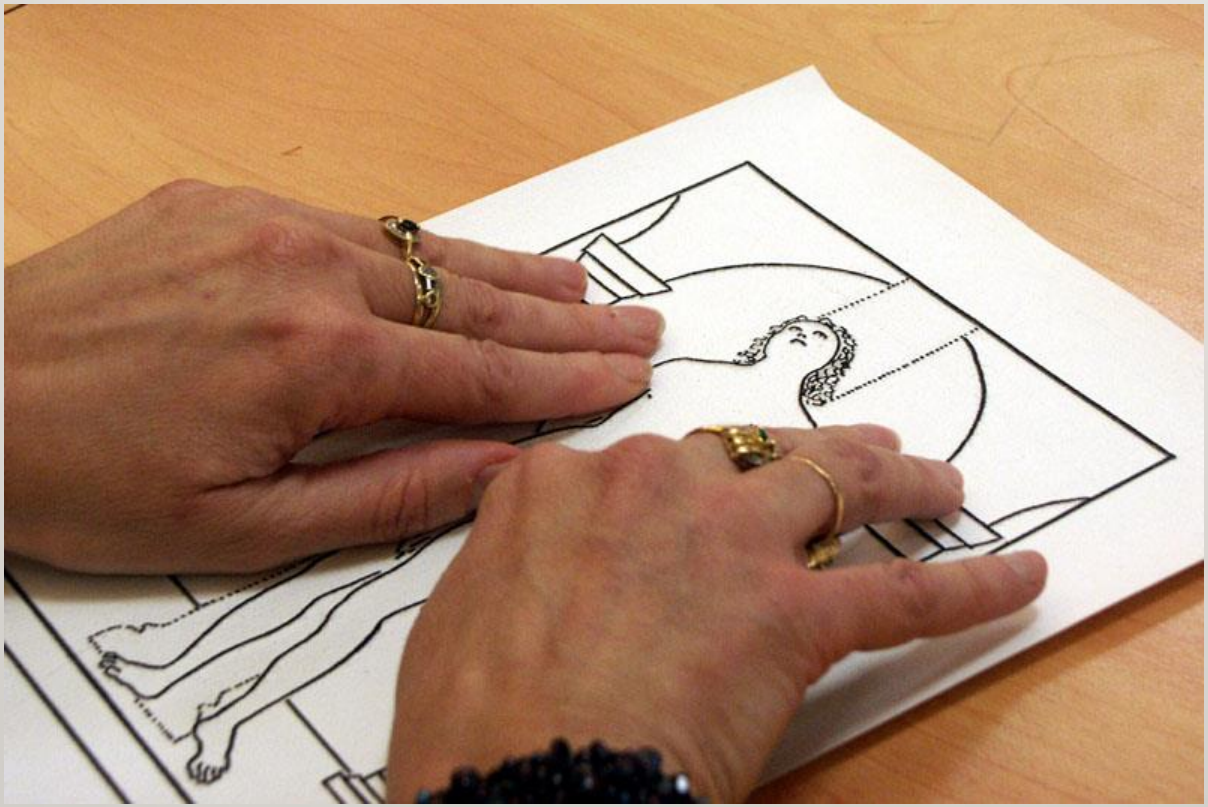
PART 1: INTRODUCTION

Touching compared with seeing:

- basically goes from detail to overall picture.
- is slower; it takes more time to explore and consequently to build the overall picture from details.
- shows more dimensions at a time:
  - one for example may feel front and back
  - the relation between 3D and 2D can be challenging for blind persons.
- is more intimate than seeing. (Did you ever feel a snake or an elephant? That is a totally different experience!)

In short: touching takes more energy than seeing, but can be as informative and rewarding.

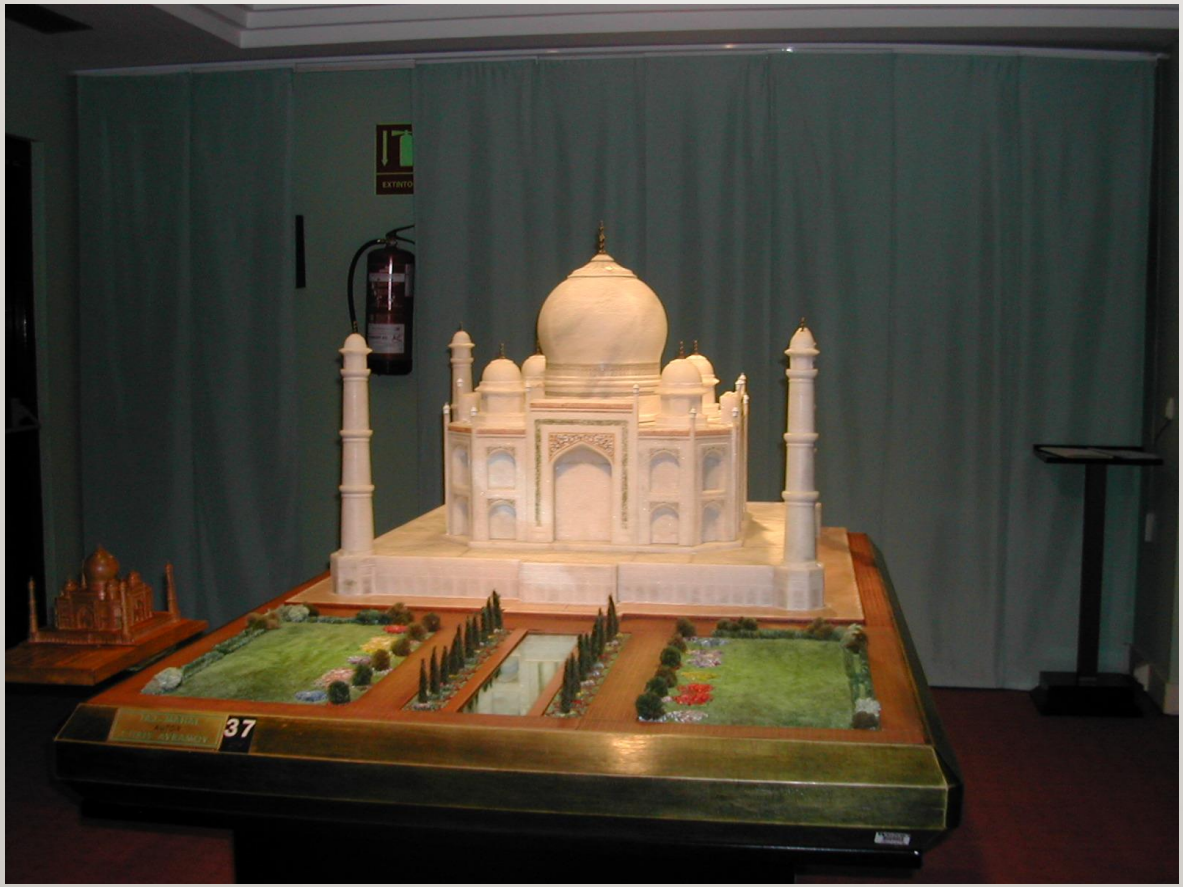
Tactile images are mostly used for maps, schemes and other twodimensional subjects, e.g. the composition of a painting.



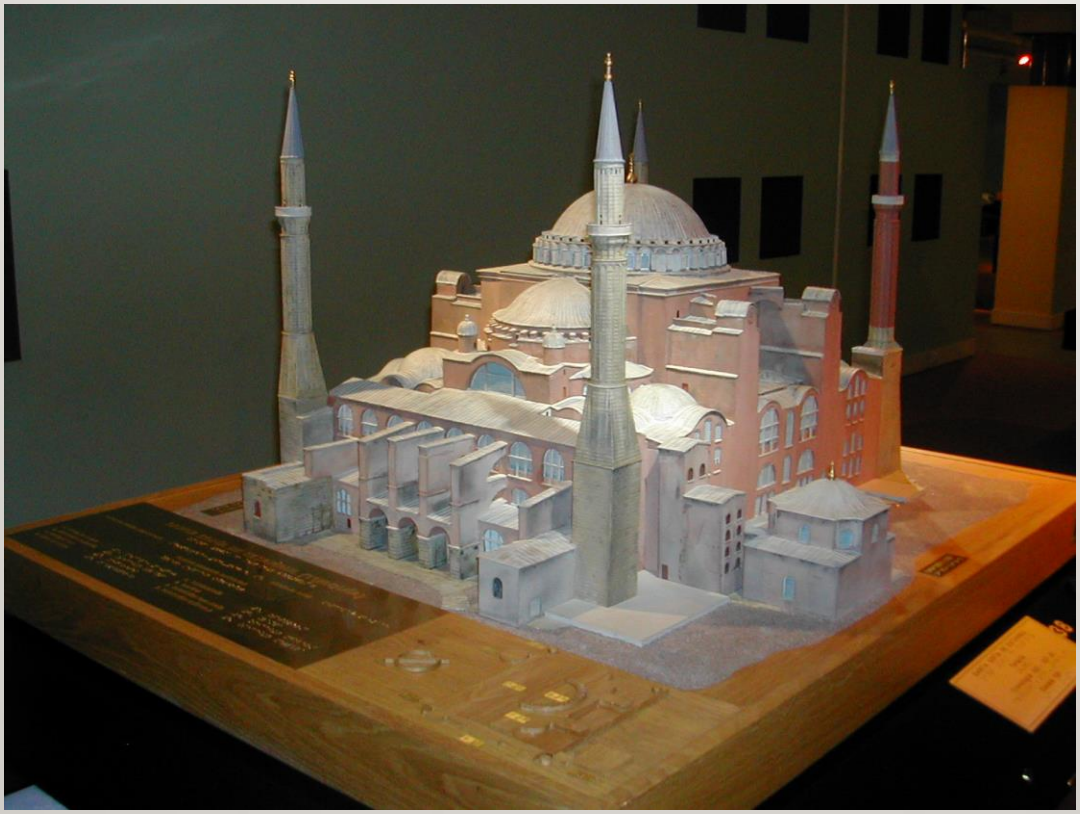
For 3D subjects mostly models are used. (This and following examples from Museo Tiflologico in Madrid).

After studying 4 or 5 of these models, a blind person is tired and cannot absorb any more information.

Maquettes cannot be taken home. Mostly it is difficult to remember details later.



Some models are very complex. Most convey only partial information; e.g. only about the exterior.



DESCRIPTIONS

- Need the support of tactile exploration in order to give concise and precise info about :
  - Shape, size, dimensions, proportions, composition.
  - How something is put together or how it works.
  - Orientation of parts in space.

UNDERSTANDING TACTILE IMAGES

- Requires good reading skills from the reader.

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- Supposes comprehension on the side of the designer of the principles of tactile design – in the different available techniques.

WHAT DOES A TACTILE IMAGE REVEAL?

One doesn't give sight to a blind person;

one gives insight.

A tactile image should give access to what is represented.

In other words:

A tactile image should help build a 'mental picture' and understanding of what is represented.

BASICALLY THERE ARE 2 TECHNIQUES:

- One level of relief (swell, resin (serigraphy), Tiger embosser) – allows only (very) simple drawings.
- More levels of relief (thermoform, die-stamp printing and blind embossing, 3D-print) – allows more complex drawings and allows to display more details.

BASICALLY THERE ARE 2 ‘LAWS’:

- Perspective should only be used when explaining how perspective drawings are constructed.
- Empty space and smooth fillings facilitate reading (crowded images are a challenge).

TACTILE PERCEPTION

We will not discuss the many other things a designer should know, like:

- An obtuse angle feels like a curved line; leaving comfort-white around the dot indicating the corner makes it clear where the corner is.
- Traces used as fillings in swell paper look very different, but tactilely are not easily distinguishablefillings with dots wide apart in swell paper drawings make many details unreadable.
- Braille within tactile images complicates reading.
- Looking up legends outside of the tactile image makes reading cumbersome.
- (Etcetera!!)

PART 2:
LEARNING TO READ TACTILE IMAGES

WHAT IS AN IMAGE?

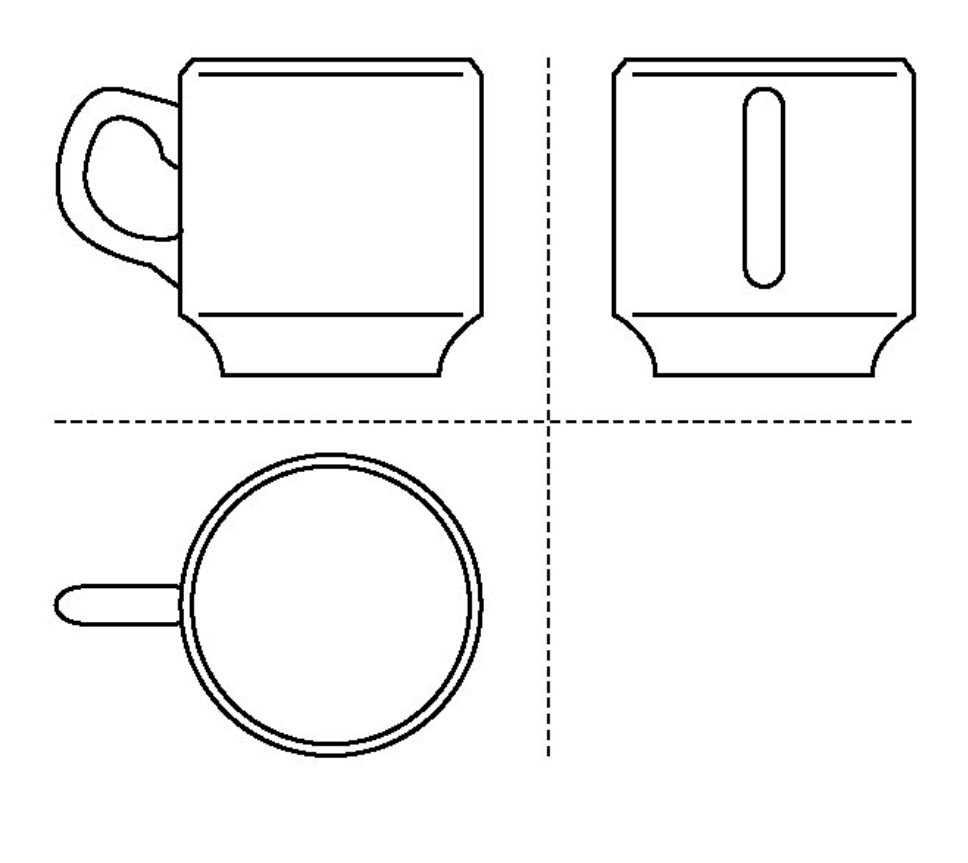
Remembering the differences mentioned between tactile and visual exploration, the question now is:

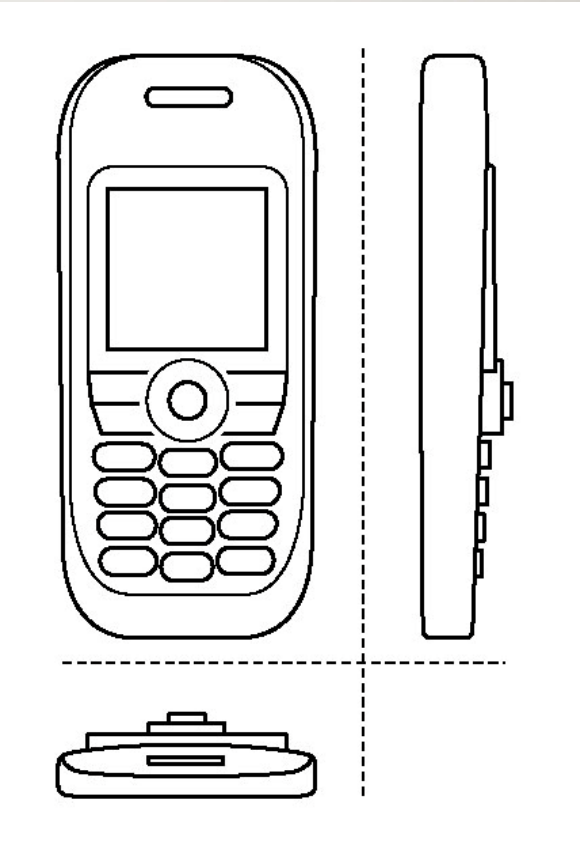
- How to learn to understand the position of an object in the space starting from a flat and horizontal page?

Or:

- What conventions should be used in design of tactile images to clarify the relation between 3D and 2D?

Use orthogonal projection (front – side – plan). Start with daily objects (e.g. a cup, a mobile phone) that fit in. Thus the participant can easily relate the object to the tactile image.

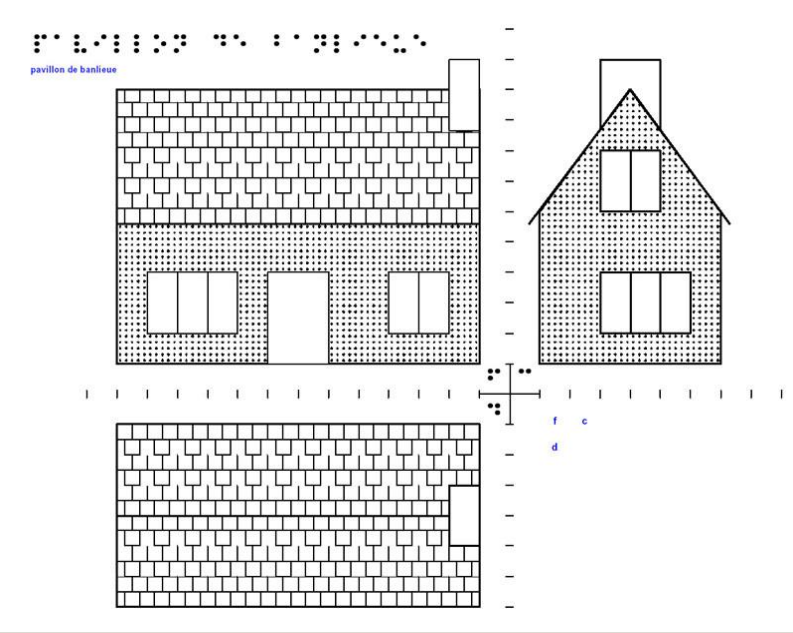




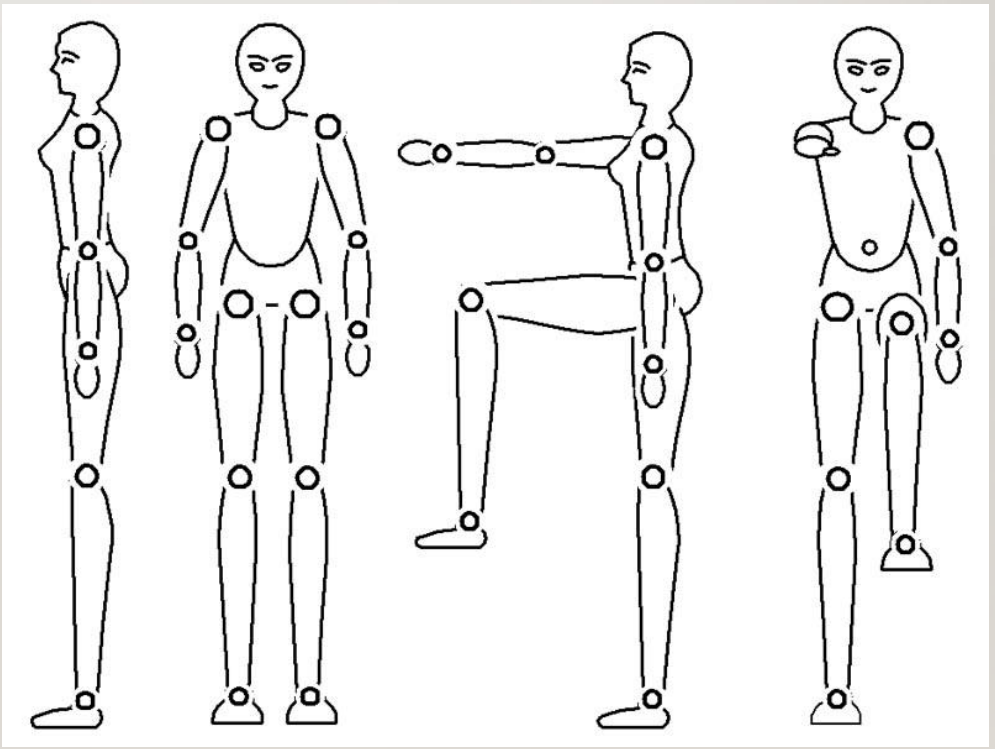
IMPORTANT

- Give enough time to explore.
- Let the participant describe what he (or she) feels and what he thinks is represented.
- Go step by step and work systemetically.
- Have the real object that is represented at hand.
- Once the ‘method’ is understood, you can:
  - Play with the scheme.
  - Take more complex objects/subjects.

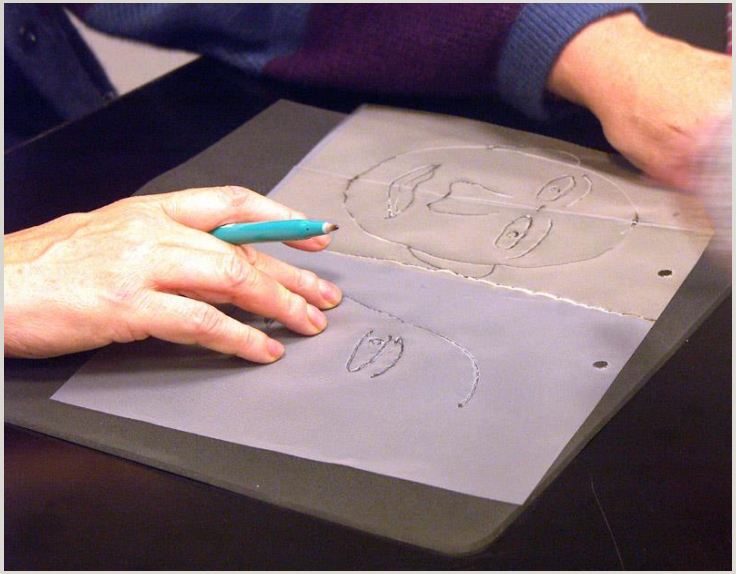
The next step: objects that are too big to contain; use a model (e.g. a house with a chimney on one side and other asymmetrical components, allowing to relate sides of the model and the projections).



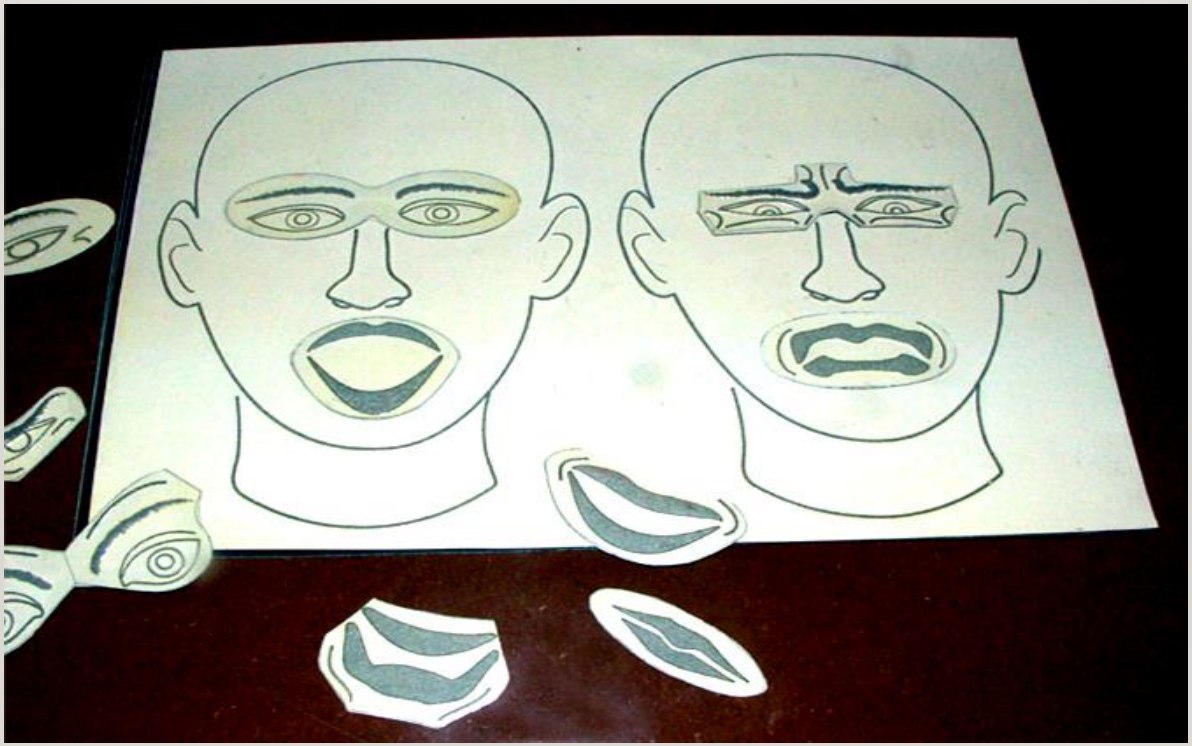
Make the exploration interactive. E.g.: let the participant put a lay figure into the position that is drawn…



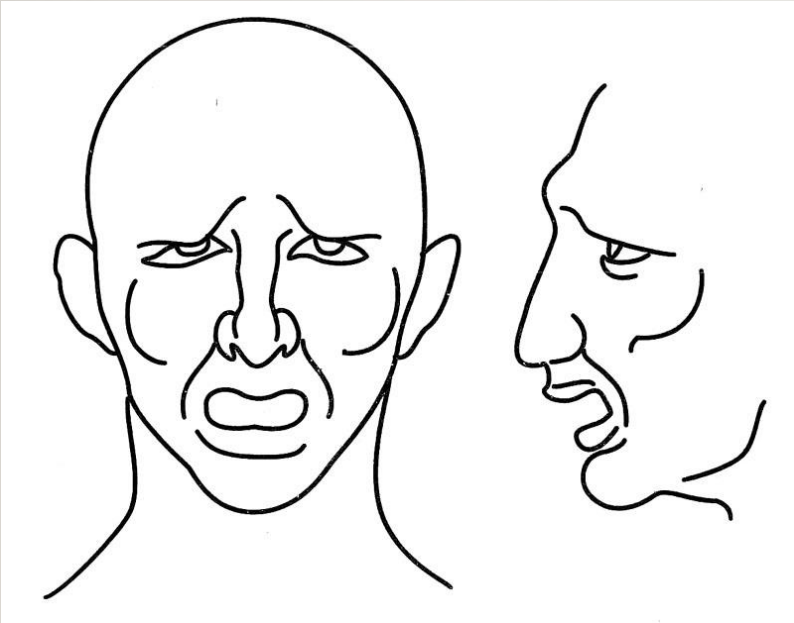
… or let the participant draw after a model, which can be everything depending from how skilled the participant is getting, be it a face or a replica of a famous statue...

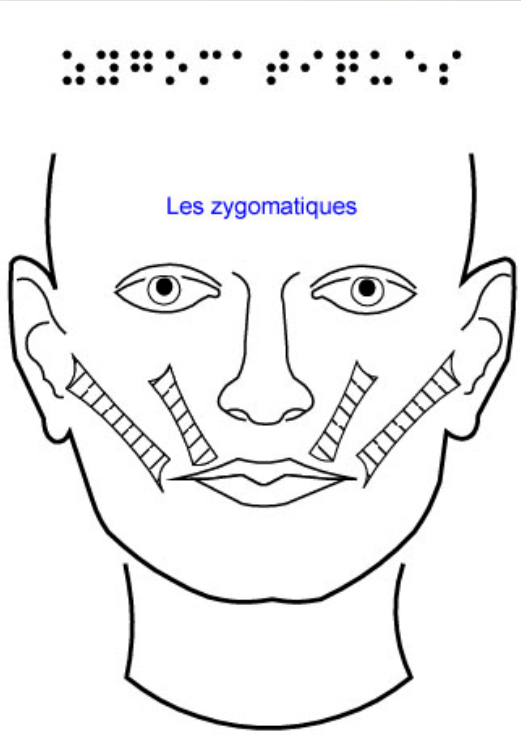


… or let the participant assemble parts of a tactile image, e.g. nose, mouth, brows and eyes that make up for a certain facial expression. (The image of the face is on a metal plate; on the back of this image and the parts is magnetic foil).

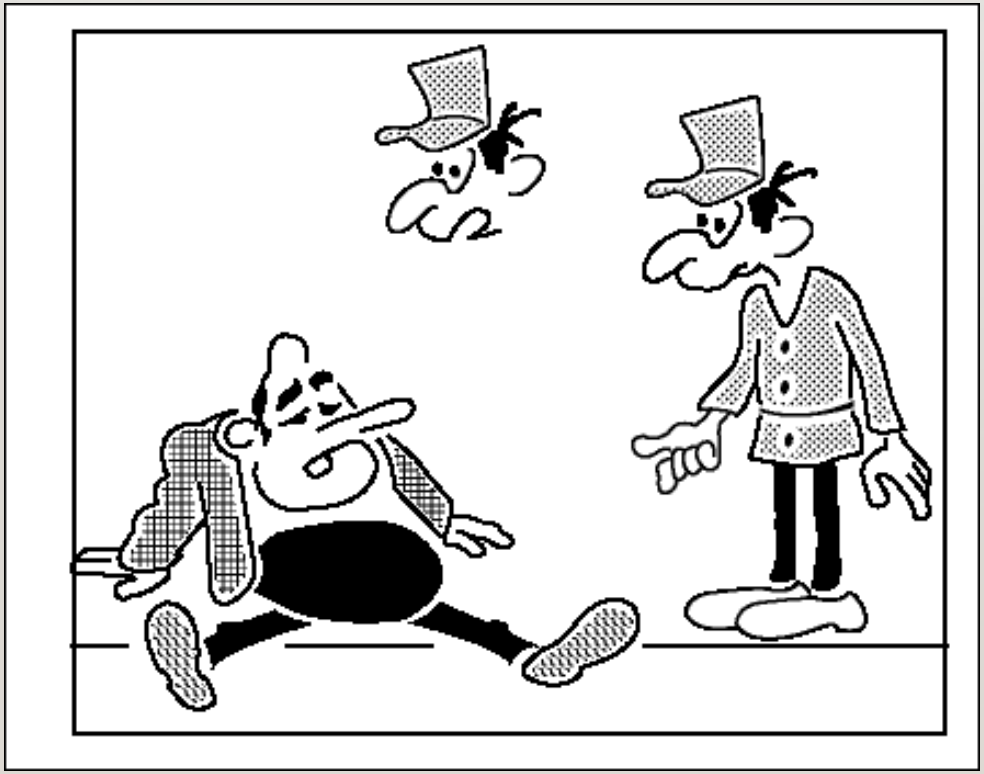


But of course first explain facial expressions and their representations. Use for example the arttheoretical work of Lebrun – or whatever suits your audience. Make it fun!

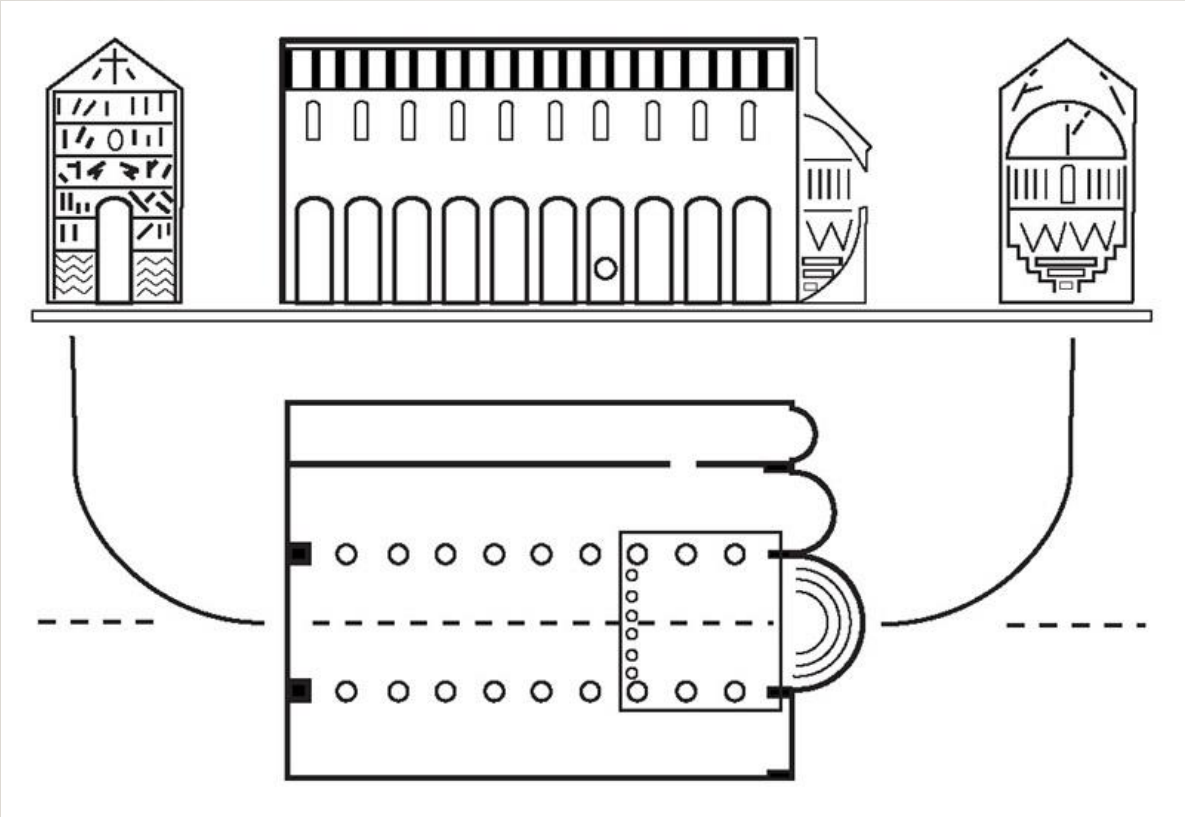




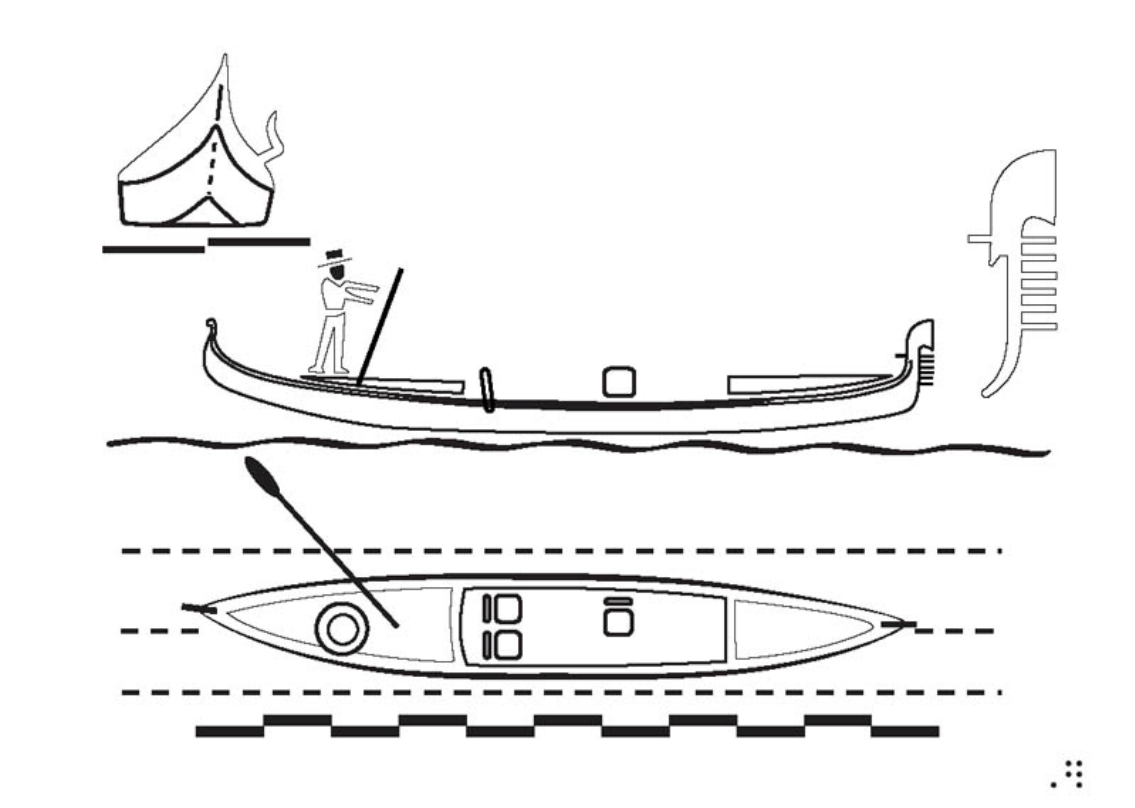
After this and with the proper explanation for some participants even the caricatures, e.g. in Lagaffe Touch, an audio-tactile book that explains the visual language of comic strips, come to life.



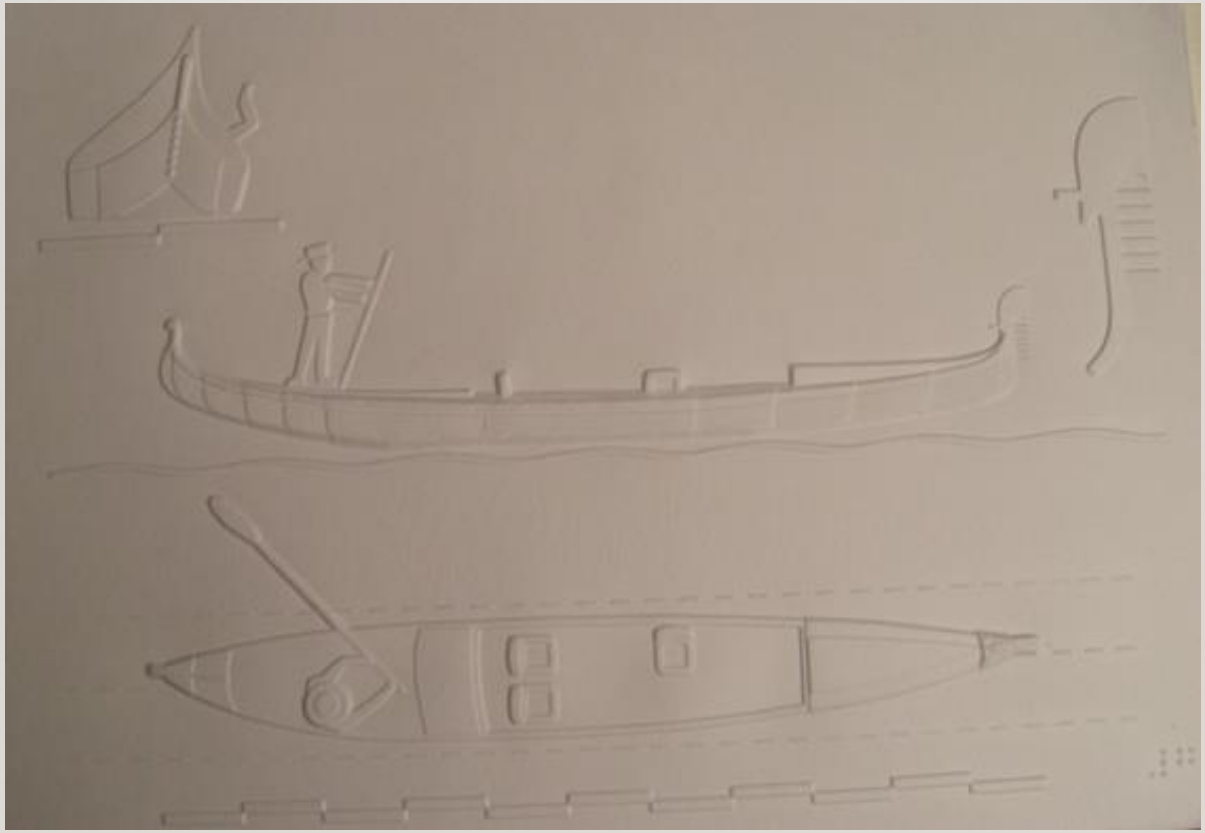
Though caricatures and bodies in complex attitudes remain unfathomable for some of the participants, (almost) all of them after the workshop are able to read architectural plans with their corresponding vertical unfolds like in this example.



And with the proper explanation all participants will fully understand from the 3 tactile images below why a gondola will go straight while the gondolier is rowing only on onde side.



As said: each technique has its own possibilities; the same tactile drawing in higher relief will convey more information, e.g. in the line drawing only the hat of the gondolier is drawn, but here we also see his arms. Compare further and you'll find more!



IN MOST EXAMPLES YOU FIND NO BRAILLE

This has several reasons:

- Braille cannot be adjusted in size; it can be very complicated to fit it well into a drawing.
- Braille labels require lines to the corresponding part of the tactile image; these lines hamper reading.
- In order to allow cheaper reproduction braille should be left out of the tactile, more copies can be printed without the need for translation.

PART 3:
POSINGS

POSINGS - 1

1. With tactile images information that otherwise is unprecise and sometimes even vague becomes structured, comprehensible and virtually palpable; and this is a great delight! (quote from Hoëlle).
2. Well made tactile images should be easily available in all the areas of our life, education and society.
3. Professionals should leave the choice whether to use tactile images or not to the blind person and should have an open and curious attitude.

POSINGS - 2

4. More research is needed upon:
   - The ergonomics of tactile discrimination.
   - Tactile perception and interpretation of tactile images.
   - The use of tactiles images to obtain knowledge of different subjects.
5. Education is needed of blind people, teachers and designers.
6. Braille should be left out of tactile images to facilitate both their reading and cheap (international) production.

POSINGS - 3

7. Orthogonal projection is also applied in:
   - Turin, Italy; (byTactile Vision, Fabio Levi a.o.).
   - Sweden; introduced by Yvonne Ericsson.
8. Visit our stand with examples of (audio-)tactile books and other tactile educational materials from the Cité des Sciences et de l'Industrie, Louvre and Éditions du Patrimoine (Paris, France).

IMPRESSION OF OUR STAND