Toolkit visEUalisation II

Creativity Techniques for Visual Thinking

visEUalisation

HOW TO DEVELOP INNOVATIVE DIGITAL
EDUCATIONAL VIDEOS

visEUalisation Project – how to develop
innovative digital educational videos
2018-1-PL01-KA204-050821

Content

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1. Introduction

This paper presents a selection of specific methods to support and enhance your personal visual thinking repertoire. Furthermore, theoretical foundations that have proven useful for reflecting and informing our own visual practice within an adult education framework are discussed for your consideration.

Developed within the framework of the Erasmus+ project visEUalisation – how to develop innovative digital educational videos with partners from Germany, Austria, Poland and Spain, this paper can be used as a source on its own. However, we'd also like to invite you to have a look at another project publication Toolkit visEUalisation III Storytelling.

Visual thinking can be extrapolated as thinking in a chain of pictures rather than in words. Hence, visual thinkers are more prone to form images in their mind of a word or story they just have heard. Simplified this means they do not "see" a string of "typed" words in their minds.

Visual thinking is closely tied to learning and thus adult learning as well as models of learning types (e.g. Multiple Intelligences by Howard Gardner). According to psychologist Linda Kreger Silverman learning can be divided into roughly two modes: visual-spatial learning (here the visual thinker is present) and auditory-sequential learning. Research suggests that this division is linked to the function of the two human brain hemispheres. The same research – conducted with a group of 750 children – finds that 30% of learners lean towards visual-spatial learning, 45% of learners rely on both hemispheres and 15% of learners lean towards auditory-sequential earning. According to these numbers, creating a learning environment that focusses on visual-spatial learning is likely to suit a greater number of adult learners than an auditory-sequential style. However, the auditory-sequential style is prevalent in western adult educational systems.

As stated before, this paper intends to present you with specific tools and theoretical background to support your own development as an educator of adults in order to enhance your own repertoire and move towards a visually more elaborate style of facilitating learning processes within your area of adult education. Among the selection of theoretical reflections are unconscious biases, symbols and colours. Along with the theories, the presented tools and methods don't offer an exhaustive collection of all

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possible aspects regarding visual thinking. As such, all methods and theories are offered as starting points to allow for your own creativity to flow.

However, visual thinking is not a one-fits-all solution. Neither for your adult learners nor yourself as an educator of the adult learner. While research strongly suggests that learning is well supported by visual incentives and that communication and collaboration processes can benefit from visual thinking and visualisation techniques, this always accounts to specific setups. You might be working with (partially) blind people or mostly people leaning towards auditory-sequential learning. You yourself might actually be an auditory-sequential learner and hence feel it is easier to rely on an educational style catering for this type of learning. This goes to show that both benefits and down-sides to specific techniques need to be evaluated and checked for their suitability in your own specific adult educational setting.

But let's get started! ☺
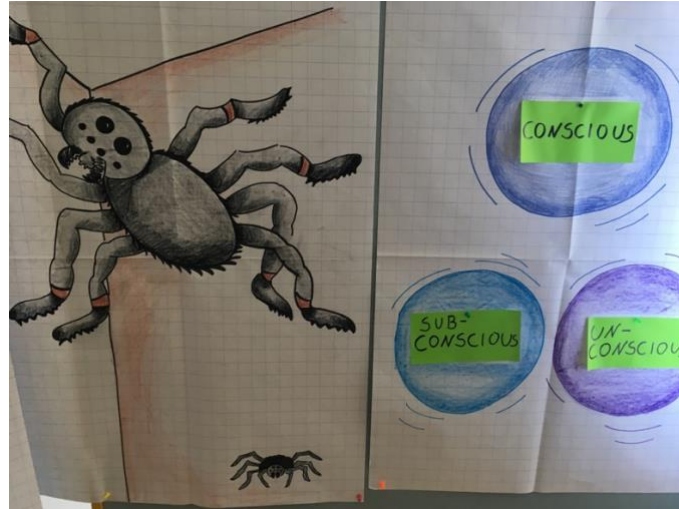
2.   Theory: Unconscious Biases

At the very beginning of our own thought process on how to produce learning materials in the form of videoscribes and digital videos tands the imperative to contribute to a visual language that is both inclusive and non-discriminatory.

The concept of unconscious biases presents not only thought provoking details of roughly 200 individual unconscious biases described by scientific research. It also allows for surprisingly simple conclusions to consider in order to make a visualisation technique shine.

What are unconscious biases?

Unconscious here does not refer to the medical term of a person being knocked out or comatose. It refers to a model of the human mind coined by the swiss psychiatrist and psychoanalyst Carl Gustav Jung. Jung divided the human mind into three stages or layers: the conscious mind, the subconscious mind and the unconscious mind. Very simplified the conscious mind is any active thought we have at any given moment that we more or less can control. The subconscious mind is based on previous experiences we have and inform some of our actions without conscious thought. The unconscious mind is also referred to as the collective unconscious and can be described as the source

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of instincts and archetypical symbols commonly shared among humankind – e.g. the tree of life. An instinct could for example be fueled by the fear for life when we encounter a sizeable spider.

Illustrations from the Creativity Workshop held during project visEUalisation

Biases are often used synonymously with the word prejudice. Unconscious biases are judging mechanisms we have very little or no control over. It is most likely we don't notice how they affect us in any given moment.

Why bother if we can't control it?

The short answer to this question would be: If we never think about our own biases and the biases of others, we will never be able to challenge them within ourselves.

But a little more background never hurt anyone. So, what was reduced to judging mechanisms beyond our control is actually a complex set of cognitive activities our brain launches to manage the massive amount of information it has to process in order to support adequate decision making. The amount of (sensory) information will vary if you compare the impressions of a market square in Kolkata with sensory stimuli in your own bedroom late at night. But this does not mean our brains won't filter this information. One very basic thing our brain does is to categorize. Does the incoming information pose a threat to our safety or not. Thus, the two categories dangerous and not dangerous are formed. Think of the spider. Or a white shark. We hardly give it a two-minute think before we react by screaming or removing ourselves from the situation. We will get back to the categorisation a little bit later.

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Our brains have to counteract 4 basic challenges at any given time. To tackle these, specific mechanisms help us deal with and navigate through the information. These mechanisms and challenges are briefly described here:

Mechanism 1: Too much information

As mentioned our brain has to handle an enormous amount of information. Too much information actually. To tackle this our brain makes us notice things we already know or that have been repeated to us often. We also notice outstanding peculiar things. Additionally, we are drawn to conclusions that already match and confirm opinions and beliefs we have formed prior. Very specifically this is linked to confirmation bias. This is one of the biases that recently has had a little more media exposure. *What science do you trust when it comes to climate change?*

Mechnism 2: Information makes no sense

Besides too much information the brain also has to tackle the obstacle that the information might not make much sense. This is "fixed" by recognizing and filling in patterns we already know on the basis of very slim representation in the actual information. Stereotypes help us with that. Also, we lean towards sympathizing with what and who we already know. Which goes so far as to think we know what others are thinking. Too much information is also put into perspective by how we feel in any given moment. This will change our outlook – both in evaluation of past and future events. One of the biases in action is called hindsight bias. *It refers to our hindsight impression that something should have been foreseeable, when we actually did not foresee it.*

Mechnism 3: Time constraint

We usually have to make decisions quite fast. Despite our own self-image this demands a certain degree of confidence from us. Without (over) confidence we might not act at all. Also, this makes us favor solutions that seem simple and fixable in case we do something wrong. Thus, to also not threaten our position in a group. A cognitive bias in action when it comes to quick decision making is the Dunning-Kruger effect. The effect has had its own amount of media exposure. The interesting aspect it raises is, that knowledge makes people more insecure than lack of knowledge. Meaning: People with little expertise in a field will think of themselves as above average and vice versa. *In a random YouGov poll from 2019 12% of men thought they could win a point off 23 grand slam title winner Serena Williams, professional US tennis player.*

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Mechnism 4: What was important here?

The fourth condensed mechanism is the decision of what should be remembered. Stereotyping again is at work here, even prejudice. In order to form generalities. We identify key elements of a situation and edit our memory after the fact. Our feelings also play into how we storage information.

At the beginning of this section we stated the intention to avoid discrimination. What was unraveled between then and here, is that we categorise as a default. From categorisations we form stereotypes. Stereotypes are the foundation of prejudices. And prejudices when most harmful can lead to discrimination. Thinking about unconscious biases can help question our categories and stereotypes and thus be a factor to avoid contributing to discrimination.

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Knowing of unconscious biases will help you in order to understand how your adult learners interpret your choice of visualisations. It can also help you as an educator in adult education to add and communicate transparency with regards to the visual elements you incorporate in your learning materials. It also helps you to think outside the box and question the familiar and stuff you "just do" without thinking about it. It's not so much about perfection but making conscious choices.

3.   Theory: Symbols

In the section on unconscious biases common symbols were briefly mentioned as something we share with others in the collective unconscious. Symbols are a really straightforward way of stirring associations in the adult learner and to visually transport specific meaning as symbols often do not need additional explanation. This can be useful when you are pressed for time but specifically when you want to embed new information in something that is already known and familiar to the learners in your adult education setting.

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Illustration from the Creativity Workshop held during project visEUalisation

The tree

One of the most univocally rich symbols that can be employed is a tree. A tree addresses an almost infinite number of human interpretations. Among them are the symmetry in growth between crown and roots, the idea of something substantial growing from a tiny seed, the strength and stamina of the stem and so on. But also, the tree casts a comforting shadow and is home and shelter to many animals and once was for human ancestors as well. Humans still build homes out of trees. It is a source of food, too. A symbol both for the beginning of life and for perseverance. And at the same time trees are also ancient burial places that mark the end of life and, thus, where meant to allow for an afterlife connected to earth and nature. The mythical capacity spans from the tree being a portal to the underworld to the tree being a central point of change in the Christian faiths. All this is usually not present in just any tree. A dead tree without leaves standing on its own in a desert conveys different associations than an old, big and lush oak tree in the middle of a forest or an apple tree with a snake in it. You get the gist.

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How the tree as a symbol can be utilized for a pictorial representation of a problem (and solution) is well documented in the so-called "project tree analysis". You will find a reference to this particular tool in the last section of this paper.

The flower

Another carrier of a plethora of symbolic power is the flower. A symbol of new life and rejuvenation the flower speaks strongly to human senses. A flower not only impresses visually, a flower is most often connected to a very specific scent. Both colour and scent of a flower attract specific insects for pollination. So, the symbolic capacity of the flower is also to allure and seduce. While the thorns of a rose might also punish the attracted. This punishment is elevated to repulse and rejection in the thistle. Flowers can be charged erotically. Though often fragile in appearance, the flowers of spring break through the snow, ice and cold of hard winters. Also, small things can make an impact. With the budding flower something special and new is growing into form.

Picture by Coleur on Pixabay

It is important to notice, that symbols very often have a stand-alone-quality. This means that when it comes to the use of symbols less can be more.

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Too many symbols might confuse the adult learner or detract from a core message by a general visual sensory overdose. The same goes for the amount of details in a visualisation. Ask yourself whether a detail is necessary for an association you wish to stir. In short: Only put a snake and an apple in that tree if you wish to make a religious reference. It is not sufficient that you are a snake aficionado and had an apple for snacks.

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4. Theory: Colour & Contrast

From the vibrant colours of flowers to some classical colour theory. Colours have been and still are the subject of a lot of scientific research. We present you here with a very fundamental concept that, whilst having been subject to alterations and adaptions over time, caters to the often-limited equipment of staff in adult education. Even when you only have 3 or 4 colours flipchart markers you can make a conscious choice how to use the colours to highlight a certain information and so on. The principles are quite simple and easy to memorize. The conscious use of colour can also assist you to elevate a core message in a learning video and set the tone for an entire video.

To give you an example from recent popular culture: Try watching the most recent instalment of the movie classic A Star Is Born starring Lady Gaga. Put your focus on how the director uses the colours red and blue to create a very specific atmosphere in all of the scenes. The director allocates a certain colour palette to each character and enhances their role. Lady Gagas character is attributed the colour scheme red and in accordance with her character's rise to fame red becomes more and more dominant throughout the movie. Blue is ascribed to the male counterpart and fades out throughout the movie.

Colour Contrasts

The swiss painter, art theorist and art educator Johannes Itten (1888-1967) developed a model of 7 specific colour contrasts, each of which possesses an unique character trade. As an educator in adult education you can draw from Itten's findings and make conscious decisions about the way you want to use colour in order to enhance your learning materials. You can use colours and particularly contrasts to stimulate interest.

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The 7 Itten contrasts are based on the colour wheel (also invented by Itten):

Originally by MalteAhrens at de.wikipedia. Vectorization by User:SidShakal

1) Colour contrast: This contrast is established by a combination of a minimum of 3 pure colours that are as far away from each other as possible on the colour wheel. The 3 primary colours red, blue and yellow constitute a standard example of this basic contrast. This contrast is very much in your face and hence is often used for warning signs, flags and information displays.

2) Light-dark contrast: Very recognizable in old black and white movies this contrast is established by placing a very light and a very dark colour next to each other. The overall impression is a rather dramatic almost threatening aura that comes with touches of melancholy and shadows. But also with a potential plasticity of space and depth.

3) Complementary contrast: The most basic and important type of this kind of contrast is established by a combination of the colours red and green. However, dyschromatopsia / red-green colour deficiency influences people's perception of red and green. Therefore, purple and orange carry a benefit among the variations of this type of contrast. Complementary colours are two colours opposite each other on the colour wheel. This contrast, too, indicates power that might be in your face. It is strong and intense.

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4) **Warm-cold contrast:** Yellow and red are considered warm colours in this design. Whereas blue, light green and white are cold colours. Next to each other warm and cold colours produce a sense of space and dimension. The overall feelings associated are emotional and undecided. Contradicting effects are closely linked to warm-cold contrasts such as vibrant/tranquil, earthy/airy, near/far and the like.

5) **Colour saturation contrast:** Achieved by a mix of saturated and shiny colours together with turbid, dull and off colours. A very effective combination is a pure and vibrant red next to a light grey. This contrast highlights the pure and glossy colour. The created effect is tranquil and quiet, almost bordering on depressive.

6) **Quantity** or **proportion contrast:** This is basically a contrast in the shape/size of two or more colour fields. Depending on the respective colours and their arrangement in relation to each other this can create a harmonious and calm impression. While switching the proportions will have an opposite effect.

7) **Simultaneous contrast:** A rather intricate contrast achieved by positioning a third colour on two complimentary colour fields. The perceived quality of the third colour will vary due to the impact of the complimentary colours.

When you use colours – either in contrast or other ways – it can be beneficial to check if the colour carries an unwanted baggage. Some colours are linked to certain brands and thus, might carry a message you might or might not want to include in your visual design. It is also smart to be aware of other functions often imposed on colours.

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Ever heard a colour was "girly" or "masculine"? Or that a certain colour spectrum for clothes makes them "bland" and/or "old people wear"? It is within your power as an adult educator to play with and challenge those stereotypes. After all pink used to be considered a colour for aristocratic men, not women. And while in many places today it is considered a "girls colour" it is also the brand colour of a big German telecommunication company and an identification point for people from LGBTQI* groups.

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5.   Tool Collection: Visual Thinking in action

The previous section of this paper presented condensed theoretical background to be incorporated in any creativity process that supports the development of visual learning materials for adult education. Further reading and learning by doing is strongly encouraged by the consortium of project visEUalisation. For your convenience we list a couple of specific sources connected to the topics presented in this paper at the end of the paper. However, we would also like to point at one of our other project publications for methodological inspirations: Toolkit I visEUalisation – Reading recommendations to further the enhancement of your visualization and storytelling skills

The remainder of this segment will present you with some tools that to varying degrees belong to the realm of visual thinking. Be inspired.

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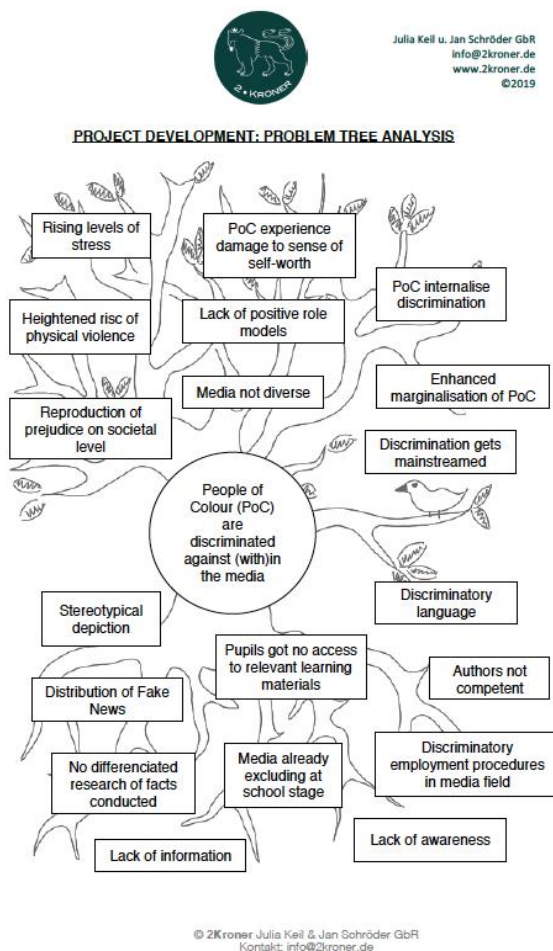
A) The Problem Tree (/Solution Tree)

Invented as a problem analysis tool within the project management method "Logical Framework Approach" (invented 1969 by the US Agency for International Development), more specific for project planning/development, the problem tree (you can also call it an issue tree or idea tree or…) is a graphical/pictorial/visual breakdown of an issue. The issue is represented in the stem of the tree. The causes of the issue are represented in the roots. And the results of the issue are represented in the tree crown. This type of analysis can contribute to problem solving but also to visualize a chain of cause. What leads to a problem or causes it and what are the implications of a problem. It is key to formulate a very straight-forward problem like "The water quality of the river Rhine is bad". Ideally the problem can be measured and there is some sort of

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proof like a recent water quality report. One of the advantages of this method is that it's participatory and suitable both for a one-person-analysis as well as for smaller and bigger groups. The association conveyed by the tree metaphor – cause/root, stem/problem, tree crown/effects – supports the linearity of the content. It supports memorizing in the adult learner and lightens a methodology with the potential to just be a boring text program spread sheet.
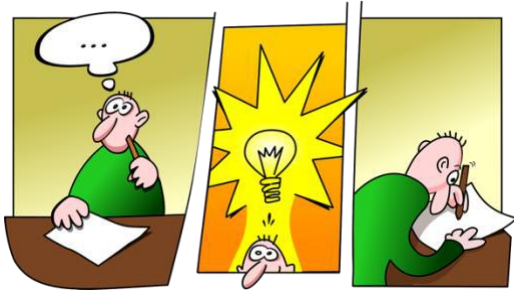
B) Storyboarding

The obvious use of this technique is to draft scenes and sequences for all kinds of films/videos and to bring together different aspects or layers of a planned plot. It is a graphic organizer. In terms of structure a storyboard is as detailed as you need it to be. The great advantage is its hybridic setup with both drawn as well as written details. At the center of your storyboard you will always find a field for (draft) drawings. All around the drawing field you can add as many content fields as you need: time, dialogue, instructions for voiceovers, music information… Storyboards can support your team to make easier transitions when it comes to the division of labor. A team might consist of people with different tasks – one person is responsible for the story and another is responsible for the technical execution and design – sometimes in accordance with preferences and affinities, sometimes not. The person creating a story can communicate visual aspects and important details with a proper storyboard instead of only trying to describe something with words. This makes the transfer of ideas much easier between story composer and designer as the designer ultimately doesn't have to guess so much. A storyboard does not have to be preliminary to a video or film. It can also forego a written story or serve as a planning tool for preparing learning units. Other uses include the mapping of an adult learner (experience) journey, much like a customer (experience) journey in marketing.

C) Sketchnotes

A technique you can explore both digitally on a notepad as well as analogue with pen and paper. It's a thing for the small screen or a regular piece of paper. One of the main purposes of sketchnotes is to

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take notes, actually. So there are no rules as such as they often are not meant for publication. They rather serve as a personal tool to understand content and memorize connections. But all this with visual content such as symbols, scribbles and arrows. As an adult educator, you might have noticed that some of learners in your settings already take visual notes, scribble and so on. This is an indicator that these are visual-spatial learners.

D) Graphic Recording

One of the striking differences between sketchnotes and graphic recording is the scale. The purpose can vary and ranges from being a visual documentation of a meeting or workshop to visual translations of contents and conversations. Possibilities are manifold and depend on the available technology. A graphic recording can be an analogue creation or a digital one where the illustrator performs the graphic recording on a smaller screen that is projected onto a wall.

E) Visual/Graphic Facilitation

Whereas graphic recording is considered a form of documentation, visual or graphic facilitation is considered an actual process support. The visual facilitator is not only a listener but an active part of the given process. Visuals are openly discussed, rejected, enhanced, reorganized and meaning is created in a collaborative style. The scope of application ranges from change management processes, workshops and supervisions.

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7.   Imprint

This paper was written in the framework of the Erasmus+ Project "visEUalisation – How to develop innovative digital educational videos". Authors and final editing: Jan Schröder and Julia Keil from 2Kroner (www.2kroner.de)

The European Commission's support for the production of this publication does not constitute an endorsement of the contents, which reflect the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

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Version 1.3, November 2019