



## **FLUX: Design Education in a Changing World**

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# Can creativity be taught?

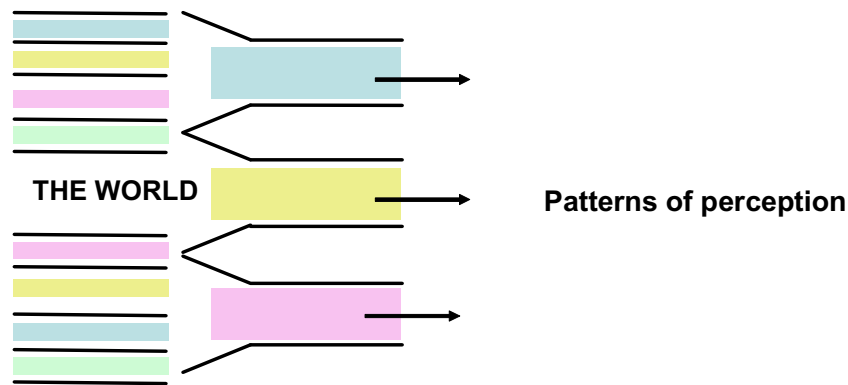
by Hanri de la Harpe

*This paper is based on research conducted for a PhD (completed in 2006) that aimed to develop a methodology for the systematic and strategic fostering of creativity in graphic design education at university or college level. The methodology incorporated three main strategies for enhancing creativity in an educational context, namely the teaching of (1) 'product-related' techniques that include a range of thinking strategies which could be used to generate creative ideas, (2) 'process-related' techniques that deal with the various phases of the creative process and how to manage them effectively and (3) 'person-related' techniques that address the socio-psychological factors which tend to influence creative abilities. The synergy of these three dimensions has been integrated into a course in creative thinking skills which is currently being taught at the North-West University in Potchefstroom, South Africa. This paper addresses the question that was of fundamental importance to the purposes of the PhD research, namely whether creativity can be purposefully taught. Within the limited scope of this paper it is only possible to partially answer this question. In order to arrive at a satisfactory answer to this question, all three dimensions mentioned above should be addressed, with cognisance of the complexity of each aspect as well as their interactivity and interdependence. For the purposes of this paper, however, the most 'teachable' dimension is selected for discussion, namely the ability to effectively generate original ideas. It aims to address the question of whether creativity can be taught by means of an overview of a series of idea-generation techniques that is currently taught at the North-West University to develop graphic design students' ability to generate original ideas.*

*Keywords: Design education, idea generation, design methodologies, thinking techniques*

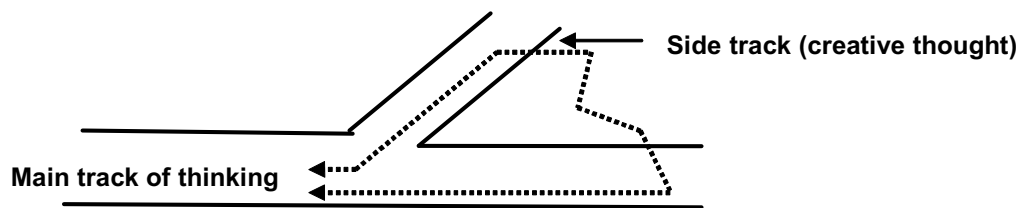
Design is an idea-orientated discipline. Creative ideas are probably the most wanted items in the design industry. In many ways, generating original ideas may be viewed as the most crucial activity in the creative process. For many people, it is also the most difficult one. In view of the multifaceted network of variables involved in creative behaviour, it may seem like an overwhelming and difficult task to deliberately foster creative ability. Yet, despite the apparent complexity of the matter, several researchers and educators (Eiffert, 1990; De Bono, 1993; Amabile, 1983; Houtz, 2003) support the notion that creative thinking can be deliberately developed through instruction and practice. They generally base this assumption on the results of a number of research programmes (e.g. Parnes, 1971:270-275), experimental studies (e.g. Amabile, 1983:189-190) and training courses (e.g. De Bono, 2004; Parnes, 1992: 133-137) that have aimed to purposefully develop creativity in students. Indeed, based on research findings, there can be no doubt that the techniques, methods, frame of mind and attitudes conducive to creativity can, in fact, be taught and learned successfully. An impressive spectrum of 'creative thinking tools' has been developed during the past decades and may be found most frequently in disciplines such as business, education, psychology, engineering, science and technology. Ironically, in the world of art and design – where it would make the most sense to study the topic of creativity – programmes that offer teaching in creative thinking skills and idea generation are rarely found.

The cognitive mechanisms of many of the creative thinking techniques discussed in this paper are based on De Bono's theory of creativity regarding the brain's tendency to function as a self-organising system (De Bono, 1993:9-22). He proposed a conceptual model that explains how creative ideas come into being. According to his theory, all the incoming information in the brain organises itself into preferred thinking patterns without the help of an external organiser. These preferred thinking patterns are used to recognise information, resulting in habitual perceptions of the world, as illustrated in Figure 1. These habitual thinking patterns programme us to think in *repetitive, predictable* lines of thought. Since these established patterns of thinking are based on conventionality, they do in fact prevent us from thinking creatively.



**Figure 1: Simplified illustration of the pattern-forming behaviour of the human brain (adapted from De Bono, 1993: 12)**

Yet, sometimes our brains manage to break out of the regular thinking patterns and we succeed in thinking 'differently' and innovatively. De Bono explains that when this happens, the symmetry of these neurological patterns is broken by a 'side-track' in the thinking pattern. When we think creatively, a new thought originates *outside* the regular thinking pattern, as indicated in Figure 2.



**Figure 2: Simplified illustration that indicates how creative ideas come into being in the human brain (adapted from De Bono, 1993:13)**

This process implies that the starting point of the thinking pattern that is associated with creative idea generation is 'illogical' (outside established thinking), but ends up at a logical point – the 'main track' (familiar, established thinking patterns). We only recognise ideas that have a logical link-back. Thus, when novel and innovative ideas occur in the brain because of a sudden switch in perception outside familiar thinking patterns, it eventually makes sense and appears logical when the thought is accommodated in an established thinking pattern. However, cutting across habitual thinking patterns is not natural behaviour for the brain. The purpose of the brain is to establish and use routine thinking patterns. De Bono (1993:114) believes that such a switch in perception that could result in creative thinking can be *deliberately induced* by the use of certain thinking techniques that are designed to overcome the natural tendency of the brain to think in patterns. A range of these thinking strategies form an integral part of the creativity course at the North-West University and are discussed below. The techniques are intended to force the brain outside the normal habitual thinking patterns, to produce new tracks of thought that may be used for idea generation.

These thinking strategies are often said to mimic the thinking styles typically followed by creative geniuses. Michalko (1998b) made a study of the thinking strategies that were regularly used by several geniuses such as Edison, Disney, Einstein, Mozart, Michelangelo and Newton. Their thinking methods include an ability to approach a problem from various different perspectives, dissatisfaction with one solution to a problem, constantly combining and recombining ideas and images into different combinations, tolerance of ambivalence between opposite or incompatible subjects and a capacity to perceive similarities between two separate areas of existence via the use of metaphor. Many of these geniuses developed thinking techniques either consciously or subconsciously that helped them to

'sidestep' their regular thinking patterns and arrive at innovative ideas. They became natural creative thinkers because they practiced these thinking strategies so habitually that it became part of their mental style of solving problems.

The next sections provide an overview of the creative thinking techniques that are currently being taught at the North-West University to purposefully stimulate creativity in graphic design students and to assist them to increase the quantity and quality of their ideas. To facilitate understanding of how the various thinking tools may be applied to spur creative ideas for graphic design problems, a standard example of a typical graphic design problem shall be used throughout the discussions. The standard task involves the creation of various creative products for a scuba-diving company which offers diving courses, facilitates diving excursions and sells diving equipment. This creative problem will help to illustrate in a practical way how each technique may be used for the typical context of graphic design.

### **Tool 1: The Big Six technique**

The Big Six technique is a typical example of a thinking procedure that helps the brain to escape from established thinking patterns. It also imitates a typical thinking method often used by geniuses of the past, namely to approach a problem from various different perspectives. The method entails the utilisation of six questions, namely 'Who? What? Where? When? Why? How?' as starting points to generate a vast repertoire of different questions and answers about the problem context. The aim is to generate as many questions as possible, starting with each of these words and relating them to the context with which one is working. In the following example, the Big Six technique is used to establish a wide variety of information about scuba diving in order to create a fertile information base for idea generation.

Example:

<b>WHO?</b>	<i>Who</i> are the potential clients of the scuba diving company? <i>Who</i> needs diving lessons? <i>Who</i> teaches diving skills?
<b>WHERE?</b>	<i>Where</i> do the divers do scuba diving? <i>Where</i> does the training take place? <i>Where</i> are the diving company and the shop located?
<b>WHAT?</b>	<i>What</i> skills are taught? <i>What</i> gear is needed for diving? <i>What</i> do the exterior and interior of the shop look like? <i>What</i> do divers hear when they are under water? <i>What</i> do divers see under the water?
<b>WHEN?</b>	<i>When</i> does it feel like to dive? <i>When</i> do people scuba dive? <i>When</i> are you allowed to go on a diving excursion?
<b>WHY?</b>	<i>Why</i> do people scuba dive? <i>Why</i> do people buy new diving equipment?
<b>HOW?</b>	<i>How</i> do people scuba dive?

This example demonstrates how the Big Six technique could help to probe the problem context, to reveal a wide range of perspectives on a given situation which may contribute to the generation of a creative solution. It helps to expose information that may otherwise have escaped the attention of a designer. More importantly, it helps to divert one's thinking into various directions that could be used as a springboard for generating ideas. For example, thinking about the exotic diving destinations around the globe, such as the Caribbean and Hawaii, immediately conjures up images connected to paradise. This could lead to the use of images and symbols associated with paradise or heaven to be used in a logo. Likewise, thinking about under-water communication skills could lead to playful imagery of hand-signs, or using hand-signs to create typography.

### **Tool 2: The Random technique**

The technique of 'random association' was popularised by De Bono (1993:117) as a lateral thinking strategy and is one of the simplest and most effective techniques for idea generation in the repertoire of creative thinking techniques. The technique entails a process where different words, images or objects are randomly chosen and placed next to the creative problem, with the aim of forcing a connection

between the problem context and the unrelated element. This connection often triggers new and original ideas by sensitising the mind to new possibilities that it would otherwise not have considered.

The reason why the Random technique is so effective to spur creativity is that it creates the ideal brain conditions for an original idea to occur. The technique is based on the brain's self-organising mechanisms. As explained earlier, the human brain has a natural tendency to sort (or organise) all incoming information into established thinking pathways. The brain has a remarkable ability to create order from chaos. When one places any random concept next to a particular problem concept and attempt to force a relationship between the two unrelated concepts, the brain will attempt to find a logical association between the two elements.

In the following examples, a few random words ('telescope', 'silence', 'wings') were selected to force a connection between the world of scuba diving and the random input, with the intention of triggering fresh perspectives on the problem context.

**Example 1 – Using the word 'telescope' as a random input:** When the word 'telescope' is connected to scuba diving, the initial response is that there is simply no connection between the two disparate concepts. Yet, in reaction to prompting the brain to make a connection, our brains could be directed to realise that we use a telescope to make stars visible, to probe the mysterious world of stars, to discover their secrets – much in the same way that scuba diving helps people to discover the secrets of the ocean. This analogy could trigger a slogan that plays with the idea of revealing secrets, such as 'making visible the invisible' or a name for the company such as *The Secret Ocean* or even *Seacrets*. This thinking method illustrates how a creative idea could start as an illogical concept – outside the 'main track' of thinking – and become logical after the logical connection has been made.

**Example 2 – Using the word 'silence' as a random input:** How does the concept of 'silence' relate to scuba diving? When we dive into the water, we leave the noise of the outside world behind: could the contrast between the noisy world and the strange calmness of the underwater world be utilised in any way, possibly in an editorial advertisement?

**Example 2 – Using the word 'wings' as a random input:** Diving feels like flying under water: could we use an image of a diver with wings? It would certainly be unusual ...

These examples illustrate how the Random technique could trigger lines of thought that would not occur during 'normal' thinking. It deliberately moves the brain out of its established thinking patterns and helps to generate a different point of view that may be used to spur creative ideas.

### **Tool 3: The Mind-map technique**

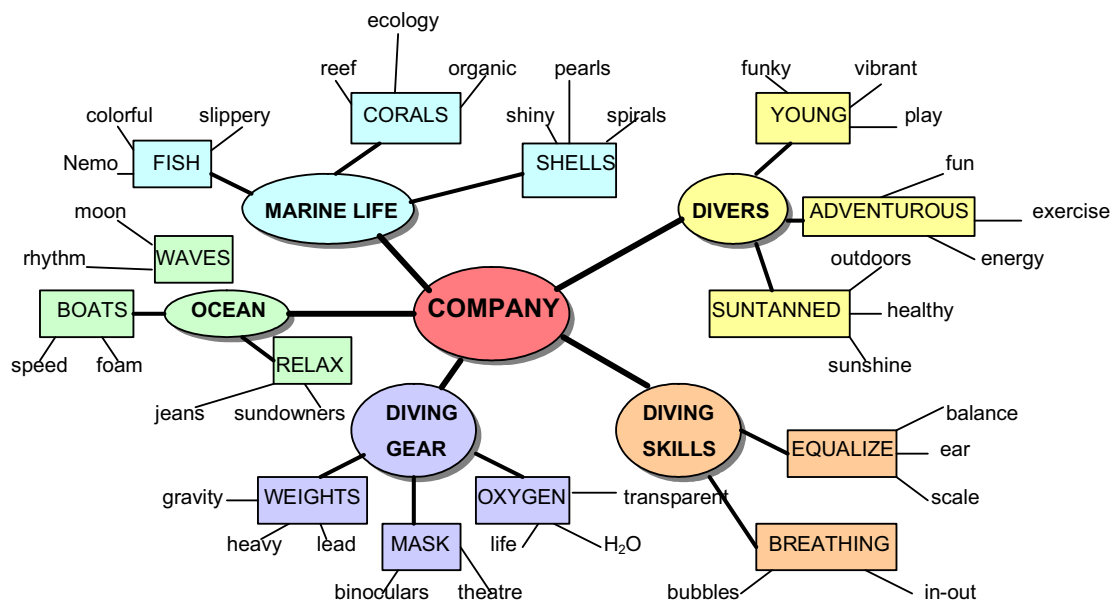
Mind-mapping was formalised as a thinking technique in the early 1970s by Tony Buzan, a British brain researcher, who viewed it as a 'whole-brain' alternative to linear thinking (in Michalko, 1998a:55). The technique optimises the brain's potential to expand one or more concepts into a multitude of other concepts that could be explored for idea generation. Using a map-like structure that facilitates the easy flow of ideas and associations, it helps to induce new lines of thought about a problem context that could lead to a creative solution.

The first step of the technique entails writing a key concept or a main theme of a problem in the centre of a large sheet of paper (Figure 3). A number of significant components or dimensions of the key concept are then written around the central word and connected by lines or 'branches'. Each of these concepts is then linked to a number of related associations, features or characteristics. Once again, these words are used as starting points for the generation of more related concepts. This process could repeat itself several times to create a mind-map that hosts a large number of concepts that are either directly or indirectly related to the central concept. The words, or the dialogue between them, are then used to trigger ideas for a creative problem.

A mind-map is an ideal thinking structure to use for idea generation because, to a large extent, the process duplicates the way the human brain processes information. The brain works primarily in an

interlinked and integrated manner, similar to a mind-map. For many years it was accepted that the human brain works in a linear or list-like manner – a falsehood based on the linear nature of speech and print. In verbal communication, people are restricted by the nature of time and space to communicate one word at a time. Yet, the human mind is perfectly capable of processing information which is non-linear, as in a mind-map. Our brains work associatively as well as linearly, continuously comparing, integrating and synthesizing information. The flexible and expansive structure of a mind-map creates a thinking platform for the brain that allows information to flow more freely than in linear forms of information processing. This helps the thinker to generate ideas and concepts with much less effort than would be the case in linear thinking (such as making a list of words).

In the following example, a mind-map is used to expand the key concept of 'scuba diving' into multiple words, ideas and associative concepts that could be explored for creative solutions.



**Figure 3: An example of a mind-map which is used to stimulate ideas for a typical graphic design problem**

What ideas could be triggered by this mind-map that could lead to creative solutions to our sample problem? Could we for example use the word 'oxygen' in the mind-map as a starting point for generating a name for the company? The name *Oxygen Diving* could effectively connect the scuba diving company to the idea of sustaining life under water as well as the concepts of energy and exercise. The word 'rhythm' in the mind-map could also suggest a name for the company (*Rhythm Diving*). The idea of 'rhythm' is related to the rhythmic movements of the ocean's tides and could also point to the rhythm associated with breathing in and out while one scuba dives. Both these concepts are related to the central concept of scuba diving, yet they do not represent an obvious and straightforward connection with scuba diving and are therefore less conventional.

#### **Tool 4: The Visual Thinking technique**

The technique of Visual Thinking utilises drawing as a mode of thinking to generate ideas. The process of 'thinking in pictures' is viewed as a parallel and complementary language to the verbal language of words. The technique forces a right-brain approach to the process of creative problem solving. Since the right brain handles non-verbal, non-rational and imagery-based thinking (as opposed to the logical, rational and numerical thinking of the left brain), the visual thinking technique naturally induces a less rational, more creative approach to idea generation. The technique entails substituting words with quick drawings or symbols to find visual equivalents for the words. It implies that the thinker should start with a predetermined set of words that has been generated by means of a creative thinking tool, such as a



Apart from effectively generating visual solutions to design problems, the Visual Thinking technique could heighten your ability to visualise – a skill which is valuable in most design disciplines. Practicing visual thinking is an important exercise for cultivating creativity. The power of Visual Thinking as a technique to evoke pictorial solutions is particularly appropriate for the purposes of design, which is a discipline that depends greatly on visual images to convey information.

#### **Tool 5: The Trigger technique**

This technique embraces a process where one uses a list of pre-determined creativity prompts (or 'triggers') as catalysts to transform existing ideas or to spark new ideas. A 'trigger' is a concept or principle that is used consciously to turn one's thinking away from established thinking patterns. The Trigger technique has an almost magical ability to revolutionise one's thinking and to open up new lines of thought about a given problem. The technique prompts a designer to escape from a particular way of thinking by suggesting and facilitating many alternative ways of thinking.

The technique simply requires the use of a list of creativity triggers to spark various visual or conceptual ideas that could alter an existing design or initiate a completely new idea. The triggers could be used to initiate a wide range of possible solutions to a creative problem. The idea of using a checklist with trigger concepts to facilitate idea generation was first initiated by Alex Osborn (1992) as a strategic method to stimulate creativity. Osborn's original checklist technique was based on seven basic principles which he believed could facilitate creative thinking. Each principle is viewed as a possible source of innovation in relation to a given problem. They were: 'substitute', 'combine', 'adapt', 'magnify or minify', 'put to other uses', 'eliminate' and 'reverse'.

For the purposes of the creativity course that is currently being taught at the North-West University, an extended trigger list that contains twenty triggers has been devised. The twenty triggers are: Replace, Combine, Adapt, Minify, Magnify, Reverse, Eliminate, Animate, Superimpose, Fragmentation, Isolate, Distort, Repeat, Geometry, Light and Shadow, Decontextualise, Dimension, Texture, Damage and Time. In the trigger list that is used by the students, each trigger is described in terms of various approaches that could be followed when playing with each trigger. For example, the 'combine' trigger is described as follows:

#### **Combine:**

*The ability to make witty combinations or to synthesise elements in a clever way is often regarded to be at the heart of creative thinking. Combining different parts, elements or ideas could often initiate a new conceptual approach to a graphic design problem. The 'combine' trigger prompts you to connect, link, unify, join, mix and merge elements, concepts or approaches to discover new ideas. Often the best results are obtained when dissimilar concepts or previously unrelated subjects are combined. A concept or a composition could be taken apart into separate elements and recombined in an alternative way. One may also use the 'combine' trigger to think about methods that are used to join things together, such as stitching or using glue, a string, a stapler or a nail. Could you, for instance, create a three-dimensional impression that images are stitched on a brochure with a string? Could you 'nail' your logo or layout together? Could you mix a loose sketchy style with a photographic approach? The possibilities that are opened up with the 'combine' trigger are endless.*

Descriptions of the other triggers are provided in the author's recently published book entitled *Creative intelligence: the designer's creativity handbook* (2007:64-75). The Trigger technique is an ideal strategy to transform a basic concept into multiple variations and to ensure that the creative potential of an idea is adequately exploited. It is a strategic method to enhance an artist's innate creative abilities through creative thinking exercises. The continuous use of the technique sensitises one to the various creative possibilities suggested by the triggers, thereby improving general creative ability. The example below (Figure 5) provides a summary of the design trigger list and indicates how a simple image, such as a fish, could be transformed into various creative alternatives when one is playing with the Trigger technique.



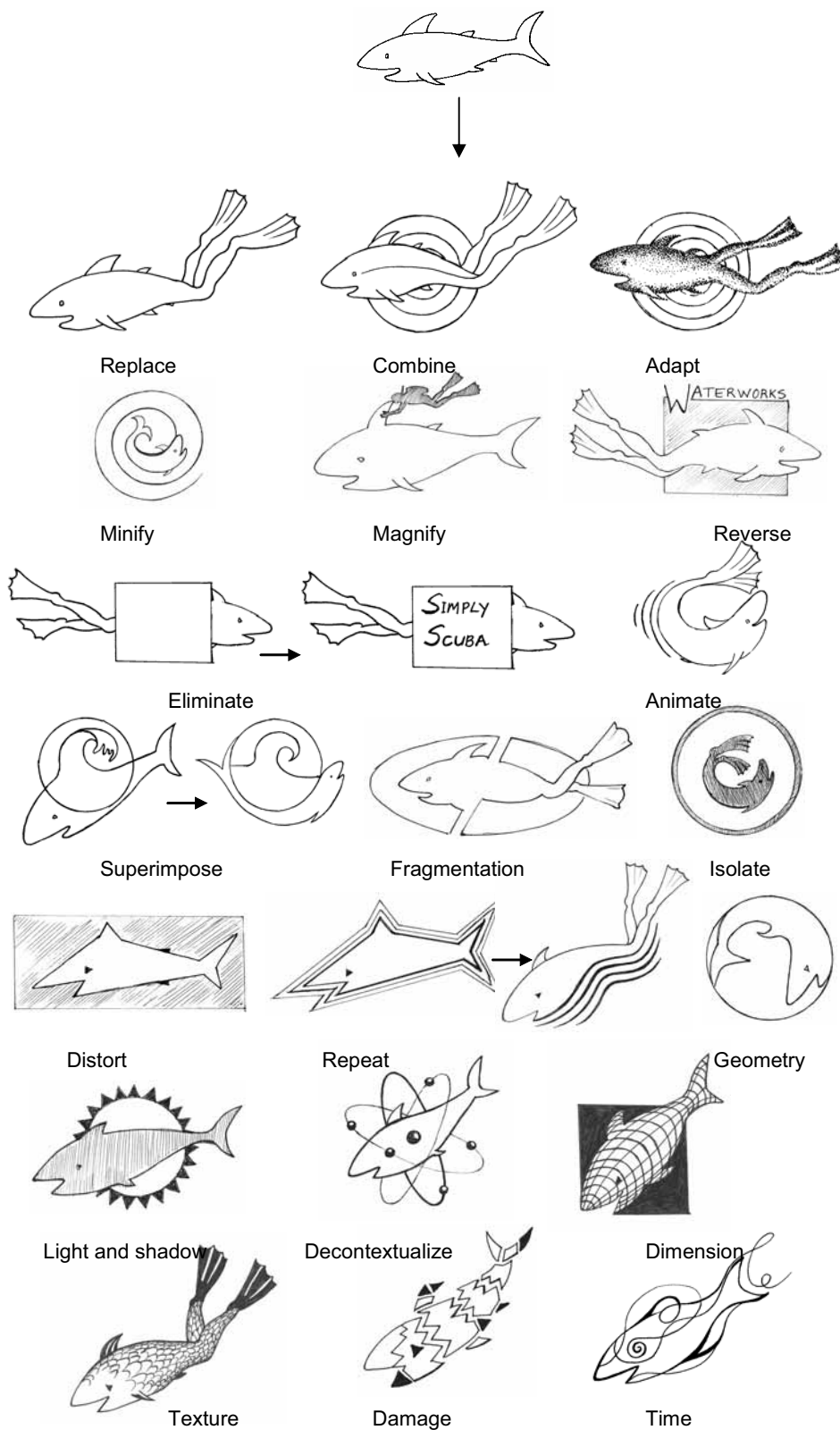


Figure 5: An example of the Trigger technique applied to the image of a fish

### Tool 6: The Metaphor technique

The use of metaphors and analogies is one of the most common and effective creative problem-solving techniques in existence. In analogical thinking, similarities between two different worlds of meaning are explored and ideas from one context are transferred to the other in search of parallels and new viewpoints. Ideas that are generated by means of metaphorical thinking are often characterised by an element of unexpected surprise and fun.

An effective metaphor is one of the most evocative ways of conveying a message. For this reason, metaphors are popularly used in the advertising industry. A clever metaphor has the ability to communicate in a subtle, yet powerful way. Another reason why metaphors are often used for advertising is that they tend to involve the audience by allowing them to make the connection between the two different concepts. When viewers understand the connection successfully, they become active participants in the concept. The moment the viewers grasp the pun that is suggested by a metaphor, they experience the same sense of pleasure as when they catch the punch line of a good joke. This is a winning formula for effective advertising.

The following example indicates how the metaphor technique could be used to generate ideas that could advertise our sample company's main activity, namely scuba diving.

**Metaphor 1:** Thinking about the activity of putting on diving gear to explore marine life could trigger the idea that scuba diving is like going on safari, where one wears a rucksack (analogical to oxygen bottles) and binoculars (analogical to a diving mask) to explore the wildlife. These analogies could also be used to spark other creative ideas, such as considering the words *Ocean Safaris* as a name for the company.

**Metaphor 2:** The experience of swimming and feeling weightless in the water could be likened to being in outer space with oxygen supplies, where no gravity exists and movements are slow, like swimming. It could trigger an advertising slogan such as *Don't leave planet Earth to explore the unknown ...*

**Metaphor 3:** The notion of exploring spectacular marine life with the element of surprise that is awaiting around every corner could be compared to a treasure hunt, a mysterious journey where one discovers magnificent surprises and uses secret codes in the same way as using underwater hand signs.

These examples illustrate how metaphorical thinking could help to produce unconventional lines of thought about a given problem context that could be used as starting points to solve a creative problem.

### Tool 7: The Five Senses technique

Creative people tend to have a relatively greater sensory awareness of the world around them. Yet, by means of the Five Senses technique, they could be purposefully trained to increase their sensitivity and openness to sensory experiences. The Five Senses technique focuses on the five senses of sight, sound, taste, touch and smell as starting points for the generation of ideas. When the technique is applied to a given problem context, each of the five senses evokes a different set of responses. This variety of sense-based responses provides a fertile information base which could be utilised for creative problem solving. In essence, the technique facilitates a multi-sensory experience of a problem context. It aims to establish a set of experience-based responses that could be utilised for idea generation.

In the following example, the five senses are connected to aspects of scuba diving with the aim to stimulate sensory-based ideas that could be used for graphic design or advertising purposes:

Sound:	The splashing sound when someone dives into the water from a boat ...
Idea:	We could use the name <i>Splash Diving</i> for the company and use an image of a splash as a point of departure for a logo. This could lead to a slogan such as <i>Take the plunge...dive with us.</i>
Sight:	Drops of water on the window of the diving mask ...
Idea:	We could use drops of water as visual imagery on stationery...
Taste:	Scuba diving tastes like champagne ... (an analogical approach).

- Idea: We could suggest an unconventional name such as *Champagne Diving* for the company. The bubbly nature of sparkling wine is related to the breathing bubbles that are visible under water when scuba diving. Drinking champagne is also linked to fun and celebration; we could therefore use a slogan such as *Celebrate life ... dive with Champagne Diving*. Divers who qualify for their certification could each receive a bottle of champagne.
- Taste: The salty taste of seawater ...
- Idea: We could use a small packet of good quality gourmet salt as a promotional item.
- Touch: The prickly feel of warm sand under one's bare feet ...
- Idea: We could use the texture of sand on the paper of advertising brochures.

This example illustrates how a multi-sensory approach to a problem context could open up various alternative lines of thought that could be used to solve a creative problem. It is an effective strategy to ensure that one understands and exploits the full experience of a problem context for idea generation.

### Tool 8: The Cross-connect technique

At the heart of the Cross-connect technique is the process of connection and integration of concepts. It is based on the notion that each problem context consists of key elements and sub-elements, and if these elements are connected in various combinations, it could spark novel ideas. The first step in the technique entails a process where the central theme of a problem is divided into 3-5 key elements. The next step requires the drawing of a matrix consisting of rows and columns, with the key elements written at the top of the columns. Each key element is then broken down into sub-elements which are listed below their respective key elements. The various sub-elements are then connected freely and playfully across the matrix to suggest unconventional merging of concepts.

The matrix below provides an example of how the technique could be used to spur creative ideas. It hosts three key elements that relate to the problem context of scuba diving, namely the 'ocean', 'marine life' and 'diving'. These key elements are broken down into various sub-elements representing attributes and concepts associated with each key element. Connections could be made randomly or selected according to their potential for creative exploration. The arrows indicate the connections that are made in the process of idea generation. The various ideas that were triggered by the technique are described below the matrix.

OCEAN	MARINE LIFE	DIVING
water	corals	breathing
wind	aquarium	hand signs
sparkles	turtles	flippers
reflections	shells	swimming
waves	seahorse	oxygen tank
sea breeze	submarine	wetsuit
blue	jellyfish	bubbles
Atlantic / Pacific	fishes	compass
umbrella	whales	shipwrecks
sand	sea anemone	exhilarating
seagull	dolphin	pressure gauges

Table 1: An example of a Cross-connect matrix

### Ideas:

- Connect *dolphin* + *oxygen tank*: we could use a light-hearted image of a dolphin with an oxygen tank on his back for a logo.
- Connect *compass* + *turtle*: we could use an image of a turtle with a compass as a shell.
- Connect *wind* + *jellyfish* + *bubbles*: we could use images of bubbles that transform into jellyfish floating across the page as if blown by the wind.

- Connect *fishes* + *flippers*: we could portray divers as fishes with multicoloured scales on their bodies and fish-like fins.

When playing with the Cross-connect technique, one could use the words to trigger other concepts and then use those for connection. Ideas do not always emerge from direct connotations between concepts but from variants of these concepts, as in the instance of 'flippers and fishes'. The idea of 'flippers' was linked to divers and the word 'fishes' triggered the idea of multicoloured scales that cover the body of a diver. As mentioned earlier, a typical style of thinking often used by creative geniuses of the past was to integrate and synthesise concepts to produce novel solutions to problems. Thus, to a certain extent, the Cross-connect technique mimics a typical thinking strategy used by such geniuses. The unexpected connections that are produced by the technique introduce an element of serendipity into the ideation process. It often results in the generation of fun ideas and light-hearted solutions to creative problems.

In response to the question whether it is possible to teach creativity, then, it may be concluded that the cognitive procedures that are followed by these idea generation techniques are indeed teachable. This may be done through the use of conventional educational media such as structured study guides and lectures which provide explanations, demonstrations and examples of how to employ the techniques. The advantage of these thinking strategies is that creative ability is 'learned' by means of the techniques, since they mimic or stimulate the cognitive processes that underlie creativity. They may strengthen students' innate creative abilities since they provide exercise in certain thinking processes that trigger creativity. The techniques may therefore not only yield short-term results such as the generation of creative ideas, but may also ensure the long-term cultivation of creative thinking skills. These techniques by no means exclude the use of unstructured approaches to idea generation. They could effectively be used in conjunction with spontaneous methods of idea generation. Still, they provide graphic design students with a set of useful thinking strategies that empower them to master one of the most important components of creative intelligence: the ability to effectively generate original ideas when the need arises.

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## CURRICULUM VITAE: HANRI ELISABET DE LA HARPE

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<b>1992:</b>	<b>Occupation:</b>	Junior lecturer: North-West University, Potchefstroom.
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<b>1989:</b>	<b>Occupation:</b>	Junior lecturer: University of the Free state, Bloemfontein.

### ACADEMIC QUALIFICATIONS

1980: Grade 12, Potchefstroom Volksskool, Potchefstroom.  
1988: BACCALAREUS ARTIUM (Fine Art), Four year degree, *Cum Laude*, UNISA, Pretoria.  
1997: MASTERS degree: Title of dissertation: *Art as Communication: symbols*, North-West University, Potchefstroom.  
2006: PHD: Title of thesis: *Cognitive and behavioural strategies for fostering creativity in graphic design education*, North-West University, Potchefstroom.

### AWARDS

- Best scholastic achievement in the subject of Art in South Africa during matriculation (1980).
- Overall winner of the New Signatures National Art competition (1987).
- Obtained B.A. Fine Arts degree *Cum Laude*, and was awarded the UNISA Faculty Medal for the best academic achievement in Fine Arts (1988).
- Received merit bursary from UNISA for post-graduate studies (1989).
- Obtained two merit awards at the Volkskas Atelier Art competition (1989,1990).
- Received the Robin Aldwinkle award for exceptional academic progress with post-graduate studies, UNISA, (1996).
- Recieved NRF award in recognition of excellent achievement in promoting interdisciplinary interfaces in knowledge creation through the STAMPEX stamp studnet competition, promoting the NRF (2003).

### PUBLICATIONS

Book: *Creative Intelligence: the designer's creativity handbook*, Potchefstroom: Platinum, 2007, 217 p.

Articles: *The emergence of an Eco-feminist consciousness in South Africa: examining the human/nature relationship in art*, De Arte, Vol. 61, April 2000, UNISA, Pretoria.

Published conference papers:

- *Eco-feminism in South Africa: examining the work of five female artists*, South African Association of Art Historians, Proceedings of the 15<sup>th</sup> Annual Conference, University of Natal, Pietermaritzburg, 24 – 26 September 1999.
- *Specialisation versus generalisation in design education: where to draw the line?* Paper for peer reviewed proceedings: Fourth International Design Education Forum Conference, 10 -11 September 2001, Johannesburg.
- *Self-empowerment strategies for teaching and learning creativity in tertiary graphic design education*. Peer reviewed publication: Proceedings for DEFSA (Design Educational Forum of South Africa) Conference, 22-24 September 2002, Clarens, South Africa.
- *Strategies for the stimulation and maintenance of creativity in education*, 51th Annual Creative Problem Solving Institute, Creative Education Foundation, 26-1 July 2005, Minneapolis, U.S.A.

### **CREATIVE ACHIEVEMENTS**

Dr. Hanri de la Harpe enjoys wide recognition as an artist in South Africa and abroad. Her work is represented in permanent collections like the SASOL Art Collection, Telkom and Absa Bank Art Collection. De la Harpe takes part in group-exhibitions on a regular basis and has had four solo exhibitions in South Africa.



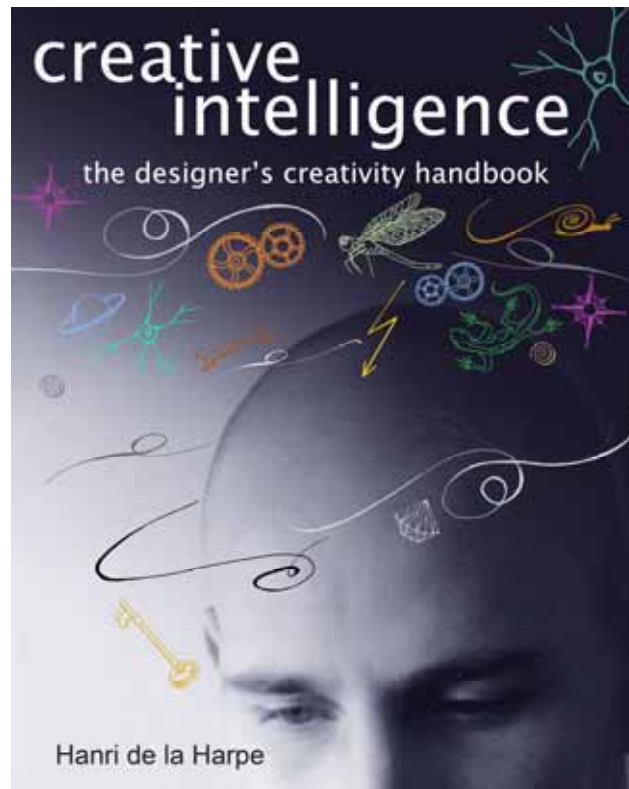
# Can creativity be taught?

Presentation

by

Dr. Hanri de la Harpe





*Creative intelligence: the designer's creativity handbook*

published April 2007

## PHD RESEARCH: THREE MAIN STRATEGIES FOR ENHANCING CREATIVITY

- focus on a range of thinking strategies which could be used to **generate creative ideas**
- focus on the various phases of the **creative process** and how to manage them
- focus on the **social-psychological factors** which influence creative abilities

## 8 Creative thinking tools

Tool 1: The Big Six technique

Tool 2: The Random technique

Tool 3: The Mind-map technique

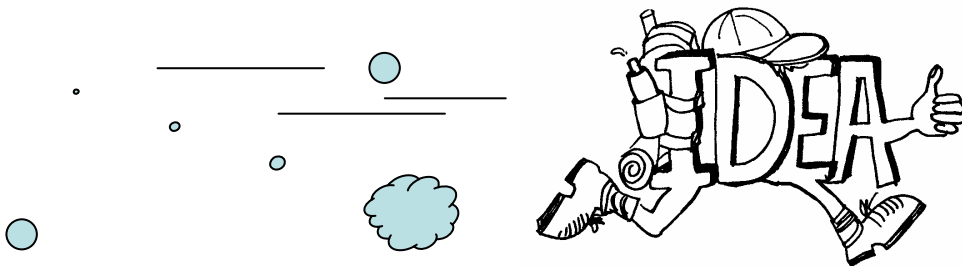
Tool 4: The Visual Thinking technique

Tool 5: The Trigger technique

Tool 6: The Metaphor technique

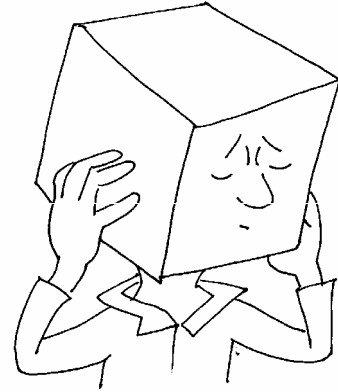
Tool 7: The Five Senses technique

Tool 8: The Cross-connect technique



Being in the box...

means..



we tend to think in repetitive, predictable patterns

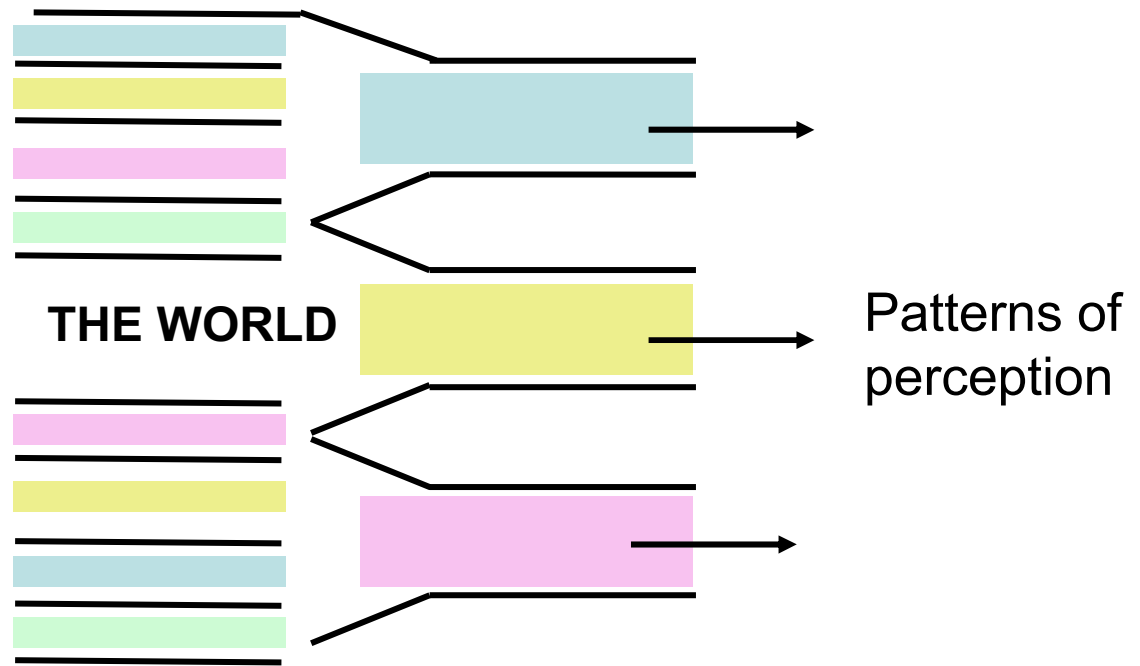
**WHY?**

because the human brain is a 'self-organizing system'



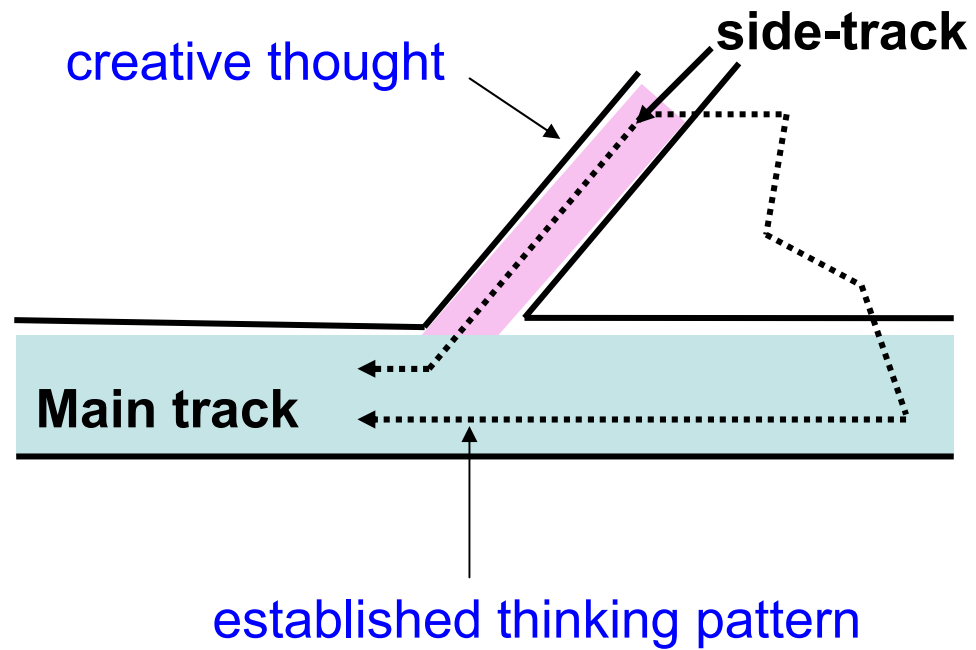
# How did we get 'into the box'?

We interpret everything around us according to **previous experiences** which are stored in the brain as **informational patterns**



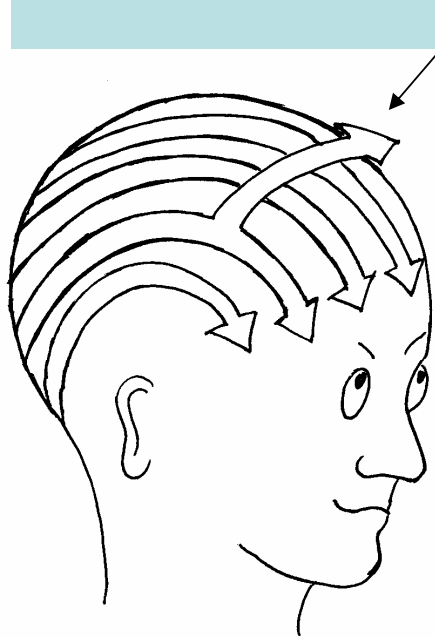
The pattern-forming behavior of the human brain

When we think creatively,  
the thought originates **outside** the established thinking pattern



Thus: it is not 'natural' for the brain to think creatively

We can **learn** thinking techniques and mind-sets that helps us to move 'outside' our normal thinking patterns



The creativity techniques **imitate** the thinking styles of **geniuses**

## How does geniuses think?

The thinking strategies of geniuses such as **Disney, Michelangelo, Darwin, Edison, Mozart, Newton** include:

- ~ An ability to approach a problem from **various different perspectives**
- ~ **Dissatisfaction** with **one** solution to a problem
- ~ **Challenge** assumptions
- ~ Constantly combining and recombining ideas and images into different **combinations**
- ~ **Tolerance** of ambivalence between opposite or **incompatible** subjects
- ~ A capacity to perceive **resemblances** between two separate areas of existence via the use of metaphor



## The IDEATION TOOLBOX...

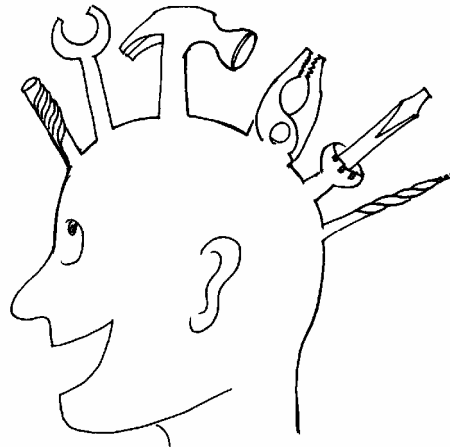
The **Visual Thinking** technique

The **Big Six** technique

The **Mind-map** technique

The **Random** technique

The **Trigger** technique



The thinking tools are thinking equipment

## Creative challenge

Conceptualize a name, a logo and a slogan for a **sea-side company** which offers **scuba diving** courses, facilitates diving excursions and sells diving equipment.

## Tool 1: The **Big Six** technique

Geniuses approach a problem from **various different perspectives**

Use the six questions as starting points to generate **questions and answers** about the problem context



**Who?**

**What?**

**Where?**

**When?**

**Why?**

**How?**

## Tool 1: The Big Six technique

### WHO?

- *Who* are the people forming the target market?
- *Who* buys diving equipment, dives and needs diving lessons?
- *Who* provides the services?

### WHERE?

- *Where* do the various activities (diving, selling, instructing) take place?
- *Where* does the slogan, name or logo need to be displayed?
- *Where* is the shop which sells diving equipment?

### WHAT?

- *What* activities are involved?
- *What* is sold?
- *What* is taught /learned?

### WHEN?

- *When* do people scuba dive?
- *When* do they take diving lessons?
- *When* does the company sell equipment?

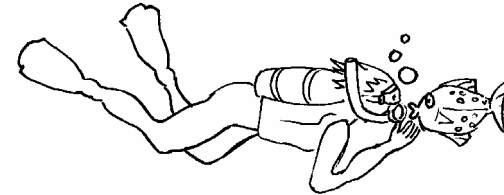
### WHY?

- *Why* do people scuba dive?
- *Why* are a logo, slogan and name needed?
- *Why* do people buy new diving equipment?
- *Why* does the company sell diving equipment?

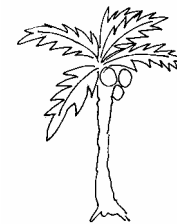
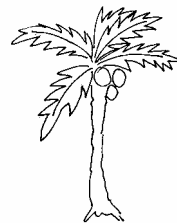
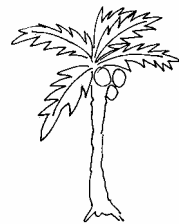
### HOW?

- *How* do people scuba dive?
- *How* do people learn to scuba dive?
- *How* does the shop's exterior and interior look like?

As one generates the questions and answers,  
**ideas** are likely to pop into your head involuntarily...



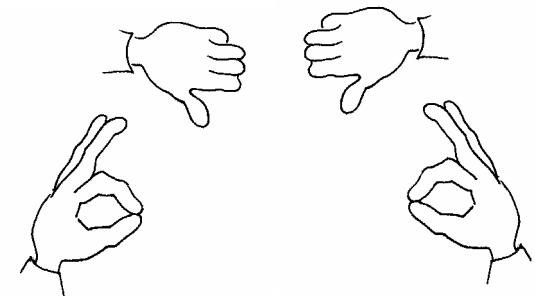
...thinking about **Caribbean and Hawaii**  
immediately conjures up images connected to **paradise...**



...thinking about **under-water communication skills**

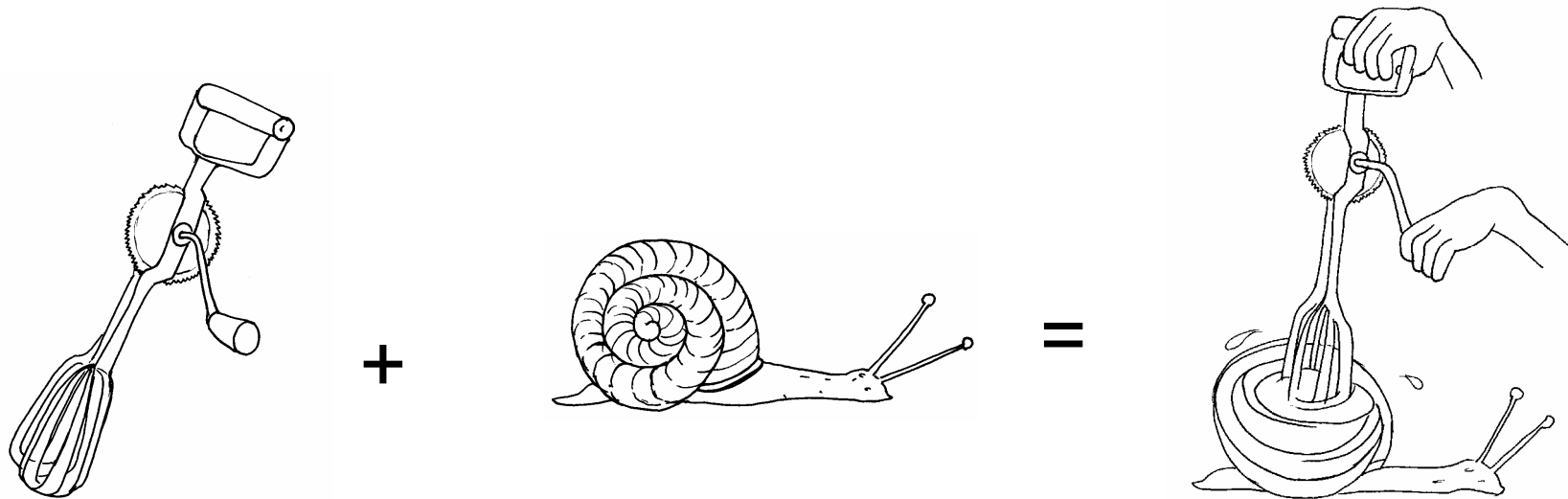
...lead to playful imagery of hand-signs...

...or using hand-signs to create **typography**



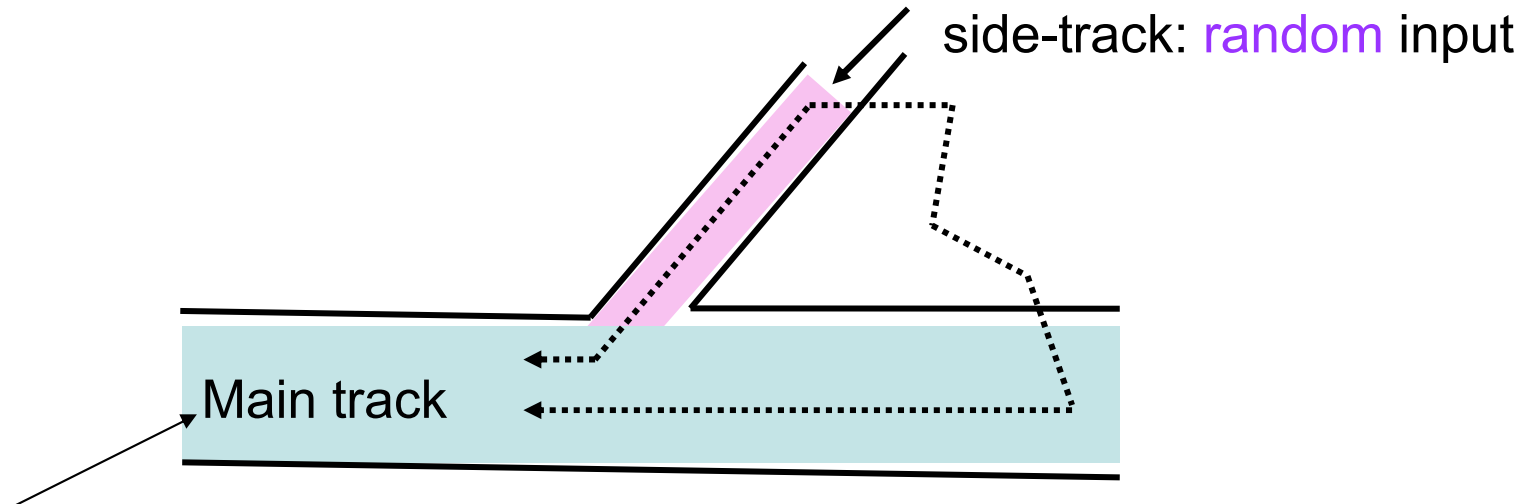
## Tool 2: The **R**andom technique

When you attempt to **force a relationship** between the **two unrelated concepts**, your brain will attempt to find a **logical association** between the two elements.



## How does the Random technique work?

The mind is forced to **'escape'** from its conventional pathways and create a 'side track' in the normal structures of thinking



The Random technique bounces a **bizarre** idea at your mind and then challenges your brain to turn it into a **sensible** idea.

## EXAMPLE

Generate a **logo** for the scuba-diving company

**'telescope'** → connect **'telescope'** with scuba diving

A telescope make stars visible...it probe into the mysterious world of stars, it reveal their secrets...much in the same way as the company helps people to discover the secrets of the ocean...

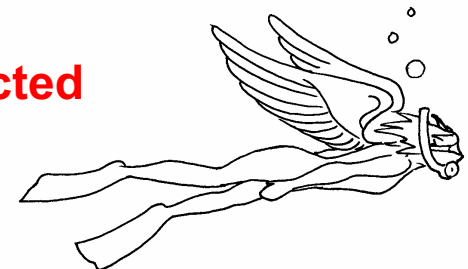
Idea...**'making visible the invisible'** .....**'The Secret Ocean'**



**'wings'** → connect **'wings'** with scuba diving

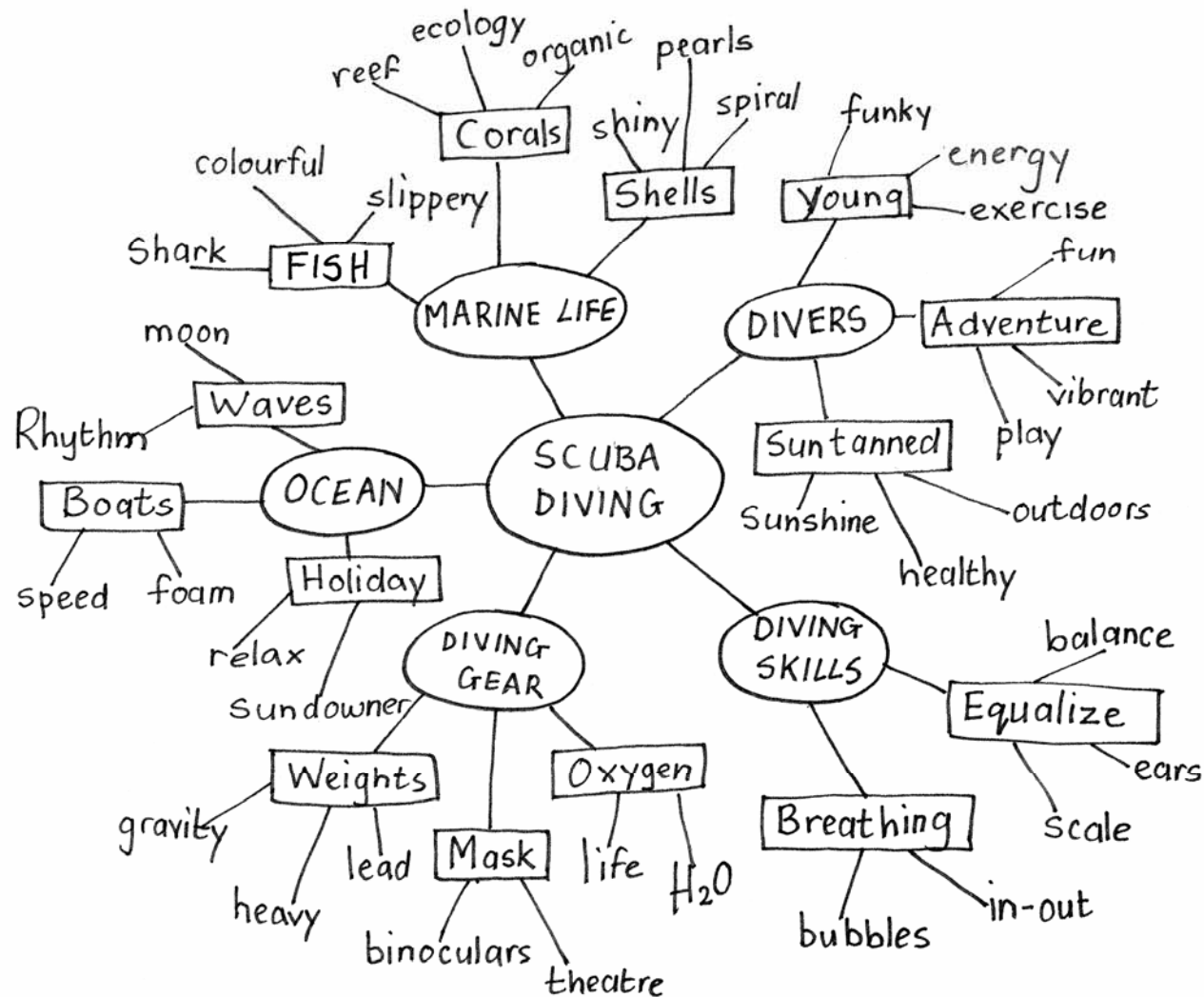
Diving feels like flying under the water...idea...an image of a diver with wings?

The purpose of the Random techniques is to trigger the **unexpected**





## Tool 4: The Mind-map technique



The technique **expands** a concept into a **multitude** of other concepts

this induce **new lines of thought** to use for idea generation

## Why is mind-mapping so effective for idea generation?

Mind-maps **duplicate** the way the human brain processes information.



The brain works **non-linear** way –  
**comparing, integrating and synthesizing** information

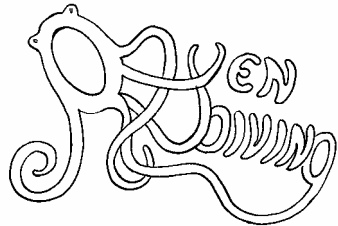
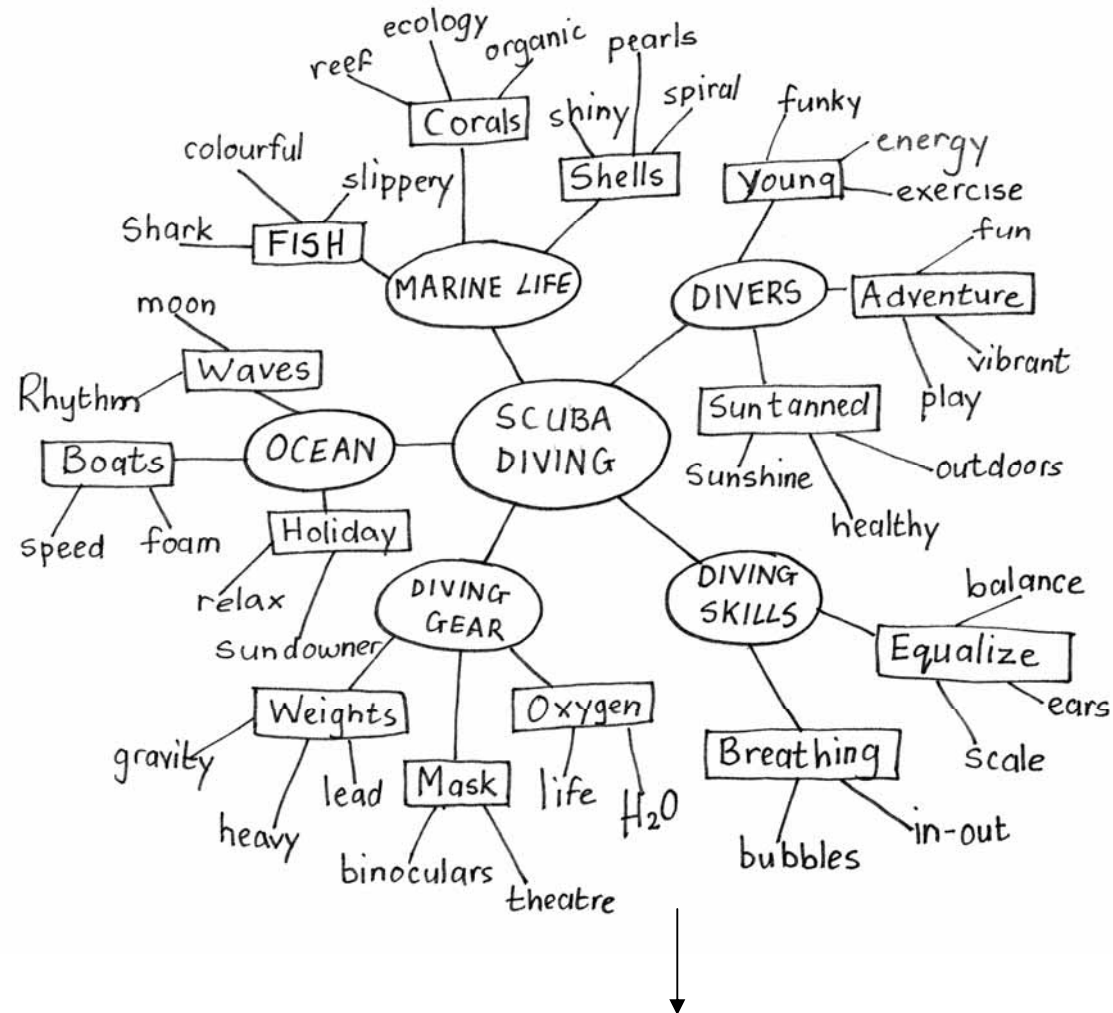
**not** in in in a linear or list-like manner like speech and print

↓  
Scuba dive  
Divers  
Diving gear  
Ocean  
Adventure

...therefore thinking flow more **freely** in a mind-map  
than in linear forms of information processing

one thinks with **less effort** in a mind-map



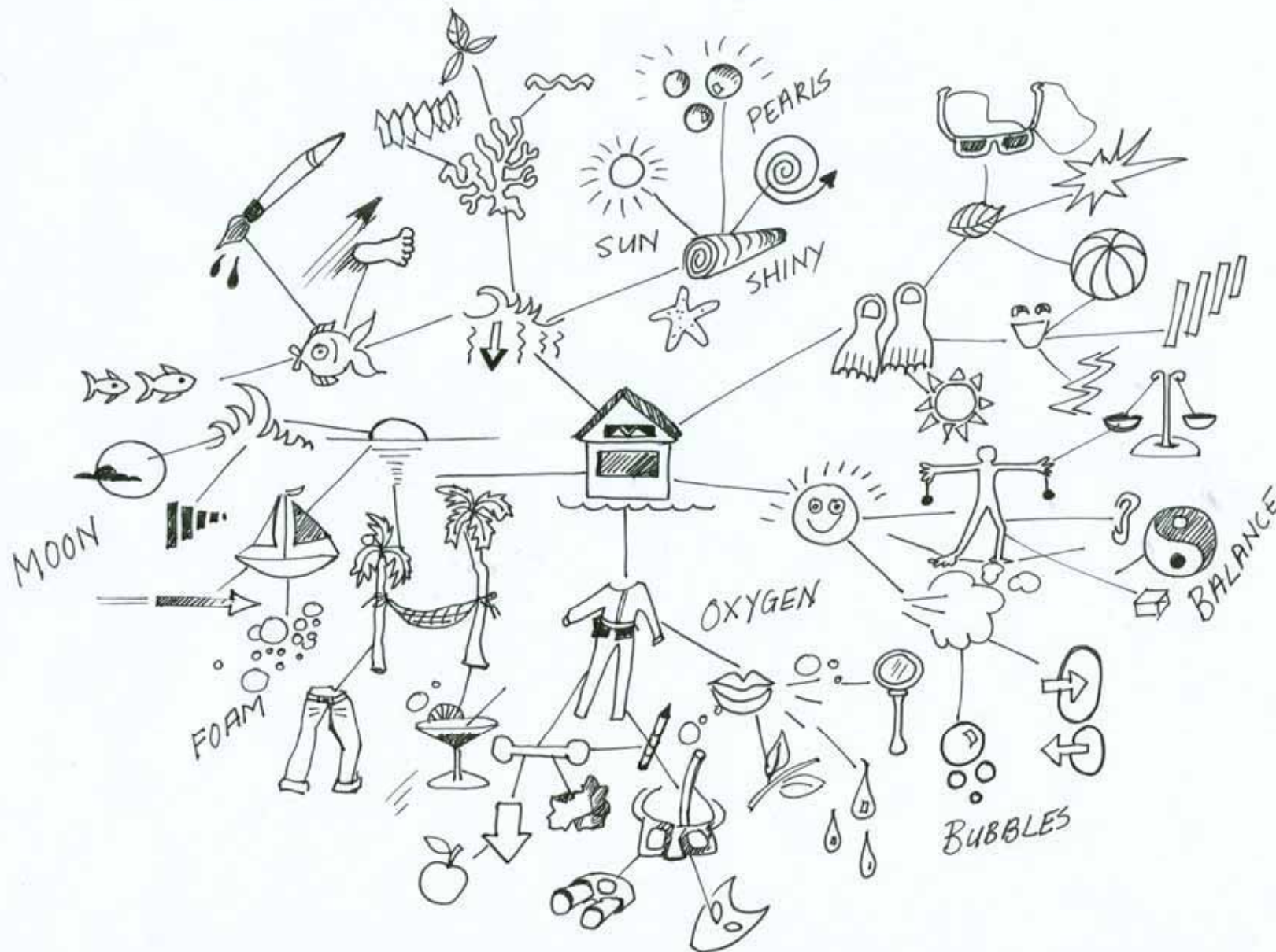


**'Oxygen Diving'** ...sustain life under water....energy and exercise

**'Rhythm Diving'** ...ocean's tides ... in and out breathing

These ideas do not represent an obvious and straightforward connection with scuba diving.

# A VISUAL THINKING MIND-MAP



Draw  
easy-to-draw  
words like

'moon' and  
'wave'

as well as  
abstract  
and intangible  
concepts  
like 'vibrant' and  
'rhythm'

