Visual Thinking

Tools:
Inspiration http://www.inspiration.com/freetrial/index.cfm


Visual thinking

Picture thinking, visual thinking or visual/spatial learning is the phenomenon of thinking through visual processing, where most people would think with linguistic or verbal processing. It is nonlinear and often has the nature of a computer simulation, in the sense that a lot of data is put through a process to yield insight into complex systems, which would be impossible through language alone.

Information processing in visual thinking

Thinking visually is often associated with the right half of the brain. The visual-spatial learner model is based on the newest discoveries in brain research about the different functions of the hemispheres. The left hemisphere is sequential, analytical, and time-oriented. The right hemisphere perceives the whole, synthesizes, and apprehends movement in space.

Picture thinking could be called "non-linguistic thinking", and people who do such information processing could be called "visual thinkers". It involves thinking beyond the definitions of language and has many personal referents to meaning which cannot be translated.

Picture thinking involves different categorization than verbal or linguistic processing. Linguistic thinking involves categorization of thought in defined, linear forms. It is serial, and it concentrates on detailed parts in the stimulus. Visual thinking involves categorization which is parallel and holistic. Though linguistic thinkers often feel that visual-thinkers concentrate on detail, in fact this occurs because of the extreme memory of picture thinkers. Much of the thinking of children in the preoperational stage (2-7 years of age) is visual. It is hypothesized that autistic people get stuck at this stage of information processing.

From: http://www.inspiration.com/vlearning/index.cfm

Visual Learning

Learning to think. Learning to learn. These are the essential skills for student success in every curriculum area and academic pursuit. Research in both educational theory and cognitive psychology tells us that visual learning is among the very best methods for teaching students of all ages how to think and how to learn.

With the powerful combination of visual learning and technology, students in grades K-12 learn to clarify thoughts, organize and analyze information, integrate new knowledge and think critically.

Visual learning techniques help students:
Clarify thoughts
Students see how ideas are connected and realize how information can be grouped and organized. With visual learning, new concepts are more thoroughly and easily understood when they are linked to prior knowledge.

Organize and analyze information
Students can use diagrams and plots to display large amounts of information in ways that are easy to understand and help reveal relationships and patterns.

Integrate new knowledge
According to research, students better remember information when it's represented and learned both visually and verbally.

Think critically
Linked verbal and visual information helps students make connections, understand relationships and recall related details.
Visual learning is a proven method in which ideas, concepts, data and other information are associated with images and represented graphically. Webs, concept maps, idea maps and plots, such as stack plots and Venn plots, are some of the techniques used in visual learning to enhance thinking and learning skills.

Using Inspiration and Kidspiration, students create graphic organizers and outlines as they brainstorm ideas, organize information, gather research, make visual associations and identify connections.

Using InspireData, students build data literacy as they collect and explore information in a dynamic inquiry process, using integrated tables and plots to visually investigate, manipulate and analyze data.

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**WEBS:**

Webs are visual maps that show how different categories of information relate to one another. Webs provide structure for ideas and facts and give students a flexible framework for organizing and prioritizing information.

Typically, major topics or central concepts are at the center of the web. Links from the center connect supporting details or ideas with the core concept or topic.

Teachers and students alike use webs to brainstorm, organize information for writing (pre-writing), as well as to analyze stories and characterization.

Classroom teachers tell us that webbing is an effective technique to use in small group settings. As students work cooperatively they can build collaborative webs, incorporating the thoughts and contributions of each group member.

**Explore the different ways to use webs:**

- **Literary webs** help students analyze stories or novels so that they more fully understand the literary elements at play, as well as the composition of the story.
- **Character webs** represent one of the ways in which visual learning can support reading comprehension.
- **Comparison** is one of the most basic and powerful forms of analysis in any discipline.
- **Prewriting** describes the brainstorming and organizing students do before writing a story.

**Idea Maps:**

Whether students are searching for ideas for writing assignments, projects or presentations, often they need a spark to make ideas begin to flow. That's where idea maps come in. This visual learning technique stimulates students to generate ideas, follow them through and develop their thoughts visually.
Idea maps help students brainstorm, solve problems and plan their work. Using fast, five-minute exercises in word and idea association, idea maps connect keywords, symbols, colors and graphics to form nonlinear networks of potential ideas and thoughts.

Educators tell us they use idea maps in all kinds of applications. Prior to field trips, idea maps help students think about what they might see and learn. After the field trip, students use idea maps to record their observations. And idea maps give emerging or struggling writers a boost as they learn to generate ideas and gather and organize their thoughts.

**Concept Maps:**

Concept maps graphically illustrate relationships between information. In a concept map, two or more concepts are linked by words that describe their relationship.

Concept maps encourage understanding by helping students organize and enhance their knowledge on any topic. They help students learn new information by integrating each new idea into their existing body of knowledge.

Concept maps are ideal for measuring the growth of student learning. As students create concept maps, they reiterate ideas using their own words. Misdirected links or wrong connections alert educators to what students do not understand, providing an accurate, objective way to evaluate areas in which students do not yet grasp concepts fully.

**Plots:**

Plots help to investigate and to interpret data as the persons go through a dynamic inquiry process. As the person explore the way data moves through the various plot types, they formulate questions and discover meaning from the visual representation.

Many plot types can be used to help understanding visually.

- Venn plots
- Stack plots
- Pie plots
- Axis plots

From:  [http://www.visual-concept.co.uk/visualthinking.htm](http://www.visual-concept.co.uk/visualthinking.htm)
Visual Thinking is a name applied to the use of visual aids in thinking processes. From time immemorial people have made marks in the sand with a stick, made gestures and used simple models to represent their thoughts. Extensions of these simple devices - blackboards, whiteboards, flipcharts and projector screens are used as visual aids to our thinking and our communication. We will frequently make thumb nail sketches to help clarify our thoughts about something or re-arrange the objects on our dining table to illustrate a point. Any child can support amazing mental images with the aid of a few Lego bricks. Blueprints and maps are more sophisticated means of expressing a great deal of thinking with great precision. Wall charts showing timetables, vehicle movements or production flows have been around some time. All these are aspects of visual thinking – representations of thought that can be seen.

What is beginning to change is that more complex and subtle thought processes are being explored and methods that permit constant changes to be made are extending the scope. Perhaps an early version of adaptable visual aids is the war room with its maps and models being updated with the latest intelligence.

Some characteristics of modern visual thinking methods are:

- **Object based** – The objects may represent thoughts or they may represent stages of a process or particular processes in themselves. Objects enable relationships to be worked out and understood.

- **Alterability** – Usually words will be written on the objects to clarify what they represent or they might be coloured or shaped to represent different ideas. Objects are either disposable or they can be cleaned and re-used. It should also be possible to write and alter notes and titles on the background. The facility to provide additional information would certainly be valuable.

- **Manipulability** – It will be possible to move objects in relation to one another in order to express relationship and subtle shades of meaning. Shapes and colours will ideally be changeable.

- **Recordability** – You should be able either to keep the original or to be able to replicate it for storage (memory). It should be easy to make copies for communication purposes and to transmit outputs electronically.

- **Ease of use** – It should be easy to set things up and the methods used should be as intuitive as possible.

- **Appropriate scale** – for solo work something that fits on a desk-top may be all that is required. However, much of the power of visual thinking is its use with groups. Typically these will be small groups of a dozen or so, although occasionally it may be necessary to work with much larger groups. This can be achieved through replicating the small group many times or large-scale visual media may be needed.

To which we might add:

- **Portability** so that they can be used anywhere.
Visual learning is a proven teaching method in which ideas, concepts, data and other information are associated with images and represented graphically. Graphic organizers, such as webs, concept maps and idea maps, and plots, such as stack plots and Venn plots, are some of the techniques used in visual learning to enhance thinking and learning skills.

Visual learning techniques

Creating graphic organizers - Students create graphic organizers such as diagrams, webs and concept maps by selecting symbols to represent ideas and information. To show the relationships between ideas, students link the symbols and add words to further clarify meaning.

By representing information spatially and with images, students are able to focus on meaning, reorganize and group similar ideas easily, and make better use of their visual memory.

In a study entitled Graphic Organizers: A Review of Scientifically Based Research, The Institute for the Advancement of Research in Education at AEL evaluated 29 studies and concluded that visual learning improves student performance in the following areas:

• Critical Thinking--Graphic organizers link verbal and visual information to help students make connections, understand relationships and recall related details.

• Retention--According to research, students better remember information when it's represented and learned both visually and verbally.

• Comprehension--Students better comprehend new ideas when they are connected to prior knowledge.

• Organization--Students can use diagrams to display large amounts of information in ways that are easy to understand and help reveal relationships and patterns.

Visualizing data - When working with data, students build data literacy as they collect and explore information in a dynamic inquiry process, using tables and plots to visually investigate, manipulate and analyze data. As students explore the way data moves through various plot types, such as Venn, stack, pie and axis, they formulate questions and discover meaning from the visual representation.