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MIND MAPPING

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Visual images are one of the forms of communication, which play a vital role in ideas and material presentation. It is well-known that about 80 % of all information is perceived by a man by means of eyesight. Visual data and facts are perceived by a man better than any other types of information. One appropriate image can replace more than 100 words. Unique and original image can attract the attention of a large amount of audience.

There are various forms of information visualization ranging from simple tables to rather sophisticated mind maps used nowadays to deliver all necessary ideas clearly and efficiently. Each of the visual forms is used for certain purposes and has its advantages and disadvantages. Before using a certain way of information visualization it is necessary to analyze whether this kind of visualization will allow to simplify and intensify the perception or not. One of the most efficient ways to visualize and present information is a mind map. The use of mind maps facilitates to the development of critical thinking, organization skills (planning) and is a good mean for studying and projects.

The given paper is concerned with the application of mind maps. Moreover it considers the main rules to be followed when creating mind maps and shows the differences of mind maps from other forms of information presentation.

Visual images can be used in presentation, reports, books, articles and etc. They can be used to support some information or can be used separately from the text.

Term "mind map" was first popularized by British popular psychology author and television personality Tony Buzan and has become very popular among teachers, lectures, students, engineers and etc. However, the use of diagrams for visual "mapping" information using branching and radial maps traces back centuries.

A mind map is a diagram often created around a single concept used to visually organize information. An image is drawn in the center of a blank page, to which associated representations of ideas such as pictures, words and phrases are added. Major ideas are connected directly to the central concept, and other ideas branch out from those. There is a good idea to organize information as "rough notes" drawn by hand during a lecture, meeting or planning sessions. In some books, newspapers and magazines mind maps are organized as higher quality pictures.

As with other diagramming tools, mind maps can be used to generate, visualize, structure, summarize and classify ideas. Mind map is also a good aid used to study and organize information, solve problems, make decisions, or plan your activities.

Mind maps are widely used in different spheres and have found many applications in personal, family, educational, and business situations, including note-taking, brainstorming, summarizing, as a mnemonic technique, or to sort out a complicated idea. Mind maps are also promoted as a way to collaborate in color pen creativity sessions.

"In addition to these direct use cases, data retrieved from mind maps can be used to enhance several other applications; for instance expert search systems, search engines and search and tag query recommender" [2].

The following guidelines for creating mind maps were suggested by Buzan:

• Firstly it is necessary to start in the center with an image of the topic, using at least 3 colors.

The central idea is the starting point of your Mind Map and represents the topic you are going to explore and outline. The central idea draws attention and helps to produce many ideas associated with this topic as our brains respond better to visual stimuli.

• Secondly, images, symbols, codes, and dimensions should be used throughout a mind map.

As it was mentioned above images are more powerful and eye-catching, and convey much more information than a single word, sentence or even an essay. Images are a universal language which can overcome any language barrier which is very important especially when you want to present your information for the audience from different countries and speaking different languages.

We are intrinsically taught to process images from a young age. Margulies (1991) states that children before learning a language, visualize pictures in their minds which are linked to concepts. Thus, Mind Maps organized in appropriate way are able to maximize the powerful potential of imagery.

• Next step to be done in mind mapping is key words selection and printing using upper or lower case letters.

• Each word/image is best alone and sitting on its own line. The most important principle of Mind Mapping to be followed is using one word per branch as it sparks off a greater number of associations compared to using multiple words or phrases.

• The central line should be thicker and become thinner as they radiate out from the center.

The key ideas and themes are represented by the main branches which flow from the central image. If there is a necessity to explore some idea in greater depth child branches can be added. The organizing the information in such manner simplifies the way to remember the material.

• The lines should be of the same length as the words/images they support.

• To group, encode and visualize the information multiple colors are necessary to use throughout the mind map.

"Mind Mapping encourages whole brain thinking as it brings together a wide range of cortical skills from logical and numerical to creative and special" [4].

Colour coding and helps your brain to create mental shortcuts. The color code used in Mind Mapping links the visual logically makes images more appealing and engaging compared to plain, monochromatic images and allows you to categorize, highlight, analyze information and identify more connections.

- It is vital to develop your own personal style of mind mapping, emphasizing the most important associations.
- "Keep the mind map clear by using radial hierarchy or outlines to embrace your branches" [4].
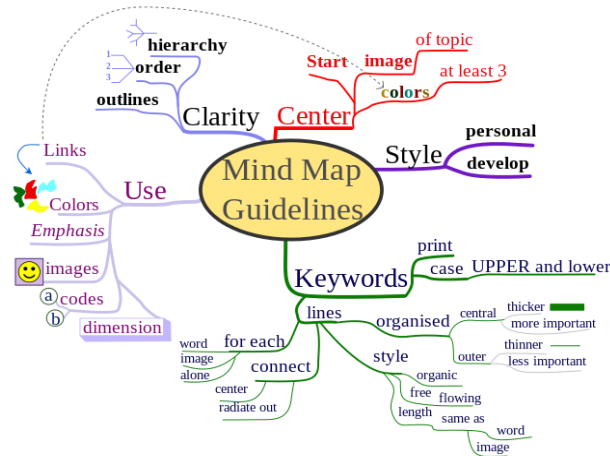

Figure 1 – Visually organized mind map guidelines with application of mind map

Mind maps differ from concept maps as the mind maps focus on only one word or idea, whereas concept maps connect multiple words or ideas. In addition, concept maps often have text labels on their connecting lines/arms. Mind maps have basically radial hierarchies and tree structures showing relationships with a central main concept. Concept maps are based on links between concepts in more diverse patterns. However, both of these types can be part of a larger personal knowledge base system.
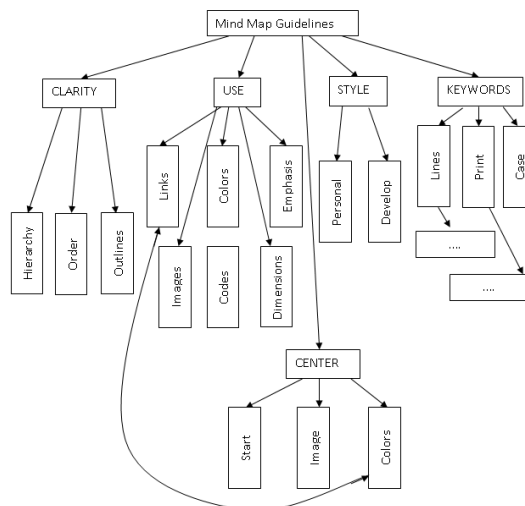

Figure 2 – Visually organized mind map guidelines with application of concept map

We can't say what is better to use mind map or modeling graph when we consider the arbitrariness of mnemonic systems. A UML (Unified modeling Language) diagram or a semantic network has structured elements with the lines connecting objects to indicate relationship. Black and white colours with a clear and agreed iconography are often used. Mind maps serve a purpose to help with memory and organization. Mind maps include a multiple of words structured by the mental context of the author with visual mnemonics and use of colours, icons and visual links. When using a mind map it is necessary to bear in mind their proper functioning.

Conclusion

To sum up, mind maps are powerful, attractive, eye-catching tools used in different spheres which help to generate, visualize, structure, summarize, classify ideas and organize information logically by means of color coding and radial hierarchy. Moreover, they act as visual stimuli to recall information.

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TURBINENUNFALLREGULIERUNG ALS MITTEL DER WAHRUNG DER SYSTEMSICHERHEIT

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Die Turbinenunfallregulierung (TUR) ist ein Steuereingriff der Automatik zwecks der Systemsicherheitswahrung.

TUR besteht aus dem Folgenden: mit Hilfe eines großen Kraftangriffs strebt man einen impulsiven Turbinenleistungswechsel an. Öfter wird dadurch die Möglichkeit schneller Leistungsreduzierung erfüllt, aber manchmal wird der forcierte Leistungsaufgang verwendet. Die Effektivität der TUR hängt von der Wechselleistungsrate ab, die mit dynamischen Turbineneigenschaften und mit dem Drehzahlregler bestimmt wird.

Für die Realisierung der TUR wird der Turbinenregler durch den elektrohydraulischen Wandler (EHW) erweitert, derSignale großer Intensivität von dem Sicherheitsautomatiksystem an dieDrehzahlregelungsautomatik (DZRA)sendet.

Für die Unfallregulierung mit dem EHW wird das Signal $\eta_E$in Rechteckform weitergeleitet, das in den Unregelmäßigkeiten gemessen wird. Eine Unregelmäßigkeit ist ein Signal, das die Turbinenleistung vom Nominalwert bis Null ändert. Für die Unfallregulierung werden die Signale gleich $\eta_E=2{,}5\div4$Unregelmäßigkeit benutzt. Der Turbinenabgabewert wird mit der Signaldauer η_E bestimmt.