

What Is a StudyMap?

I. A Simple Definition

Study: this is a tool for study and learning.

Map: the relative position of the different elements is chosen to facilitate the learning process.

A *StudyMap* is a visual tool designed for studying and learning. It uses the position of the different elements present in this tool to strengthen the learning process. Most of the time, it will contain both graphics and texts, although it could contain only graphics or only text (even in different languages).

II. Key Principles for the Development of StudyMaps

A. Basic Observations about the use of Pictures

Many persons recognize that pictures can be an efficient help for study. Pictures are considered to be a good tool for teaching illiterate people, whether illiterate adult people or young children.

Pictures can be used for other purposes as well. For instance, images are able to communicate a lot of information in a small amount of time, as expressed in the saying 'a picture is worth a thousand words.' TV programs, movies, internet websites and advertisers have quickly grasped the potential of images and have put it to heavy use. Yet, the use of pictures in Western education is mostly marginal, if not simply dismissed from 'serious education.'

The StudyMaps are developed with the belief that pictures can be used to teach efficiently both illiterate and literate people. We will discuss now how to use images for structuring and reinforcing the learning process, whatever the level of education of the person taught.

B. Learning with Pictures

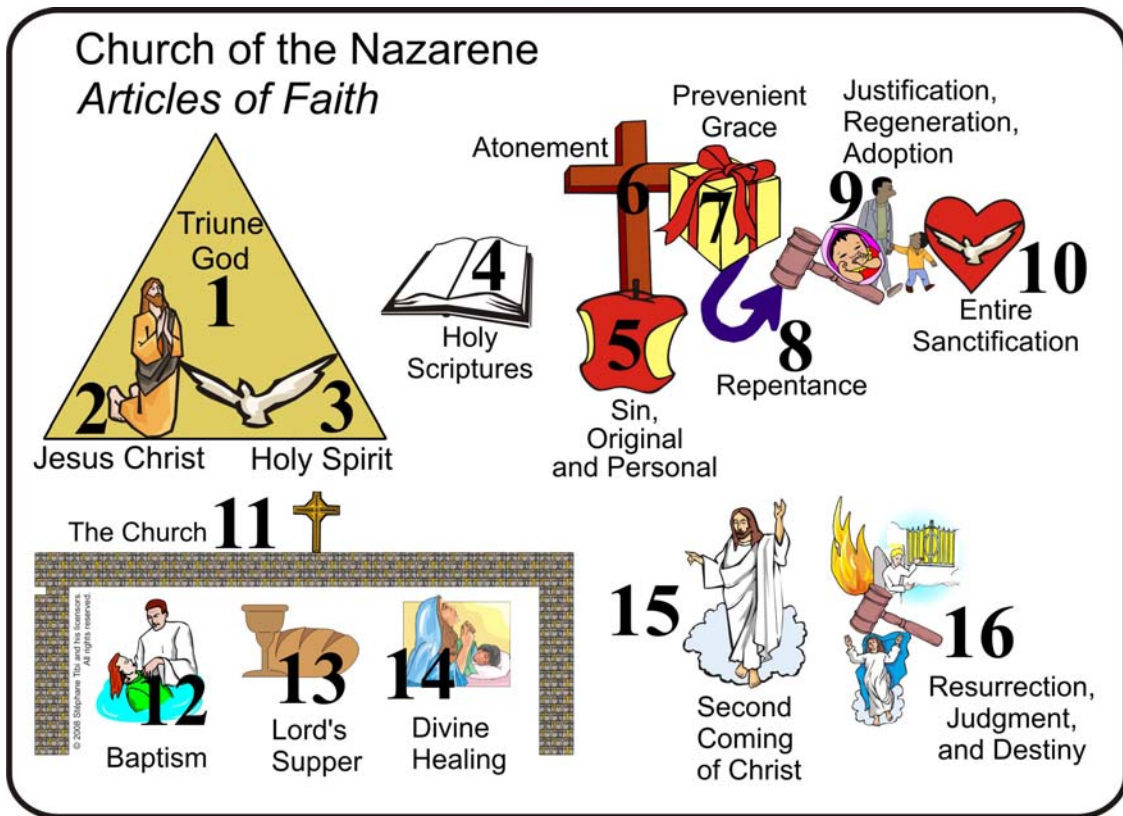
First, pictures can be seen as a symbol that represents an object, person or idea. For instance, a dove can represent the Holy Spirit - thus following the description of Jesus' baptism in the Synoptic Gospels. This 'referential' use is close to how words function in a language, relating a representation to the reality evoked.

In the history of writing, the move has been from very visual representations (paintings in caves, or even the Egyptian hieroglyphs) to always more abstract representations that led to the alphabet and how to make words with the various letters. In some ways, these abstract representations were more efficient, in other ways - if we speak of remembering the information communicated - there was a significant loss efficiency. A major gain has probably been that, through grammatical associations, we could combine words in a meaningful whole - something we did not know how to do with pictures.

C. Toward a "Grammar for Pictures"

With oral or written languages, we are able to express various types of relationships between objects or even abstract concepts, while a single picture is like a lonely word which is not integrated in a sentence. Languages have the ability of relating words together through grammatical associations. The question is then: how to find a way to combine pictures as we combine words together in a meaningful whole?

When we put a few pictures together on a single page, we have already created a bigger picture that has different parts. For instance, in the case of the graphic on the articles of faith of the Church of the Nazarene below, the 16 pictures put together make a larger picture.



In combining the images, the question is: could we use the spatial position to communicate something? It is what I am attempting to do. I used a basic 'spatial grammar', a grammar of spatial associations and distinctions. For instance, the first three articles of faith are graphically tied together in order to manifest that they express the same reality of the Christian faith: God, One in three persons. The separation between the pictures of 3 and 4 reflects the fact that the articles 1 to 3 are linked to one another in a very different way than 3 and 4. In the same way, the image of article 4 is not graphically connected to 5-10 (Original Sin - Entire Sanctification), since articles 5 to 10 focus on humanity while article 4 (the Holy Scriptures) shows where we can read about the relationship between God (1-3) and humanity (5-10).

In order to be meaningful, these spatial associations (spatial grammar) need to be combined with explanations, like for example those found in the guide of the StudyMap on the articles of faith. Pictures are not supposed to replace explanations, but to offer a support that will allow a better memorization of the meaning of what is taught.

To conclude this section, such "spatial grammar" is aimed at strengthening the memory. Because this memory will have a strong structure, it should allow students to create associations between the different elements (for instance: each article of faith) they have learned with more ease.

D. A "Graphic Sentence"

It is easier to remember a single sentence than five or ten unrelated words. In the same way, it is easier to remember the 16 articles of faith as a single 'combined picture' than 16 unrelated articles.

As a sentence shows specific and meaningful associations between words, the spatial relationships between pictures will attempt to communicate meaningful associations between the different parts of a StudyMap.

One of the biggest mistakes that we can make when we learn or teach with 'rote memory' is when we separate memorization from understanding. While understanding should be the cement that strengthens and gives its use to the memory, when it is removed from the memorization process it significantly weakens the memory.

The purpose a StudyMap is to improve the memory through a better understanding of how all the different elements fit together.

In order to reach such a goal, it is important to explain the choice of pictures¹ and then the theological relationships in association with the spatial relationships. We could say that this process is a process of "loading with meaning," both at the picture level and at the relationships level. In these steps, a very important way of making these connections was to tell the story that relates all the articles of faith, what could perhaps be called a narrative approach.

The pictures of a StudyMap are not replacing explanations - as the saying 'a picture is worth a thousand words' seems to imply - but rather help the student to remember better the explanations given because they can be associated to a graphic. Pictures presented in a logically structured whole should rather be seen as 'containers of meaning' that a teacher has to load with meaning through the explanations given.

III. Why a New Term like *StudyMap*?

Since the art of teaching with pictures is in its infancy, there are no precise terms helping to describe the various aspects that graphic teaching can take. It is like if the friendship between graphics and words has not much developed, each one trying to pull away from the other - and for instance TV becomes then the enemy of reading.

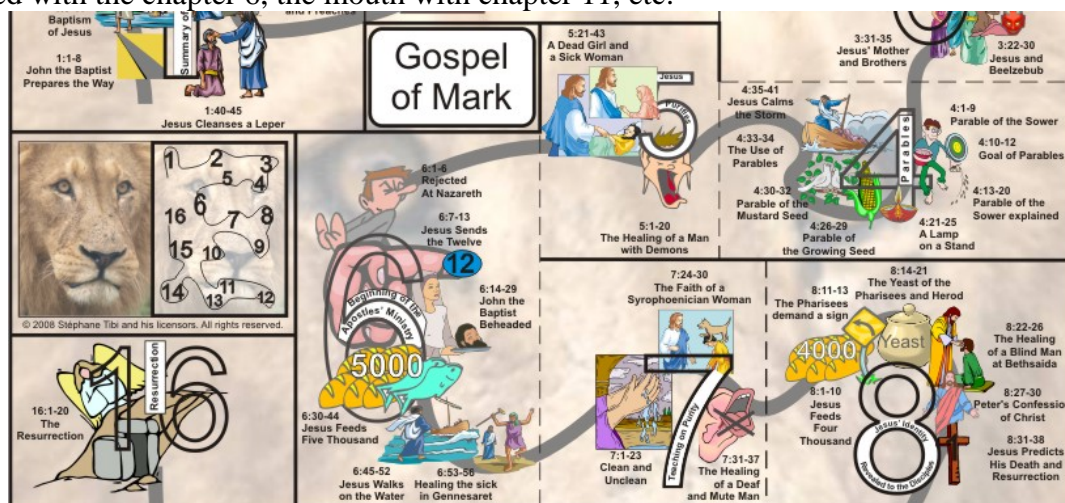
Still, some ways of visual learning have developed through centuries, and I will briefly mention them, as I then stress the common points and differences with StudyMaps.

A. Methods for memorizing with images in Ancient Greece

In the Ancient Greek culture, a way to learn with pictures was developed. For instance, in order to remember a speech, persons would associate in their mind a part of the speech with a part of their house (the first point of the speech with the door, the second point with the first chair inside...). When they would then give their speech, the persons would 'walk in memory' through their house (or any other place) and say in order the different parts of their speech as they remembered a part of the house².

This way to use pictures is what I call 'linear association'. Each part of the house is related to the next one. No further relationships between the different parts of the house are used in the speech. The image is clearly 'subserving' to the linear speech in such a case and has no relationship with the content of the point memorized.

In StudyMaps, these associations are used in the technique that I call 'referential positioning'. For instance, in the graphic on the Gospel of Mark, the picture of a lion in the background is used as the Greeks used the houses or various buildings to remember their speeches: the left eye will be associated with the chapter 6, the mouth with chapter 11, etc.



¹ Depending on the cultural context of the learner and the differences with the cultural context of the person who developed a specific StudyMap, some pictures will need more explanations than others.

² See for instance *The Art of Memory*, Frances A. Yates, pp. 27-49.

If this use of pictures is efficient, it does not easily allow us to develop meaningful relationships between the different parts of the study material. For instance, in the case of the Gospel of Mark, no relationship is created between the different chapters of this text.

In the case of the articles of faith, there is no 'referential positioning,' but rather what I call 'relative positioning' - a positioning of the various elements that reflect the structure of the subject itself. Such 'relative positioning' goes beyond the capacity of the method used by the Greeks, although it can be used in combination with the Greek 'referential positioning.' In a StudyMap, there will always be one or both of these ways of using pictures and text (referential and/or relative positioning).

B. Visual Teaching in the European Middle Ages

In the Middle Ages, since most people could not read, pictures were often used as a support for teaching. For instance, in most cathedrals, there were tainted-glass windows and/or paintings describing biblical scenes. These visual aids were used to help teach illiterate people.

In a certain way, many still today consider pictures as a way for teaching children or illiterate people - but not as powerful ways of teaching literate people. This is an assumption I will challenge as we come to discuss Mind Maps and then StudyMaps.

C. Mind Maps in the end of the 20th century

In Wikipedia, we find the following definition under 'mind map':

A mind map is a diagram used to represent words, ideas, tasks, or other items linked to and arranged radially around a central key word or idea. It is used to generate, visualize, structure, and classify ideas, and as an aid in study, organization, problem solving, decision making, and writing.

In my limited experience, I have appreciated very much the mind maps as an efficient tool to structure a subject. In the process of study and memorization, I became aware of the limits of these mind maps and then slowly came to realize the need for what I choose to call StudyMaps.

D. Toward StudyMaps

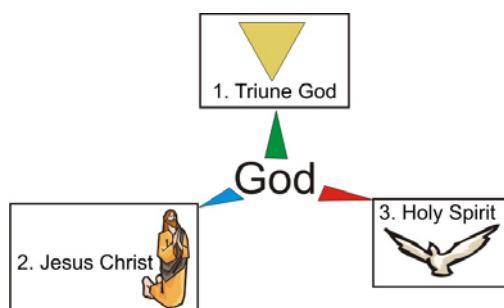
If StudyMaps have many points in common with the mind maps, there are also differences.

Like mind maps, StudyMaps are tools associating different elements together, whether these are pictures, symbols or text. Both mind maps and StudyMaps try to move away from a linear presentation of information.

While mind maps offer a hierarchical organization, with branches and sub-branches, StudyMaps will rather focus on the interaction between the graphic elements of a same level to help the understanding and memory. As a consequence, a mind map is rather hierarchical or 'vertical', while a StudyMap is rather non-hierarchical or 'horizontal.'

It could be helpful here to give an illustration:

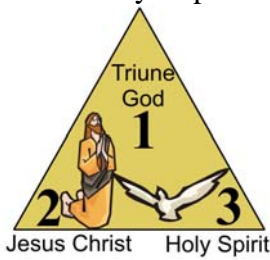
- For describing the three first articles of faith of the '16 Articles of Faith' mentioned earlier, a mind map could look like this:



As you see, there is a center (here: God), and then three branches.

Also, there are no graphical connections between the different elements at a same level.

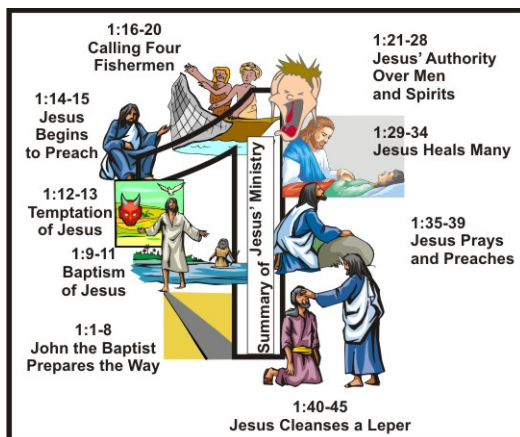
- The StudyMap in this case is looking like this:



As you see, it does not have a separate center - the center is implicit and will be mentioned only during the teaching. You also see that the three images are interacting visually in a 'non-linear', 2-dimensional way. To clarify this point, we could say that a 'linear' graphic would allow you to relate 1 and 2, and then 2 and 3, but not to connect 1 and 3 directly together (without going through 2).

If the focus of mind maps is already in organizing the knowledge in a graphic way, a StudyMap attempts to go further in providing a support for integrating the different elements in the memory.

The 'horizontal' emphasis in StudyMaps is based on the belief that human memory is made of 2-dimensional networks of neurons. This simple observation has deep implications. One of them is that when information is presented in a 2-dimensional format to the brain, it is more easily memorized. Suffices to mention how easy for a human it is to remember a face, while for a traditional computer³ (which is based on a linear treatment and storage of data) it will be very difficult to make a program that succeeds in such a task. The key element for this 'horizontal' approach is to make images interact one with the other, so that the memory will 'match' the visual structure with a similar neural structure⁴. The graphic on the Gospel of Mark at the chapter level is a good example of this 'horizontal' emphasis. See below the example of chapter 1:



As you notice, there are graphic contacts between the different pictures, and the number 1 serves as a reference for helping to localize the pictures as you move around this number. We can argue than in such a case there is indeed a center (the big number one) like in a mind map, but unlike a mind map the pictures representing the stories contained in this first chapter are interacting visually with this big number one. Thus we could say that the hierarchical structure is flattened, allowing to create a network of horizontal connections between the various elements of the picture.

In order to retain the 2-dimensional 'horizontal' structure of a StudyMap, the structure of the visual support must be combined with a way of teaching that will help to develop such 'structured neural network.' That is the reason why I developed guides on how to teach with a StudyMap⁵. Basically, the instructor is encouraged not only to teach in a linear way from one point to the next one, but also after every 'group' of items has been studied, to make the students review them first forward, then backward and finally out of order. **This means that the teacher's task is not only to give information, as in most classroom contexts, but also to accompany the students in the integration process,** so that the students will already have learned the key points of the lesson at the

³ Since the 1980s, non-linear structures for computers have been developed under the name 'neural networks', and have shown that in some cases such a structure can be more efficient than linear analysis (for instance in the case of optical character recognition).

⁴ This assertion that 2-dimensional organization of data can be matched by neural structures is very bold indeed. It will only be the future that will confirm or infirm such statement. My hope is that scientific studies will probe where information is stored when someone learns something, and hopefully one day will confirm that 2-dimensional visual relationships between individual elements do reinforce the memory and also allow a faster transition between short-term and long-term memory. At a simpler level, personal experience and basic tests with students have shown me that indeed the 2-dimensional interactions between images in a non-linear way (like in StudyMaps) reinforce the memory.

⁵ There are already, at the time I write, guides for the StudyMaps on the Articles of Faith and on the Gospel of Mark.

end of the classroom time and will only need to reinforce and/or apply what they have learned. This means that the students should already be able to teach the key points of what they have learned when they go out of the classroom.

Through a better organization and memorization of data, StudyMaps have allowed me to develop a deeper understanding of subjects like theology and Biblical studies. In turn, this allowed me to teach, discuss and explain with greater confidence these subjects. I have seen this positive experience reproduced in many of my students.

My hope is that such tools will help many to learn with more ease and reach a better understanding and memory.

As a Christian, my prayer is that many will come to know better our Lord and Savior Jesus Christ through such tools as StudyMaps.

Johannesburg, May 2008

In the Messiah
Stéphane Tibi