

Learning Module: Reading and Concept Mapping

This module will show you how to combine **Concept (or Mind) Mapping** (Buzan, 1982) with a reading procedure to improve both your retention of textual material and your critical thinking with respect to that material. Because this module forces you to think more deeply about what you are reading, it is also a bit more difficult. But the payoff is substantial, as you will learn below. Let's get going.



TASK 1

Your first task for this module consists of the following three steps:

1. Look at the sample Concept Map about the Learning Skills Course (on the back of this sheet). Does it make sense? Can you see how the various branches are linked? Almost surely, you would do it differently.
2. Read the **Mind Mapping** handout included in this module. Take time to consider the sample maps included in that handout. Then, return to the map about the Learning Skills Course and add some of your ideas and thoughts to the map. Try to add at least seven new entries. You can draw upon things we have done in class or modules you have completed.
3. Now for the most important step: using something you have recently studied for one of your courses, make a map to develop your own mapping style. Spend about 5-10 minutes on this step working entirely from memory. Go ahead and do it now.

How did it go? This short "from memory" kind of concept map can be a very useful exercise. It can help you integrate information and provides an opportunity to practice remembering the key points. Some students use this kind of map as an active review of lecture or seminar classes. Others use it as an active review of reading assignments.

If your map is pretty slim, don't despair. With a bit of practice you'll be composing maps with more and more key points. The next two tasks will give you some excellent practice!



TASK 2

Your second task is as follows:

1. Set aside an hour and a half for reading a textbook chapter assigned to you in one of your courses. Be sure that you will not be interrupted – this exercise requires undivided concentration. You will need a pencil or pen and paper.
2. Follow the procedure presented in the "How to Read University Texts" handout included in this module.



TASK 3

Your third task builds upon the first two tasks:

1. **Recall.** Within a day or two, try to reproduce your map from Task 2 from memory. Be sure to give yourself sufficient time to remember all the branches and points. Check it against the original. Did you miss any points? Were new points added? Do the things that you remembered differ in some way from those that you forgot?
2. **Review.** You should continue reproducing your map using distributed practice (ie., a day later, a few days later, a week later, and before the exam). New insights may come with each new map. At a later point you could incorporate the maps from each chapter into one large map of the entire textbook.

Follow-up

This work is strenuous, but effective. A student who used this technique on all reading assignments for a course received the top mark in the class on the midterm. His retention of the material after 24 hours (which would normally be down to 50%) was between 80% and 90%. He attempted to reproduce his maps when studying for the exam without having looked at the material for well over a month; his retention was at least 40%, which was quickly brought up to 100%. He estimated that he spent no more than three hours total study time per 20-page chapter.

This active reading method will help you to answer both objective and essay-type questions. It will also give you a good grounding for writing a term paper. It can provide a useful first step when you read math or "hard sciences" texts, foreign language texts, or literary works, because it provides an orientation and conceptual overview. But don't forget that for these subjects you will also have to practice other skills such as problem solving, critical analysis, etc.

Naturally, if you have questions or problems with these tasks, or just want some tips or help, drop in and talk with a Learning Counselling Assistant or with a Learning Skills Counsellor.

TASK SUMMARY

To complete this module, you should bring the following completed work in for discussion:

1. The map (below) about the Learning Skills Course with your additions;
2. A map composed from memory of key concepts from one of your regular courses;

3. A map that you did for a chapter in one of your texts done in accordance with the guidelines for mapping given in the attached handout entitled **An "Active Reading" Procedure Using Concept Maps**. This map should contain groupings of material, and commentary explaining the groupings and their significance; and

4. A reproduction of one of the above maps, done from memory one day later.

This Module Includes:

- Module: Reading and Concept Mapping (Reading and Concept Mapping Module.doc)
- Concept Mapping
- An "Active Reading" Procedure Using Concept Maps

REFERENCE

Buzan, T. (1982) *Use your head*. London, England: BBC Publications.

Concept Mapping

Learning Skills Program – University of Victoria

Many courses in university ask you to go well beyond mastery of facts and knowledge. Often the professors are much more interested in your ability to work with the concepts and principles than with memorization of facts and details. This “higher level” learning usually involves dealing with how the concepts and principles **relate** to one another. Concept Mapping is a tool for assisting and enhancing that kind of thinking.

To do a Map, write the main idea in the center of the page – it may be a word, a phrase, or a couple of juxtaposed ideas, for example – then place related ideas on branches that radiate from this central idea. Figure 1 shows a skeleton of an example Map. Notice the branches and sub-branches. Each line would contain a concept or keyword, and the ways that the lines connect to the other parts of the map indicate relationships.

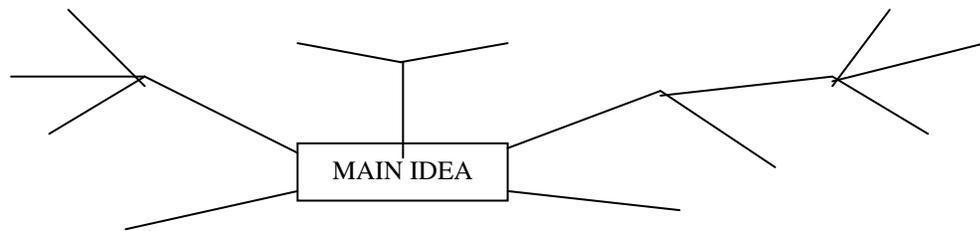


Figure 1. Simple Concept Map Structure

Uses of Mapping

There are many uses of concept maps.

Summarizing Readings

Summarizing is important for at least two reasons: 1) it aids memory, and; 2) it encourages high-level, critical thinking, which is so important in university work. See the attached handout, “**An ‘Active Reading’ Procedure Using Concept Maps,**” for a procedure that uses Concept Mapping as a means to summarize readings.

Summarizing Lectures

We recommend that as soon as possible after every lecture, you summarize it from memory. A Concept Map provides a convenient way to do this. After you do your summary Map, check it over for accuracy. The more time you spend doing this, the better your retention of the lecture will be. However, even a brief summary will have very beneficial effects for your memory, and your overall understanding of the material—its salient points and how they fit together.

Taking Lecture Notes

Some students use Mapping to take lecture notes. These students report that they can capture an entire lecture on one sheet of paper, and that it works better than regular notes for review. If you find that this works for you, by all means do it: however, if it does not work, you can certainly take lecture notes as you normally would, and summarize them later (as soon as possible after the lecture) in the way described above.

Making Notes in a Seminar or Workshop

A seminar differs from a lecture in that it lays more emphasis on process: in a more-or-less open-ended discussion among all members of the group, there is a less linear progression of ideas than there is in a lecture. A Map can be useful for keeping track of the flow of ideas in such a context, and for tying them together and commenting on them.

Reviewing for an Exam

Mapping can be a productive way to study for an exam, particularly if the emphasis of the course is on understanding and applying abstract, theoretical material, rather than on simply reproducing memorized information. Doing a Map of the course content can point out the most important concepts and principles, and allow you to see the ways in which they fit together. This may also help you to see your weak areas, and help you to focus your studying.

Working on an Essay

Mapping is a particularly powerful tool to use during the early stages of writing an essay, before you write the first rough draft. When you start out exploring material that may be useful for your essay, you can summarize your readings – using Mapping, as described above – to help discover fruitful areas of research. Finding a suitable thesis is a process of exploration and approximation, and later on, insight. You may want to look for something that you find interesting and somehow problematical, with implications beyond itself that you can explore.

It is often difficult to find a powerful thesis for an essay; hence, there is an inevitable, often unpleasant, and occasionally lengthy, period of confusion. During this period, to progress toward a resolution, it is necessary to know where you stand:

- what you know;
- what your specific questions are;
- what your own opinions or interpretations of the material are;
- whether own opinions are applicable or should be questioned.

Remember, try not to refer to notes or other source material when you are doing your Map. Ask questions such as those listed under "*Thinking Critically*" below.

Organizing the material is another common problem that people have when they are writing essays. Mapping will allow you to see the major categories of your essay, but will not impose an order on them. This will allow you to place your ideas in a sequence most applicable to your purposes. When you are mapping for an essay, emphasize arguments, explanations, definitions, and abstract categories and relationships.

After you discover the proper sequences for your ideas, you will want to develop a linear outline prior to writing the first draft. Essays are necessarily linear, so writing directly from a Concept Map can be difficult.

An additional incentive: Tony Buzan notes that "Using these techniques at Oxford University, students were able to complete essays in one third of the previous time, while receiving higher marks." ([Use Your Head](#), p.102).

Thinking Critically

If you want to think in greater depth about the material you are studying (perhaps in preparation for writing an essay), do a Concept Map (from memory) of everything you know about the topic. Then ask questions about the material on the Concept Map:

- How do the parts fit together?
- Does it all make sense? Why, or why not?
- Is there anything missing, unclear, or problematic about it?
- How does it fit with other course material?
- How does it fit with your personal experience? Are there parts that do not fit? Why not?
- What are the implications of the material?
- Could there be other ways of looking at it?
- Is the material true in all cases?
- How far does its usefulness extend?
- What more do you need to find out?

Of course, not all of these questions will apply to every Map; however, the more closely you look at the material, the more questions will come to you. Try to think of the central, most important question about the material: if something does not make sense, or seems unresolved, try to state explicitly why, in what way, there is a problem. This may be difficult to do, but it is worth the effort, because it will make it easier for you to find an answer.

Creative Writing

While you are working on an essay, you may experience a particularly important insight as you are Mapping: of course, you cannot predict what this "creative spark" will be about or when it will occur — however, if you are serious about writing or thinking, you should become familiar with the process that precedes insight. One very effective way to do this is to use Mapping for creative writing. An excellent book on the use of this technique for such literary (and even "therapeutic") purposes is Writing the Natural Way, by Gabriele Lusser Rico, who refers to her version of Mapping as "Clustering."

Some Tips on How to do a Map

- Print in CAPITALS, for ease of reading. This will also encourage you to keep the points brief.
- Use unlined paper, since the presence of lines on paper may hinder the non-linear process of Mapping. If you must use lined paper, turn it so the lines are vertical. Use paper with no previous writing on it. It is good to turn the paper sideways (landscape mode) anyway since maps tend to be more wide than tall.
- Connect all words or phrases or lists with lines, to the center or to other "branches." When you get a new idea, start again with a new "spoke" from the center.
- When using Mapping to brainstorm for ideas, go quickly, without pausing—try to keep up with the flow of ideas. Do not stop too long to decide where something should go—i.e. to order or organize material—just get it down. Ordering and analyzing are "linear" activities and will disrupt the brainstorming process.
- When using Mapping to brainstorm, write down everything that you can think of without judging or editing—these activities will also disrupt the Mapping process.
- If you come to a standstill, look over what you have done to see if you have left anything out.
- You may want to use color-coding, to group sections of the Map.

Some Organizational Patterns That May Appear in a Concept-Map

- Branches. An idea may branch many times to include both closely and distantly related ideas.
- Arrows. You may want to use arrows to join ideas from different branches.
- Groupings. If a number of branches contain related ideas, you may want to draw a circle around the whole area.
- Lists. These are "linear" components of a Map, and are useful when the materials requires a list. If the list is ordered, then number the items. If not, you can use bullets.
- Tables. Tables are 2-way classifications of ideas, and can be part of a Map. Less useful when brainstorming.
- Pictures and doodles. Sometimes a small picture or doodle can represent many words. As a bonus, pictures seem to be better remembered than words!
- Explanatory/Exploratory notes. You may want to write a few sentences in the Map itself, to explain, question, or comment on some aspect of your Map—for example, the relationship between some of the ideas.
- By now you have figured out that anything goes, and that is correct.

Advantages of Mapping

Mapping may be seen as a type of brainstorming. Both Mapping and brainstorming may be used to encourage the generation of new material, such as different interpretations and viewpoints: however, Mapping relies less on intentionally random input, whereas, during brainstorming, one may try to think up wild, zany, off-the-wall ideas and connections. Brainstorming attempts to encourage highly divergent "lateral" thinking, whereas Mapping, by its structure, provides opportunity for convergent thinking, fitting ideas together, as well as thinking up new ideas, since it requires all ideas to be connected to the center, and possibly to one another. Paradoxically, the results of brainstorming usually appear on paper as lists or grids – both unavoidably linear structures: top to bottom, left to right. Mapping is less constrictive—no idea takes precedence arbitrarily (e.g. by being at the "top" of the list).

Here are some advantages of Mapping, which will become more apparent to you after you have practiced this technique a few times:

- It clearly defines the central idea, by positioning it in the center of the page.
- It allows you to indicate clearly the relative importance of each idea.
- It allows you to figure out the links among the key ideas more easily. This is particularly important for creative work such as essay writing.
- It allows you to see all your basic information on one page.
- As a result of the above, and because each Map will look different, it makes recall and review more efficient.
- It allows you to add in new information without messy scratching out or squeezing in.
- It makes it easier for you to see information in different ways, from different viewpoints, because it does not lock it into specific positions.
- It allows you to see complex relationships among ideas, rather than forcing you to fit non-linear relationships to linear formats, before you have finished thinking about them.
- It allows you to see contradictions, paradoxes, and gaps in the material—or in your own interpretation of it – more easily, and in this way provides a foundation for questioning, which in turn encourages discovery and creativity.

An “Active Reading” Procedure Using Concept Maps

Choose a section preferably not longer than 25 or 30 pages – perhaps one chapter, or a section of a chapter – which you can handle at one sitting. Work through the following sequence of steps.

1. Read the title, the introduction, and the conclusion (3-5 minutes).
2. Read the title, the introduction again, major subheadings, and the conclusion, again (5-10 minutes).
3. Read the title, the introduction one more time, all subheadings, the topic sentence of each paragraph – usually the first or second sentence, (you may read the last sentence as well, if you have time), any *italicised* or **boldfaced** words, lists (you can skim these), and the conclusion (10 minutes). (Force yourself to do steps 1 to 3 in less than 25 minutes.)
4. Close your textbook.
5. Make a Concept Map of all you can remember in the chapter. Do not stop until at least half an hour is up, even if you feel that you can't possibly remember any more – more will surface if you give yourself the time. **DO NOT REFER TO THE TEXT WHILE YOU ARE DOING THIS.** If you come to a dead end, try alternative memory techniques to the ones you have been using: associating ideas, either from within the section itself or from other related material; visualising pages, pictures, graphs etc.; recalling personal associations that may have come to mind; staring out the window and blanking out your thoughts; and so on. This is strenuous, but it is rewarding. It will show you exactly how much you have learned of what you have read. Give yourself a lot of time to do this, and you will probably be surprised at how much you actually can recall, and at how you can use all sorts of different strategies for remembering. You should also be noting down questions about things you have forgotten, so you can look them up

When you are finished, you should try to figure out how all the material you have remembered fits together – not necessarily as it is presented in the book, but as it is organised in your own thinking. Note down your opinions of it, questions about it, disagreements with it, and so on.

6. Check through the text and fill in any important information that you missed. Use a different colour of ink or some other way to mark this material that you forgot, so you can study it later.
7. At this point, you may wish to read through the entire chapter as you normally would, to make sure you did not miss anything. Then do another Map, from memory, to check whether you have learned the new material.
8. Revise. If you find that you are remembering less than 75% or 80% of what you read, you are reading too much before doing your review from memory. Review sooner, read the material again in more detail, and then do another, new, review, again from memory. For example, you could do the first concept map between steps 2 and 3.

Conversely, if you always remember 100% of what you read, you might want to challenge yourself a bit more, and read in more detail.